Swami Keshvanand Institute of Technology,
Management & Gramothan

Approved by AICTE, Ministry of HRD, Government of India
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Affiliated to Rajasthan Technical University, Kota

Brochures of Add-on/Certificate Programs (2021-22)

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The Spoken Tutorial Project

- Self-explanatory: uses simple language
- Audio-video: uses multisensory approach
- Small duration: has better retention
- Learner-centered: learn at your own pace
- Learning by doing: learn and practise simultaneously
- Empowerment: learn a new **FLOSS** (**F**ree/**L**ibre and **O**pen **S**ource **S**oftware)

Target Audience

High school, College and Engineering students

Pre-requisites for Basic level tutorials:

- Basic knowledge of electronics
- Electronic components and connections
- Knowledge of C programming

Additional Pre-requisites for Intermediate level tutorial:

- Assembly language

Workshops

The Spoken Tutorial Project Team conducts workshops on Arduino and other FLOSS using spoken tutorials and gives certificates to those who pass an online test.
For more details, please visit https://spoken-tutorial.org

Forum

We have developed a beginner friendly Forum to answer specific questions pertaining to any part of a particular tutorial.
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Forum help available to all learners

Content available in 22 Indian languages

IIT Bombay

Spoken Tutorial

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ARDUINO™

National Mission on Education through
Information and Communication Technology
(NMEICT)
www.sakshat.ac.in

Funded by MHRD, Government of India.

What is Arduino?

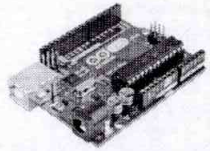
- Arduino is an open-source electronics platform used for building electronics projects.
- Arduino consists of both a physical programmable circuit board or microcontroller and a software IDE (Integrated Development Environment) that runs on the computer.
- It is used to write and upload computer code to the physical board.
- It is intended for making interactive projects.
- Download Arduino IDE from www.arduino.cc

Features of Arduino IDE

- Works on Linux, Windows and Mac operating systems
- Has many in-built functions that make programming simple and easy
- Easy to write code and upload it to the physical board
- Arduino IDE can be used with any Arduino board
- Can be easily adapted for IoT applications
- Arduino can be turned into IoT product by adding ESP8266 wifi module

Benefits of using Arduino Kit

- Arduino boards are less expensive compared to other microcontrollers platform.
- The Arduino programming environment is easy-to-use for beginners.
- For advanced users, the language can be expanded through C++ libraries and AVR-GCC programming language can be added to Arduino programs.
- The modules are published under a Creative Commons license, so circuit designers can make their own version of the module.
- Arduino platform was designed for hobbyists, students and professionals to create IoT applications that play in the human interface world using sensors, motors, etc.
- Arduino can interact with buttons, LEDs, LCDs, motors, speakers, cameras, TV and smartphones, etc.
- Arduino can be connected to one or more sensors to capture the data.



Spoken Tutorials in Arduino series

Basic Level

- Overview of Arduino
- Electronic components and connections
- Introduction to Arduino
- Arduino components and IDE
- First Arduino Program
- Arduino with Tricolor LED and Push button
- Arduino with LCD
- Display counter using Arduino
- Seven segment display
- Pulse Width Modulation
- Analog to Digital Conversion
- Wireless Connectivity to Arduino

Intermediate Level

- Assembly programming through Arduino
- Digital logic design with Arduino
- AVR-GCC programming through Arduino
- Interfacing LCD through AVR-GCC programming
- Mixing Assembly and C programming

Popular uses of Arduino

- Home automation (controlling lights, fans and other appliances) via Android smartphone
- Traffic light control
- PC controlled robotic arm
- Temperature controller
- Anti-theft camera system
- Automated irrigation system
- Feeder for Aquarium
- Garage parking
- Line follower robot

Components required to practise Arduino Spoken Tutorials

1. Arduino UNO or Compatible Board (1 no.)
2. USB Power Cable (1 no.)
3. Resistor 220 ohms (6 nos.)
4. Resistor 10K Ohms (2 nos.)
5. Resistor 1K Ohms (4 nos.)
6. Breadboard (1 no.)
7. Tricolor LED Common Cathode (1 no.)
8. Red LED Common Cathode (1 no.)
9. Seven segment display - Common cathode (1 no.)
10. Seven segment display - Common anode (1 no.)
11. Decoder – IC 7447 (1 no.)
12. LCD 16 X 2 soldered with pin header (1 no.)
13. Jumper wires Male to Male (20 nos.)
14. Jumper wires Male to Female (8 nos.)
15. Potentiometer 10K Ohms (1 no.)
16. ESP8266 es01 WiFi Black color Module (1 no.)
17. DHT11 Temp_Humidity Sensor Module (1 no.)
18. L293D H-Bridge Motor driver IC (1 no.)
19. Toy Motor (1 no.)
20. Buzzer (1 no.)
21. Push Button Switch (2 nos.)

Online web tutorials for Arduino
Contents

Basic Level

1. Overview of Arduino
   - Learning objectives of Arduino
   - Prerequisites for learning Basic level Arduino tutorials
   - Prerequisites for learning Intermediate level Arduino tutorials
   - Who can use Arduino?
   - Glimpse of Spoken Tutorials available on Arduino series
2. Electronic components and connections
   - Breadboard and its internal connections
   - LED and its connections
   - Tri-color LED
   - Resistor
   - Simple circuit using LED, resistor and breadboard
   - Common mistakes when using breadboard to make connections
   - Pushbutton and its connections
   - Common mistakes when using pushbutton to make connections
   - Seven segment display and its connections
   - Demonstration of all the above components
3. Introduction to Arduino
   - About Arduino device
   - Features of Arduino
   - Components of Arduino board
   - Description of Microcontrollers
   - Few examples where a Microcontroller is used
   - Installation of Arduino IDE on Ubuntu Linux OS
   - Run the arduino executable file
   - The Arduino IDE window
4. Arduino components and IDE
   - Set up a physical connection between Arduino and a computer
   - Connect the Arduino board to the computer using the USB cable
   - Various components available in Arduino hardware
     - ATMEGA 328 microcontroller chip
     - About Arduino BootLoader
     - Digital Pins
     - Analog Pins
     - Blinking LEDs that are helpful for troubleshooting
     - Ground Pins
     - External power adapter
   - Arduino programming language
5. First Arduino Program
   - Write an Arduino program to blink an LED
   - Arduino program is saved as Sketch
   - Default program environment with two empty functions -
     - setup - function for setting up a micro-controller

- loop - infinite loop
- Program to turn on the LED
- Compile the program into binary format
- Program to turn off the LED

6. Arduino with Tricolor LED and Push button
   - Tricolor LED - Common Cathode Tricolor LED
   - Other external devices that are required for this experiment
   - Understand the connection circuit details
   - Connect a tricolor LED to Arduino board
   - Write a program to blink tricolor LED
   - Use Pushbutton to control the blinking
   - How to reduce the delay of the blink
7. Arduino with LCD
   - Connect an LCD to Arduino board
   - See the details of the circuit connection
   - See how to do the soldering
   - Setup the components as per the circuit diagram
   - The aim is to write two strings on the LCD display
   - Write a program to display a text message on the LCD
8. Display counter using Arduino
   - Connect an LCD and a Push button to Arduino board.
   - Add a pushbutton and make a simple counter
   - Write a program in the Arduino IDE
   - See that pushbutton is working successfully
   - Modify the program to set a counter
   - Output: count is increased whenever the button is pressed
9. Seven Segment Display
   - Connect a seven segment display to Arduino board
   - Types of seven segment display
   - Connection details of common cathode seven segment display
   - Connection details of common anode seven segment display
   - Circuit connection explanation
   - Live setup of the connection
   - Program to blink LEDs in seven segment display
   - High and low state of LED's in the seven segment
   - Program to display digits 0 to 4 in seven segment display
   - Compile and upload the program
10. Pulse Width Modulation
    - About Pulse Width Modulation
    - About duty cycle and frequency
    - Formula to calculate the duty cycle
    - Experiment to control the brightness of LED by varying the duty cycle
    - Experiment to control the speed and direction of a DC motor
    - Circuit connection explanation of the above experiments
    - Source code for the above experiments
    - Demonstration of the output
11. Analog to Digital Conversion
    - About DHT11 sensor
    - Arduino resolution concepts
    - Circuit connection details of DHT11 sensor and Arduino
    - Features of DHT11
    - Download the DHT11 Arduino library to run this program.

- Code to detect the temperature and humidity using DHT11 sensor
- Display the output in the Serial Monitor screen
- Display the output in the Serial Plotter screen

12. Wireless Connectivity to Arduino
    - About ESP8266-01 WiFi module
    - Various pins of ESP8266-01 WiFi module
    - Circuit connection of ESP8266 - 01 module with Arduino
    - Setup the read-write permission to the USB port
    - Download and install ESP8266 WiFi module in Arduino IDE
    - Establish a connection between WiFi module and a laptop or a mobile phone
    - Source code for the above experiment
    - Demonstration of the output

Intermediate Level

1. Assembly of Robot
    - Components required to build a Robot
    - About soldering DC motors
    - Acrylic Robot Chassis with screws and nuts
    - Steps to mount the motor on the Chassis
    - Fixing the wheels of the Robot
    - Assembled Robot
    - About .apk file
    - About MIT App inventor to build an app
    - Code file for Car Bluetooth RC.apk
    - Steps to install the app on the Android phone
2. Robot Control using Bluetooth
    - Components required for Bluetooth communication
    - About Bluetooth communication
    - About Data Mode and AT Command Mode
    - Circuit connection details of Arduino board and HC-05 Bluetooth module
    - Actual setup of the connections
    - Program to control the movement of the Robot
    - Configure the Bluetooth in Android phone
    - Working of the Car Bluetooth RC App
    - Working of the Robot
    - Control the movement of the Robot using Bluetooth communication
3. Introduction to IoT
    - About IoT
    - IoT system components
    - About Thingspeak platform
    - Create an account in Thingspeak
    - Login to the account and create a new channel
    - Enter the channel information
    - Show the graph outline
    - Generate the API keys
    - Importance of Write API key and Read API key
    - Copy the Write API key
4. Sending data to the cloud using IoT devices
    - External components required for sending data to the cloud
    - About MQTT Protocol
    - Circuit connection of DHT11 and WiFi module with Arduino

- Setup the MB102 module on Breadboard
- Circuit connections required for the experiment
- Configure the ESP8266 module to communicate
- Download a DHT sensor library
- Program in Arduino IDE for interfacing WiFi module and DHT11 sensor
- Working of ThingSpeak channel
- Graph of temperature and humidity values from the DHT11 sensor in ThingSpeak platform
- Data Import/Export option to download the data as CSV file

Advance Level

1. Assembly programming through Arduino
   - Write an assembly program to display a digit on seven segment display
   - Arduino - Assembly code reference
   - Arduino ATmega328 Pin mapping
   - Connection circuit details
   - Installing AVRA and AVRDUDE assembler
   - How to connect and check the port number of Arduino
   - Assembly program to glow the dot LED on the seven segment display
   - Assembly program to display digit two on the seven segment display
   - Assembly program to display digit five on the seven segment display using decoder
   - How to save the file, assemble and upload to the Arduino
2. Digital Logic Design with Arduino
   - Write an assembly to verify the logical AND operation
   - Use the m328Pdef.inc file that is available in the code files link of this tutorial.
   - Explanation of the Source code for logical AND operation
   - Save the file and generate the.hex file
   - Upload the code to the Arduino
   - Displaying the output on the Seven segment display
   - Replace the program with or to perform logical OR operation
   - Replace the program with xor to perform logical XOR operation
   - Implement and verify the below combinational logics:
     - A = W′
     - B = WX′Z′ + W′X
     - C = WXY′ + X′Y + W′Y
     - D = WXY + W′Z
3. AVR-GCC programming through Arduino
   - Write an assembly program to display a digit on seven segment display
   - Arduino - Assembly code reference
   - Arduino ATmega328 Pin mapping
   - Connection circuit details
   - Installing AVRA and AVRDUDE assembler
   - How to connect and check the port number of Arduino
   - Assembly program to glow the dot LED on the seven segment display
   - Assembly program to display digit two on the seven segment display
   - Assembly program to display digit five on the seven segment display using decoder
   - How to save the file, assemble and upload to the Arduino
4. Interfacing LCD through AVR-GCC programming
   - Interface a LCD to Arduino board
   - Pin connections details of the Arduino and LCD
   - Image showing the connections
   - Live set up of the connections

- Write an AVR-GCC program to display a digit on LCD
- Using avr/io.h, util/delay.h, stdlib.h libraries in the program
- Using ClearBit() and SetBit() function
- Various functions used to excute the output
- Using make FNAME command to compile and upload to Arduino
- Displaying the output digit 5 on the LCD

5. Mixing Assembly and C programming
   - Combining Assembly and C programming
   - Explanation of the circuit connections
   - Live setup of the connection
   - Assembly routine program which initialises and sets pin 13 of Arduino as output
   - Call that Assembly routine in AVR-GCC program to blink the Dot LED of the Seven Segment display
   - Use the Makefile that is available in the code files link of this tutorial.
   - Explanation of the Source code of the subroutine and main program
   - Save the file and generate the .hex file
   - Upload the code to the Arduino
   - Display the output on the Seven segment display

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THE C PROGRAMMING LANGUAGE

C++

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Funded by MHRD, Government of India.

About C

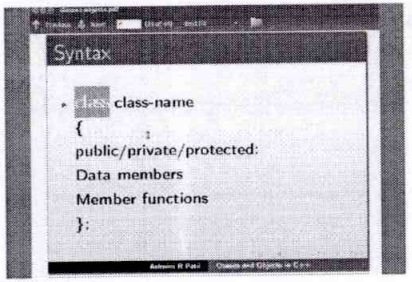
C is a general-purpose programming language, initially developed by Dennis Ritchie between 1969 and 1973 at Bell Labs. Its design provides constructs that map efficiently to typical machine instructions. C is one of the most widely used programming language and there are very few computer architectures for which a C compiler does not exist.

Features

- C has facilities for structured programming and allows lexical variable scope and recursion.
- All executable code is contained within subroutines, called "functions."
- C program source text is free-format, using the semicolon as a statement terminator and curly braces for grouping blocks of statements.
- Typing is static, but weakly enforced: all data has a type, but implicit conversions can be performed; for instance, characters can be used as integers.
- Complex functionality such as I/O, string manipulation, and mathematical functions are easy to implement with library routines.

About C++

- C++ is a statically typed, free-form, compiled, general-purpose programming language. It was developed by Bjarne Stroustrup starting in 1979, at Bell Labs.
- It adds object-oriented features such as classes, and other enhancements to the C programming language.
- The language began as enhancements to C, first adding classes, then virtual functions, operator overloading, multiple inheritances, templates, and exception handling among other features.
- C++ is also one of the most popular programming languages and can be implemented on most hardware and OS platforms.
- As an efficient compiler to native code, its application domains include:
- Systems software
- Application software
- Device drivers
- Embedded software
- High-performance server and client applications
- Entertainment software like video games



Features

- Classes: By using classes, we can create user-defined data types. A class is the collection of a set of data and code. An object is the instance of a class.
- Inheritance: Allows one data type to acquire properties of other data types. This provides the idea of reusability, that means we can add new features to an existing class without modifying it.
- Data Abstraction and Encapsulation: Encapsulation means hiding data from the data structures. Here, the data is accessible to only the functions that are allowed to access it. Abstraction means representing essential features without including background details.
- Polymorphism: means one interface can be used for multiple implementations, so that object can behave differently for each implementation.
- Dynamic Binding: At runtime, the code matching the object under the current reference will be called.

C and C++ Advantages

- Powerful and flexible: C/C++ are used for developing operating systems, compilers, parsers, interpreters, word processors, search engines and graphic programs.
- Support: C requires less runtime support
- Portable programming language: A variety of C/C++programm written for one computer system can be compiled and run on another system, with little or no change.
- Modular: Written in routines called functions and classes (C++), programs can be used in other applications or programs.
- Preferred by professional programmers: A variety of C/C++ resources and helpful supports are widely available.
- Standardised: Many standards have been documented, maintained and updated for C and C++ as standard references.

Online web tutorials for C and Cpp
Contents

Basic Level

1) **First C Program**

- -Header Files
  - example: #include <stdio.h>
- main()
- Curly braces { }
- printf()
- semicolon ;

- Compiling a C program
  - example: gcc filename.c -o output parameter
- Executing a C program
  - example: ./output parameter
- Errors

2) **First C++ Program**

- Header files
  - --example: #include <iostream>
- main()
- Curly braces { }
- -cout<<
- semicolon ;

- Compiling a C++ program
  - example: g++ filename.cpp -o output parameter
- Executing a C program
  - example: ./output parameter

3) **Tokens in C and C++**

- Data types, constants, identifiers
- Keywords
  - example: if, break, else
- Constants
- Data types
  - example: int, float, char, double
- Format specifiers
  - example: %d, %f, %c, %lf
- Range of data types
- Variables
- Identifier
- Errors

4) **Functions in C and C++**

- What is a function
- Syntax for declaration of a function
- Function with arguments
  - example: return-type function-name(parameter);
- Function without arguments
  - example: return-type function-name;
- Calling a function
- Errors

5) **Scope of Variables in C and C++**

- Introduction
- Syntax of declaring a variable
  - example: data-type var-name;
- Syntax for initializing a variable
  - example: data-type var-name = value;
- Scope of variables
- Global variable
- Local variable
- Error

6) **If And Else If statement in C and C++**

- What are Statements.
- Syntax for if and
- If-else Statement
- Errors

7) **Nested if and switch statement in C and C++**

- Nested if statement.
- Switch statement.
- Syntax for nested-if statement
- Syntax for switch statement
- break statement
- Comparison between nested if-else and switch statement
- Errors

8) **Increment and Decrement Operators in C and C++**

- Increment Operator
  - example: ++
- Postfix increment
  - example: a++
- Prefix increment
  - example: ++a
- Decrement Operator
  - example: --
- Postfix decrement
  - example: a--

- Prefix decrement
  - example: --a
- Typecasting
- Errors

9) **Arithmetic Operators in C and C++**

- Arithmetic Operators
- Addition Operator
  - example: a + b
- Subtraction Operator
  - example: a - b
- Multiplication Operator
  - example: a * b
- Division Operator
  - example: a \ b
- Modulus Operator
  - example: a % b
- Errors

10) **Relational Operators in C and C++**

- Double Equal to
  - example: a == b
- Not Equal to
  - example: a != b
- Greater Than
  - example: a > b
- Less Than
  - example: a < b
- Greater than Equal To
  - example: a >= b
- Less Than Equal To
  - example: a <= b
- Errors

11) **Logical Operators in C and C++**

- And &&
- Or ||
- Not !
- Errors

Intermediate level

12) **Loops in C and C++**

- Loops
- Syntax for while and do-while loop
- Comparison of while and do-while loop
- Syntax for
- for loop
- Errors

13) **Arrays in C and C++**

- What are arrays
- 1-D Arrays
- Syntax for Declaration of arrays
  - example: data type array_name [size];
- Syntax for Initialization of arrays
  - example: data type array_name [size]=value;
- Accepting values from the user
- Errors

14) **Working with 2-D Arrays in C and C++**

- What are 2-D Arrays.
- Range of arrays
- Syntax for Declaration of 2-D arrays
  - example: data type array_name[row][column];
- Syntax for initialization of 2-D arrays
  - example: data type array_name[row][column]=

{

{row-val},{col-val}

};

- Errors

15) **Strings in C and C++**

- What is a string
- Syntax for declaring a string
- Syntax for initializing a string
- To read a string from keyboard
- Errors

16) **String Library Functions in C and C++**

- What are string library functions.
- Types of string library functions
  - Strcpy
  - Strlen
  - Strcmp
  - Strcat
- Errors

Advanced level

17) **Working with Structures in C and C++**

- Introduction
- Syntax of structures
- Declaration and initialization
- Declaration of structure variable
- Accessing structure variables

18) **Understanding Pointers in C and C++**

- Introduction
- Syntax of Pointer
  - example: int *iptr;
- Declaration
  - example:

int a; (integer a) int *aptr; (pointer to an integer *aptr) aptr = &a; (aptr set to address of a) Address Pointer

- Errors

19) **Function call in C and C++**

- types of function calls
- function pass by value
- function pass by reference

20) **File Handling in C**

- File handling functions
- Opening a File closing a file
  - example: fopen, fclose
- Reading data from a File

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Java

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Introduction

- Java is the most popular class-based, object-oriented, high-level programming language.
- Developed by James Gosling at Sun Microsystems and released in 1995 as a core component of Sun Microsystems' Java platform.
- Derives much of its syntax from C and C++.
- Is typically compiled to bytecode (class file). It can be run on any Java Virtual Machine (JVM) regardless of the architecture.
- Is specifically designed to have few implementation dependencies.
- Is Intended to let application developers write a code that runs on one platform & does not need to be recompiled to run on another.

Java has characteristics of Object-Oriented languages

- **Inheritance:** Creating new classes & extending them to reuse the existing code and adding new features as needed.
- **Encapsulation:** combining the information and providing the abstraction.
- **Polymorphism:** Providing different functionality by the functions having the same name, based on the signatures of the methods.
- **Dynamic binding:** Providing maximum functionality to a program about the specific type at runtime.

Features

Platform independence:
Key feature of Java language is write-once-run-anywhere (WORA) concept. With Java, you can run the code written on any system.

Simplicity:
Programs are easy to write and debug. Java provides a bug-free system due to strong memory management.

Portability: Java feature write-once-run-anywhere makes it portable, provided that the system has an interpreter for JVM.
Also, Java has standard data size irrespective of the OS or the processor.

Performance: Uses native code and lightweight process called threads.
The advance version of JVM uses adaptive and just-in-time compilation technique to improve the total performance.

Distributed: Widely used protocols like HTTP and FTP are developed in Java.
Internet programmers can call functions on these protocols and can access the files from any remote machine on the internet, rather than writing codes on their local system.

Secure:
- Programs in Java run under an area known as the sandbox.
- Security manager determines the accessibility options of a class like reading and writing a file to the local disk.
- Uses public key encryption system to allow the java applications to transmit over the internet, in a secure and encrypted form.
- The bytecode verifier checks the classes after loading.

Robust:
Java has
- Strong memory allocation.
- Automatic garbage collection mechanism.
- Powerful exception handling.
- Type-checking mechanism.
- A compiler that checks the program for any errors and interpreter checks any runtime errors and makes the system secure from crashes.

Online web tutorials for Java

Contents

Basic Level

Introduction to Java

1. Getting started with Java – installation
   - Install jdk from Synaptic Package Manager
   - Choose openjdk-6-jdk from the list of packages available
   - Mark it for installation
   - The installation will take a few seconds
   - Verify the installation
   - At the command prompt type java -version, so the version number of the jdk will be displayed
   - Run a simple java program and see if it works
   - Type javac TestProgram.java for compiling the code and java TestProgram for executing the code
2. Java - First program
   - write simple java program
   - print "My First Java Program!" on Console
   - save the file
   - file name given to the java file
   - compile the file
   - run the file
   - correct the errors
   - naming conventions for class
   - naming conventions for method
   - naming conventions for variable

Eclipse

3. Installing Eclipse
   - Install Eclipse on Ubuntu on the Terminal
   - Set up the proxy on the Terminal
   - Then fetch the list of all the available softwares
   - Type sudo apt-get update
   - Then install eclipse on the Terminal
   - Type sudo apt-get install eclipse
   - Verify if Eclipse is installed on the system
   - Installing Eclipse on Debian,Kubuntu,Xubuntu
   - Installing Eclipse on Redhat
   - Installing Eclipse on Fedora,centos and suse linux
4. Getting started with Eclipse
   - Eclipse is an Integrated Development Environment
   - It is a tool on which one can write, debug and run java programs easily
   - Open Dash Home and type Eclipse in the search box.
   - We get Workspace Launcher
   - On clicking on Workbench we get the Eclipse IDE
   - Go to File->New->Project and select Java Project
   - Create a project named EclipseDemo and create a class inside DemoClass
   - Learn about Package Explorer and Editor portlet
5. Hello World Program
   - Open Eclipse
   - Create a Java Project named DemoProject
   - Create a class named DemoClass
   - Class name and file name will be the same
   - Eclipse suggests various possibilities as we type a command
   - Eclipse also completes the parentheses by automatically adding the closing parentheses
   - Include the statement that we want to print
   - Eclipse also completes the quotes by adding the closing quote

- Compile and execute the program
- Change the code to print

6. Errors and Debugging
   - When writing a Java Program, here is a list of typical errors:
   - Missing semicolon(;)
   - Missing double quotes(".")
   - Mis-match of filename and classname
   - Typing the print statement n lower case
   - The line which has the error will be indicated with a red cross mark on the left margin
   - The list of errors is displayed by hovering the mouse over the cross mark
   - Create a class ErrorFree with Errors, debug the code and run it
   - Eclipse also offers intelligent fixes
7. Programming features of Eclipse
   - Auto completion
   - Sets the corresponding closing brace when we open the brace
   - Provides a drop-down list of methods when you start typing the code.
   - Syntax highlighting
   - Classname is highlighted in pink color and method in blue color.
   - Keyboard shortcuts
   - F11 to debug a program and Ctrl plus H to search a specific file.
   - Error highlighting
   - Cross symbol in the program denotes errors
   - Remove semicolon and error details are displayed when mouse is hovered over cross symbol.

Fundamental Programming Structures in Java

8. Numerical datatypes
   - Define datatypes and numerical datatypes
   - int
   - float
   - byte
   - short
   - long
   - double
   - range of each numerical datatypes
   - declaration and initializationof numerical datatypes.
   - valid and invalid declaration
9. Arithmetic Operations
   - Define an operator
   - Define arithmetic operators
   - addition
   - subtraction
   - multiplication
   - division
   - modulo
   - simple program to demonstrate arithmetic operators
   - appropriate datatypes for appropriate values
   - save, compile and run the program
10. Strings
    - char datatype
    - letter, digit, punctuation marks, **tab**, or a space are all characters.
    - Program explaining the variable and the character data.
    - Introduction to strings
    - Creating string by Direct Initialization
    - Creating string by using new operator
    - String length()
    - String concat()
    - String toUpperCase()
    - String toLowerCase()
11. Primitive type conversions
    - define type conversion or type casting

- higher order integer to lower order integer- Explicit type casting
- program to show explicit type casting
- common mistake in explicit type casting.
- program to show common mistake in explicit type casting
- lower order integer to higher order integer – Implicit type casting
- program to show implicit type casting
- char to integer
- integer to char
- program to show char to int type casting.

Control flow

12. Relational Operations
    - boolean datatype
    - equal to and not equal to
    - less than and less than or equal to
    - greater than and greater than or equal to
13. Logical Operations
    - use of logical operators
    - and (&&) operator
    - example to explain **and** operator
    - program to demonstrate **and** operator
    - or (||) operator
    - example to explain **or** operator
    - program to demonstrate **or** operator
    - not (!) operator
    - program to demonstrate **or** operator
    - save, compile and run the programs
14. if else construct
    - Conditional Statements and types of Conditional Statements
    - Use of if statement
    - Syntax for if statement
    - Program using if statement
    - Use of if else statement
    - Syntax for if else statement
    - Program using if else statement
    - Use of if else if statement
    - Syntax for if else if statement
    - Program using if else if statement
15. nested if and ternary operator
    - explain nested if
    - nested if syntax
    - program to demonstrate nested if
    - explain the control flow of the program
    - explain ternary operator
    - syntax for ternary operator
    - explain the syntax
    - program to demonstrate ternary operator
    - comparison between ternary operator and nested if
    - save, compile and run the program
16. switch statement
    - define switch case statement
    - compare switch and nested if
    - switch case syntax
    - working of a switch case statement
    - use of keyword switch
    - valid and invalid use of keyword **case**
    - use of keyword default
    - use of keyword break
    - program to demonstrate switch case statement
    - save, compile and run the program to check the output

17. while loop
    - Loop control statement
    - types of loop control statements
    - Introduction to while loop
    - syntax of while loop
    - Program using while loop
    - Check the output.
    - Introduction to infinite loop
    - loop variable modification
    - Check the output
    - How to terminate the infinite loop
18. for loop
    - syntax
    - introduction to for loop
    - for loop syntax
    - loop vaiable
    - loop condition
    - loop variable increment or decrement
    - loop block
    - flow of loop
    - advantage of using loop
19. do while loop
    - define do while
    - do while syntax
    - working of do while loop
    - example of do while loop
    - explain the do while programming
    - save, compile and run the program to check the output
    - how different is it from the while loop
    - program to demonstrate the differences

Arrays

20. Introduction to Arrays
    - About Arrays
    - Declare an Array
    - Initialize an array
    - Intilalization using for loop
    - Index of an array elements
    - change values of an array
    - print the value of an array
    - Advantage of an array.
21. Array operations
    - import java.util.Arrays
    - use methods from class Arrays
    - toString() method
    - sort() method
    - fill() method
    - copyof() method
    - copyofRange() method
    - about parameters for each method.

Classes & Objects

22. Creating class
    - Whatever we can see in this world are all objects
    - Objects can be categorized into groups known as class
    - This is class in real world
    - Human Being is an example of class in real world
    - Class in java is the blue print from which individual objects are created
    - Class consists defines a set of properties called variables and a set of behaviors called methods
    - Syntax for creating class

- Create a simple class Student using Eclipse
- The Student class can contain properties

23. Creating Object
    - An object is an instance of a class
    - Each object consist of state and behavior
    - Object stores it state in fields or variables
    - It exposes its behavior through methods
    - Reference variables
    - Create a class named TestStudent
    - Create an object of the Student class
    - Use new operator
    - Check what the reference variable contains
    - Create one more object of the Student class and check what the reference variable contains
24. Instance fields
    - Also known as non-static fields
    - Open the TestStudent class which we have created
    - Access the fields roll_number and name using dot operator
    - See the output
    - Initialize the field and see the output
    - Change the modifier of the fields to private
    - Debug the error that you get
    - Change the modifier to protected
    - Each object of a class will have unique values
    - Create two objects of the Student class
25. Methods
    - method definition
    - write simple method
    - method returning value
    - call a method in another method
    - flow of the program
    - call a static method
    - call a method from another class
    - method signature
    - method body

Constructors

26. Default constructor
    - what is a constructor?
    - what is a default constructor?
    - when is it called?
    - define a constructor
    - initialize the variables
    - call the constructor
    - difference between constructor and method
27. Parameterized constructors
    - What is a parameterized constructor?
    - create constructor without parameter
    - create a constructor with parameter
    - assign values to the variables in the constructor
    - pass arguments during the constructor call
    - working of parameterized constructor
    - show common errors
    - resolve the errors
    - create another parameterized constructor
    - why to use constructor?
28. Using this keyword
    - this is a reference to the current object
    - helps to avoid name conflicts
    - we can use this keyword inside a constructor to call another one
    - the constructors must be in the same class

- explicit constructor invocation
- Explain it using the parameterized constructor code
- Make this statement the last one in the constructor
- You will get an error
- this statement should be the first one inside a constructor

29. Non-static block
    - Non-static block
    - Any code written between two curly brackets
    - Executed for each object that is created
    - Executes before constructor's execution
    - can initialize instance member variables of the class
    - create a class named NonStaticTest
    - Create a non-static block and a constructor inside it
    - Check the output
    - Include multiple non-static blocks
    - they will be executed in the sequence in which they appear in the class
    - Check the output
    - Non-static block is not a substitute for constructor
30. Constructor Overloading
    - define multiple constructor
    - what is constructor overloading?
    - constructor with different number of parameters.
    - parameters with different datatypes.
    - how is constructor overloaded?
    - flow of overloading process.
    - advantage of constructor overloading.
31. Method Overloading
    - define multiple methods.
    - methods with same name.
    - methods with different number of parameters.
    - methods with different datatypes of parameter.
    - what is method overloading?
    - example for overloadin method
    - how to overload method?
    - advantage of method overloading.
    - error in method overloading.
32. Taking user input in Java
    - What is BufferedReader?
    - Importing three classes from Java.io package
    - How to take the input from the user?
    - Syntax to implement BufferedReader
    - What is InputStreamReader?
    - Create object of InputStreamReader
    - Create object of BufferedReader
    - About IOException
    - About throws keyword
    - Typecasting

Intermediate Level

1. Subclassing and Method Overriding
    - Definition of subclassing
    - Demo of subclassing using an Employee and Manager class
    - Single inheritance
    - Use of extends keyword
    - Private members in a super class
    - Definition of method overriding
    - Annotation
    - @Override Annotation
2. Calling methods of the superclass
    - super keyword
    - Call methods of the super class

- Constructor of the super class
- Demo of super keyword using an Employee and Manager class
- Single inheritance
- Use of extends keyword
- Private members in a super class

3. Using final keyboard
   - final keyword
   - What is final keyword and its application?
   - Where final keyword can be declared?
   - final variable
   - final static variables
   - static block
   - final variable as parameter
   - final method
   - private final method
   - final class
4. Polymorphism
   - Polymorphism in Java
   - Run-time polymorphism
   - Virtual Method Invocation
   - Compile-time polymorphism
   - Role of JVM
   - IS-A test
   - Static binding
   - Dynamic binding
5. Abstract Classes
   - Abstract Classes in Java
   - What are Abstract Methods
   - What are Concrete Methods
   - Properties of Abstract Methods and Abstract Classes
   - How to use Abstract Methods
6. Java Interfaces
   - Java Interfaces
   - Implementing Interface
   - Implementation Classes
   - Interfaces Vs Abstract classes
   - Implementing Multiple Interfaces
   - Usage of Interfaces with an example
7. Static Variables
   - What is Static Variable in Java?
   - Usage of Static Variables with Example
   - Static Variables Vs Instance Variables
   - Final Static Constants
8. Static Methods
   - What is static method in Java?
   - Static methods Vs Instance methods
   - Usage of static method with example
   - Passing object variables in a static method
9. Static Blocks
   - What is a static block
   - Declaring and defining a static block
   - How static blocks are invoked and executed
10. Exception Handling
    - What is an Exception
    - Types of Exceptions
      1. Checked Exceptions
      2. Unchecked Exceptions
    - Explaining *ArrayIndexOutOfBoundsException*
    - Demonstrating Checked Exceptions with example
    - Handling Exceptions using try-catch blocks

- Explaining *ArithmeticException*
- Demonstrating Unchecked Exceptions with example
- Explaining *FileNotFoundException*
- Usage of finally block
- Explaining *NullPointerException*

2. Custom Exceptions
   - What is a Custom Exception
   - Demonstration of custom exception
   - Custom exception example - "InvalidMarkException"
   - Usage of "throw" keyword
   - How to resolve errors in custom exceptions
   - Resolve error using "Add throws declaration" option
   - Usage of "throws" keyword
   - Example for "FileNotFoundException"
   - How to handle multiple exceptions
   - How to use "surround with try/catch" option

About the Spoken Tutorial project

- Self explanatory - uses simple language
- Audio-video - uses multisensory approach
- Small duration - has better retention
- Learner-centered - learn at your own pace
- Learning by doing - learn and practice
- Simultaneous empowerment - learn a new FLOSS

Target Audience

- People interested in developing their own websites

Workshop

The Spoken Tutorial Project Team conducts workshops on Joomla and other FLOSS using spoken tutorials and gives certificates to those who pass an online test.

For more details, please write to contact@spoken-tutorial.org

The Spoken Tutorial Project is funded by the National Mission on Education through Information and Communication Technology, Ministry of Human Resource Development, Government of India.

Contact US:

Email: contact@spoken-tutorial.org

Website: https://spoken-tutorial.org

Spoken Tutorial

https://spoken-tutorial.org

Joomla!®

National Mission on Education through Information and Communication Technology (NMEICT)
www.sakshat.ac.in

Funded by MHRD, Government of India.

Introduction

- Joomla is a popular Content Management System (CMS).
- It is free, Libre and open source software.
- It is used to manage the content of a website. It lets a user create, edit, modify and remove content from a website without knowing programming skills.
- It is used by many corporates, educational institutes, eCommerce companies to create and maintain their website.

Download and Installation

Prerequisites for installing Joomla:

- To install Joomla 3.4.1, the machine should support:
  - Apache 2.x + or IIS 7 +
  - MySQL 5.0.4 + and
  - PHP 5.2.4 +
- Start XAMPP service
- Add user and create a database for Joomla using phpMyadmin

Installing Joomla on Local Server:
Donwload Joomla from
https://downloads.joomla.org

Features

- Joomla works on Linux, Windows and Mac operating systems
- Joomla is easy to navigate on all devices
- Joomla has a 3-tiered system of articles which makes organizing content very user-friendly
- Joomla has a built-in registration system that allows users to configure personal options
- Joomla support multiple authentication protocols, including LDAP, OpenID, and even Google mail The security controls keep our data safe and protected
- The Joomla user community and forum very active and helpful
- Free plugins available in Joomla make it feature-rich
- Joomla's search feature helps navigate users to most popular search items and provide the admin with search statistics
- Joomla's RSS features allows users to subscribe to new content in their favorite RSS reader
- Joomla admin can use templates to make the site look exactly the way they want
- This can be done using a single template for the entire site or a separate template for each site section.

Who can use Joomla CMS?

- Corporates to make their website
- Educational institutions
- Media houses
- Ecommerce websites

Spoken Tutorials in Joomla Series

- Overview of Joomla
- Installing Joomla on a localhost
- Installing Joomla on windows
- Common mistakes and uninstalling Joomla
- Creating Articles in Joomla
- Article Options in Joomla
- Formatting Articles in Joomla
- Categories in Joomla
- Menus in Joomla

Online web tutorials for Joomla
Contents

Basic Level

1. **Overview of Joomla**

- Explain the concept of Content Management System
- Introduce Joomla as a CMS
- Software and hardware requirements for running Joomla
- OS and Joomla version to be used for the series
- Overview of the key features that will be demonstrated in the Joomla series

2. **Installing Joomla on localhost**

- Install Joomla on Linux machine
- Cross verify the installation

3. **Installation of Joomla on windows**

- Pre-installation checks
- Database Connection check
- FTP Configuration
- Main Configuration
- Installation of sample data
- Install Joomla on windows machine

4. **Common mistakes and uninstalling Joomla**

- Explain the common mistakes that happen when installing Joomla
- Demonstrate solutions to those mistakes
- Explain how to uninstall Joomla

5. **Creating Articles in Joomla**

- Explain about Article Manager in Joomla
- Create a new Article
- Edit and existing Article
- Make a copy of an article
- Delete an article

6. **Article Options in Joomla**

- Explain about status of an article
- Explain about various publishing options
- Explain about the global options for articles

7. **Formatting Article in Joomla**

- Demonstrate basic formatting for an article
- Explain about styling an article text
- Demonstrate how to insert lists, page breaks and read more link.

8. **Categories in Joomla**

- Explain about Category Manager

- Explain how to create and edit categories
- Explain how to create sub-categories
- Explain how to assign articles to a category
- Explain how to move or copy articles to a different category
- Explain the difference between deleting and unpublishing a category and how to perform the two operations

9. **Menus in Joomla**

- Explain menus and their importance in Joomla
- Explain about Menu Manager
- Explain how to create menu items and submenus
- Demonstrate how to change the default homepage
- Explain how to unpublish menu items

The Spoken Tutorial project

*Self-explanatory - uses simple language

*Audio-video - uses multisensory approach

*Small duration - has better retention

*Learner centered - learn at your own pace

*Learning by doing - learn and practice simultaneously

*Empowerment - learn a new FOSS

Target Group

*Students - High School and College

*Working professional - Software users, developers and trainers

*Research scholars

*Community at large

Workshops

The Spoken Tutorial Project Team conducts workshops on LaTeX and several FOSS using spoken tutorials and gives certificates to those who pass an online test.

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Contact us

Email: contact@spoken-tutorial.org

Website: http://spoken-tutorial.org

IIT Bombay

Spoken Tutorial

LaTeX

National Mission on Education through Information and Communication Technology (NMEICT)
www.sakshat.ac.in

Funded by MHRD, Government of India

http://spoken-tutorial.org

What is LaTeX?

aTeX is a document preparation system for
igh-quality typesetting. Often used for
echnical or scientific documents, it can
e used for almost any form of publishing:
etter, report, textbook, etc...
aTeX lets authors get with writing
locuments without being bothered about
locument design.

)ownload LaTeX from
ttp://tug.org/begin.html

Benefits of LaTeX:

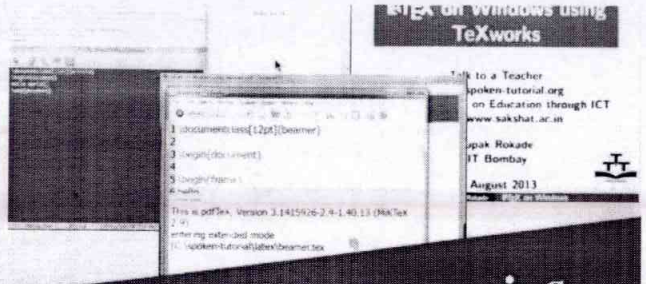
enefits of LaTeX:

Works on all OS: Linux, Windows, Mac OSX.
Easily typesets journal articles, technical
eports, books and slide presentations.
Controls large documents containing
ectioning, cross-references, tables and
igures.
Typesets complex mathematical
ormulae with ease.
Advanced typesetting available for
mathematical equations.
Automatic generation of bibliographies
nd indexes.
Multi-lingual typesetting.

*Inclusion of artwork and process or spot colour.
*U s PostScript or Metafont fonts.
*Very active user community.

Xfig

*Xfig is a free and open source vector graphics editor. It is a drawing tool for use on the Linux and UNIX services.
*Xfig was written by Supoj Sutanthavibul in 1985.
*In Xfig, figures may be drawn using objects such as circles, boxes, lines, spline curves, text etc.
*It is also possible to import images in formats such as GIF, JPEG, EPS, PostScript etc.
*These objects can be created, deleted, moved or modified. Attributes such as colours or line styles can be selected in various ways.
*Xfig has a facility to print figures to a Post-Script printer too.
*Convenient feature is the PSTEX or PDFTEX export format. This allows a smooth integration of Xfig-generated images into LaTeX documents.
*Most operations in Xfig are performed using the mouse. But some operations may also be performed using keyboard (accelerators) shortcuts.
*The interface is designed for a three-button mouse, although it is also possible to use a two button or a one button mouse with appropriate emulation.



Tutorials in the series

*LaTeX on Windows using TeXwork
*What is Compiling?
*Letter Writing
*Report Writing
*Mathematical Typesetting
*Equations
*Tables and Figures
*Beamer
*Bibliography
*Inside story of Bibliography
*Simple block diagram
*Feedback control diagram
*Feedback diagram with Maths

These tutorials are also available in many Indian languages such as English, Hindi, Bengali, Bhojpuri, Gujarati, Kannada, Marathi, Sanskrit, Tamil, Telugu.

Online web tutorials for LaTeX
Contents

Basic Level LaTeX

1. LaTeX on Windows using TeXworks
   - Installing MikTeX on Windows
   - Writing basic LaTeX document using TeXworks editor
   - Configuring MikTeX to download missing packages
2. Report Writing
   - report style having chapter, section and subsection
   - article style having section, subsection and subsubsection
   - Automatic generation of table of contents
   - toc file to store the information that goes into the table of contents
   - Automatic numbering of section numbers
   - Appendix; its appearance in report and article style
   - exiting from LaTeX when a compilation error occurs
3. Letter Writing
   - Letter document class
   - From address
   - Automatic generation and format of date
   - Starting a new line with double slash
   - To address
   - Starting a new paragraph with a blank line
   - itemize environment for bullet points
   - enumerate environment for numbered points
   - Closing statement
   - Signature
   - Carbon copy
4. Mathematical Typesetting
   - $ sign to begin and end mathematical expressions
   - Creating alpha, beta, gamma and delta
   - Space being used as a terminator of symbols
   - Creating spaces in mathematical formulae
   - Difference in font of text and formula
   - Difference in the minus sign in text and in formula
   - frac command to create fractions
   - Subscripts and superscripts
   - Use of braces {} to demarcate arguments
   - Not equal to, greater than or equal to, less than or equal to, much less than
   - Right arrow, left arrow, left right arrow, up arrow
   - Integral sign, limits of an integral
   - Matrices of different rows and columns
5. Equations
   - amsmath package and align and align* environments to create equations
   - Matrix differential equation
   - aligning two equations using &, with and without intervening text
   - Automatic numbering of equations using align
   - Labeling equations with the label command
   - Cross referencing equation numbers through the ref command
   - Inserting text between two aligned equations through the intertext command

- Automatic generation of equation numbers at run time allows insertion and removal of an equation from a set of equations
- Labeling sections and subsections for easy and fool-proof cross referencing
- Breaking an equation into more than one line
- Suppression of equation numbers in the align environment using the nonumber command
- Use of backslash (\) to make braces appear as braces
- left[. right] and also left[. (i.e. left bracking fullstop)
- Blank lines in the align environment is not permissible

6. Numbering Equations
   - amsmath
   - numbering equations
   - align environment
   - nonumber command
   - labelling equations with the label command
   - cross referencing equations with the ref command
   - case dependence of variables in label command
   - taking help from stackexchange
   - learning from ltx-primer.pdf
   - typing if-else with cases command
7. Tables and Figures
   - Creating tables and figures in Latex
8. Beamer
   - Creating a presentation using a Beamer
9. Bibliography
   - Creaing Bibliography in Latex

Intermediate Level

1. Feedback diagram with Maths
   - Open the .fig file saved in the feedback control tutorial
   - Put SG(z) = \frac z{z-1}$ in the second block diagram
   - Choose the special flag
   - Save and export it as combined tex and pdf
   - Show that if "special" is not chosen, we get only text
   - Change /frac into /dfrac
   - Show that at the time of compilation, dfrac unknown error
   - Include \usepackage{amsmath} in the tex file
   - Recompile it and show that the equation is now coming properly
   - Use pdfcrop to trim the pdf file, mention Briss
2. newcommand in LaTeX
   - What is a command?
   - Different types of commands with examples
   - Defining a new command
   - Defining short commands for long repeated input.
   - Commands with parameter
   - Passing parameters to the commands defined
   - Renewcommand
   - Redefining the existing commands to the required output
3. newenvironment in LaTeX
   - What is an environment?
   - Defining a new environment
   - Defining environments with parameters
   - Renewenvironment
   - Redefining an existing environment to the required output
4. Writing Style Files in LaTeX

- About LaTeX Styles files.
- Writing a Style file for LaTeX.
- Importing a Style file in LaTeX.
- Defining a standard Style file for LaTeX.
- newcommand in LateX.newenvironment in LaTeX.
- RequirePackage command in LaTeX.
- usepackage command in LaTeX.
- Style file identification.
- Preliminary declarations of a Style file.
- NeedsTeXFormat.
- ProvidesPackage.

5. Indic Language Typesetting in LaTeX
   - Typeset a document in Indic language using XeLaTeX.
   - Indic language fonts bundle.
   - Installing Indic language Fonts.
   - Installing Nirmala UI Fonts.XeLaTeX Compiler.
   - Using Fontspec package.
   - Using Polyglossia package.
   - Select language command.
   - Set default language in LaTeX.
   - Set other language in LaTeX.

Course: C and Cpp

Course Code: EE-C

Session: 2021-22

Duration: 4 Months

Assessment procedures: proctored certification Exam (100%)

Curriculum of the Course:

Month 1

Introduction of Programming Languages

'C' Tokens

Control Statement and Expressions

Looping

Arrays and String

Functions

Pointers

Structure and Unions

File Handling using 'C'

Month 2

Dynamic Memory Allocation

Storage Classes and Pre-processor

Programming in 'C++'

Month 3

Introduction to Object Oriented Programming

'C++' Tokens and Type Casting

Classes & Objects

Function in 'C++'

Constructors and Destructor

Operator Overloading

Month 4

Inheritance

Working with files

Exception Handling

Use of throw keyword

List of students enrolled

S. No	Name of Student
1	ABHAY SINGH
2	ABHISHEK CHOUDHARY
3	ABHISHEK SHARMA
4	ABHISHEK SHARMA
5	ABHISHEK CHANDEL
6	ABHISHEK VERMA
7	ADITYA MEGHWAL
8	ADITYA VIJAY
9	AISH KHAN
10	AKANSH KUNTAL
11	AKASH RAWAT
12	AKHIL UPADHYAY
13	AKSHAT JINAKAR
14	AKSHIT TIWARI
15	ANJALI THAKUR
16	ANKIT KASANA
17	ANKITA MEENA
18	ANSHIT KUMAR
19	ANURAG KUMAR KUMAR
20	ASHISH SHARMA SHARMA
21	AVIRAJ RATHORE
22	CHETAN SHARMA
23	DEEPAK MEENA
24	DHRUVESH SUROLIA
25	DIKSHA SAMBHARIYA
26	DIPESH VERMA
27	DIVYA CHACHLANI
28	DIVYANSU BHARTIA
29	DOLLY MALIK
30	DUSHYANT KALODIA
31	FAISAL MOHAMMAD
32	GAURANG JAIN
33	GAURAV NAMDEV
34	GAURAV SWAMI
35	GAURAV TYAGI
36	GAURAV VERMA
37	GOURAV KUMBHKAR
38	HARIKISHAN JANGID
39	HARSH BRAHMBHATT
40	HARSH NAROOKA
41	HIMANSHU KACHHAWA
42	ISHAN YADAV
43	JATIN DHAKAD
44	JAYANT YADAV
45	JAYESH CHHAWACHHARIA
46	KAMAL KISHORE
47	KANHAIYA PARSOYA
48	KANIKA PALIWAL
49	KANISHK PRATAP
50	KARAN VASHISHTH
51	KARTIK SONI
52	KAVISH JAIN
53	KHEM SINGH
54	KHUSHI KAKKAD
55	KRATI LAKHANI
56	KUNAL SHARMA
57	LAKSHIT ARORA
58	MR LAKSHYA
59	LALIT SONI
60	LOKESH KUMAWAT
61	MADHAV MITTAL
62	MAHI JAIN
63	MANDEEP HINGONIA
64	MAYANK JANGIR
65	MAYANK MALAV
66	MOHAMMAD SAHIL
67	MOHIT CHAHAR
68	MOHIT SONI
69	MONIKA DUDI
70	MOOKAL GOTHWAL
71	MRITYUNJAY KUMAR
72	MUKUL GUPTA
73	MUMAL BHATI
74	MR MUSTFA
75	NAMAN JAIN
76	NAMAN SAINI
77	NATASHA KAUSHIK
78	NAVNEET KUMAR
79	NAVYA SHARMA
80	NEERAJ GARG
81	NEHA SHARMA
82	NIKITA CHOUDHARY
83	PARTH CHAHAR

84	PARTH DEVAL DEVAL
85	PAYAL MEENA
86	PIYUSH BALDWA
87	PIYUSH RATHI
88	PRABUDDH SAINI
89	PRAKHAR SAXENA
90	PRIYANSHU RAWAT
91	PULKIT GUPTA
92	PULKIT TIWARI
93	PULKIT YADAV
94	RAGHUVEER MEENA
95	RAHUL KUMAWAT
96	RAHUL MEENA
97	RAHUL SINGH
98	RAJAT CHAUDHARY
99	RAJESH SINGH
100	RAJKUMAR SAIN
101	RANJAN TIWARI
102	RIAZ AHMED
103	RIMJHIM BENIWAL
104	RINTAM SHEKHAWAT
105	RISHANK MITTAL
106	RISHI SHARMA
107	RISHIRAJ NAGAR
108	RITURAJ SHARMA
109	ROHIT KUMAR
110	ROHIT SHARMA
111	RUCHIKA JAIN
112	SACHIN MEENA
113	SACHIN YADAV
114	SAHIL KHANDELWAL
115	SAKSHI JAIN
116	SANDEEP KUMAR
117	SANYAM LODHA
118	SARLA KARWASARA
119	SATYANAND KANDELA
120	SAURABH GARG
121	SAURAV KUMAR
122	SAURAV SINGH
123	SHAGUN KUMAR
124	SHAHAAN KHAN
125	SHAHRUKH MOHAMMD
126	MISS SHITAL
127	SHIVAM KUMAR
128	SHIVKESH MEENA
129	SHREYA PANDEY
130	MR SHUBHAM
131	SHUBHAM DHAKAD
132	SHUBHENDRA SINGH
133	SHYANU KUMAR
134	SIDDHARTH AGARWAL
135	SOURBH SAHARAN
136	SUMIT VERMA
137	SUNIL MEENA
138	SURYANSH ARYA
139	TANISHQ RATHORE
140	TANU GAUTAM
141	TUSHAR SONI
142	UTKARSH MAHESHWARI
143	VAIDEHI MUDGAL
144	VANSHIKA NIRWAN
145	VINAM CHOUDHARY
146	VINAY YADAV
147	VISHAL CHAUDHARY
148	VISHAL VERMA
149	VISHALKUMAR GOYAL
150	YASH JINDAL
151	YASH RAJ
152	YASH SAINI
153	YASH SONI
154	YASH SONI
155	YATHARTHA SOLANKI
156	YUKTI YADAV
157	YUVRAJ PANDIT
158	YUVRAJ SINGH
159	YUVRAJ SINGH

Assessment procedures: proctored certification Exam (100%)

Course: Advanced Cpp

Session: 2021-22

Duration: January - June, 2022

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

1) Classes and Objects in C++

- Defining classes
- Create a class
- Defining objects
- Create an object of the class
- Member functions
- To create a function
- Encapsulation
- Data abstraction

2) Constructor and Destructor

- Constructor and Destructor
- To create a constructor
- Parameterized constructors
- Default constructor
- Destructor

3) Static members in C++

- Static Keyword
- Static variable
- Static member function

4) Inheritance

- Inheritance
- Concept of subclass and superclass
- Types of inheritance

- Single level inheritance
- Multilevel inheritance

5) More on Inheritance

- Multiple Inheritance
- Derived class inherits from more than one base class
- Hierarchical Inheritance
- Multiple derived classes inherit from one base class

6) Function overloading and overriding

- Function overloading
- Function overriding
- Difference between both

7) Polymorphism in C++

- Polymorphism
- Virtual Members
- Virtual Function

8) Abstract class in C++

- Pure virtual function
- Abstract methods

9) Friend Function

- Friend function

10) Exception Handling

- Exceptions
- Try
- Throw
- Catch

List of students enrolled

1	AKASH YADAV
2	AAROHI MALSARIA
3	ABHAY RAJ SHUKLA
4	ABHIJEET AGARWAL
5	ABHIJEET MATHUR
6	ABHIJEET GIRI
7	ABHISHEK KUMAR
8	ADITYA RAWAT
9	AKSHITA SHARMA
10	ALISHA AGARWAL
11	AMAN SONI
12	AMEEN ZEHRA
13	ANMOL GUPTA
14	ANUPAM JAIN
15	ARSH LAKHWAL
16	ARYAN SHARMA
17	ARYAN BIRLA
18	ASHLESH SINGH CHOUHAN
19	BHAVESH AGARWAL
20	CHIRAG GURNANI
21	DEEPANSHU KHANDELWAL
22	DEVANG JOSHI
23	DISHIKA SHARMA
24	DIYA SHARMA

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25	GARVIT KHANDELWAL
26	HARDIK SHARMA
27	HIMANSHU SHARMA
28	HIMANSHU AGARWAL
29	ISHIKA PATNI
30	JAI KUMAR BISARIA
31	JAI PRAKASH ANAND
32	JASHAN .
33	KARAN SHARMA
34	KARISHMA KUMAWAT
35	KHUSHI RAJAWAT
36	KRISH YADAV
37	LOKENDRA PAL RATHORE
38	LOVESH CHHABRA
39	MANAV SINGH
40	MOHIT RAMNANI
41	NAMAN TAK
42	NANDANI KHANDELWAL
43	NAVNEET KAUR
44	NIGHAT SHAKOOR
45	OMISHA PAREEK
46	PIYUSH YADAV
47	PRATEEK SHARMA
48	RAHUL KUMAWAT

49	RAJ TIWARI
50	RAVI KUMAR
51	ROHAN RAJ RAJ
52	ROHIT JAIN
53	RUCHI SINGH
54	SAFIYA KHAN
55	SANYAM BHURA
56	SATVIK PRIYADARSHI
57	SATYAM SINGH SENGER
58	SAURABH MISHRA
59	SAXAM DIXIT
60	SHAILENDRA RATHORE
61	SHIVANSH AGARWAL
62	SHIVIN SHYAM KASAT
63	SHREYA JHA
64	SIDDHARTH MEENA
65	SNEHAL JAIN
66	TANU SHARMA
67	TARIQ ABDUL GHANI
68	UJJAWAL SHARMA
69	VANSHAJ KATARIA
70	VARUN MATHUR
71	VIBHANSH JAIN
72	VIJAY JANGID

73	VIKRAM PAL
74	VISHAL KUMAR

Course: GIT

Session: 2021-22

Duration: January - June, 2022

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

Basic Level

1. **Overview and Installation of Git**

- Explain about Version Control System
- Explain about Git
- Explain about the salient features of Git
- Explain who can use Git
- Complete installation of Git

2. **Basic commands of Git**

- Explain the Git repository
- Explain about .git folder
- Explain how to configure Git with user name and email id
- Explain about staging area
- Explain about SHA-1 hash
- Initialize a Git repository using git init command
- Add files into Git repository using git add command
- Check the Git status using git status commit
- Explain how to save/commit changes using git commit command
- Show how to see the Git logs using git log command

3. **The git checkout command**

- Explain how to add multiple files into Git repository
- Demonstrate how to remove a file from Git repository
- Explain how to restore the removed file
- Discard the latest changes made to a file or set of files
- Show how to display all the Git logs in a single line
- Explain how to go to previous revisions
- Explain how to revert to latest revision

4. **Inspection and Comparison of Git**

- Explain how to compare two commits
- Explain how to compare the latest changes with an earlier commit
- Use of git diff command

- Use of git show command
- Use of git blame command
- Explain how to access help manuals

5. **Tagging in Git**

- Explain about tagging
- Types of tagging
- Explain how to use lightweight tag
- Explain how to use annotated tag
- Differences between lightweight tag and annotated tag
- Explain why the annotated tag is preferable

6. **Branching in Git**

- Importance of branching
- Explain about the default branch
- Explain about how to create a branch
- Demonstrate how to work branches
- Explain how to switch between branches
- Displaying commits of different branches

7. **Merging and Deleting branches**

- Explain what is merging
- Explain how to merge two branches
- Explain how to revert a merge
- Explain how to delete a branch after merging
- Explain how to delete a branch before merging

8. **Stashing and Cleaning**

- Explain what is stashing
- Importance of stashing
- Creating stashes
- Explain how to list the stashes
- Explain the stash id
- Explain the ways of applying a stash
- Deleting a stash
- Deleting all the stashes at once

Intermediate Level

9. **Hosting Git Repositories**

- Explain Git repository hosting services
- Explain why to choose GitHub

- Creating an account in GitHub
- Creating a repository in GitHub
- Demonstrate how to manage files in GitHub
- Creating a branch in GitHub repository
- Creating a tag in the repository

10. **Working with Remote Repositories**

- Explaining what is a remote repository
- Synchronizing data to a remote repository

List of students enrolled

1	AARUSH GOYAL
2	ABHINAV SINGH
3	ADISH JAIN
4	ADITYA GARG
5	ADITYA GUPTA
6	AKSHITA PATIDAR
7	AMAN KHAN
8	AMIT KUMAR
9	AMIT SINGH
10	ANJALI SHARMA
11	ANKIT SHARMA
12	ANSH GUPTA
13	ANSHUL SISODIYA
14	ARCHIT BAJPAI
15	ARPIT AGRAWAL
16	ARPIT JAIN
17	ARYAMAN CHAUDHARY
18	MR. ARYAN

19	ARZOO JALENDRA
20	ASHISH SHARMA
21	Avadhesh Chasta
22	AVDHESH BEHL
23	AVINASH GUPTA
24	BHANU PRATAP SINGH
25	BHAVESH GHORELA
26	DEEPESH GUPTA
27	DEVANSHI DADHICH
28	DEVENDRA KAUR
29	DIVYA RAMANI
30	DURGESH MISHRA
31	ESHITA GOYAL
32	GARVIT TAMBI
33	GAURAV SHARMA
34	GITESH KHATRI
35	HANSIKA AGARWAL
36	HANU SINGH KUMAWAT
37	HARDIK TYAGI
38	HARSH TRIVEDI
39	HARSH VARDHAN
40	HARSHIT SHARMA
41	HARSHIT VERMA
42	HIMANSHU VASISTHA
43	HITEN JAIN

44	JAI VEER SINGH
45	JAY SHRIVASTAVA
46	JAYANT KUMAR MEHRA
47	JIGYASA KARODIWAL
48	KANIKA SINGHAL
49	KARTIK SHARMA
50	KAVISH JARADI
51	KESHAV MEENA
52	KHUSHI SA RATHORE
53	KRATIK JAMBOO KHANDELWAL
54	KUMARI RIDHI
55	KUMARI SIDHI
56	KUNAL VERMA
57	KUSUM SHARMA
58	LOKESH PATIDAR
59	MALIKA KHANDELWAL
60	MANAN PUROHIT
61	MANISH SAINI
62	MANISHA BALANI
63	MANOJ GARG
64	MANOVIRAJ SINGH SHEKHAWAT
65	Mansha Modi
66	MEHAK JAIN
67	MOHIT AGARWAL
68	MOIN ALI

69	MUDIT DHINGRA
70	MULKIT SAIN
71	NEHA MAHESHWARI
72	NEHA MAHESHWARI
73	NISHANT KUMAR
74	Nitin Sharma
75	PARUL JAIN
76	POOJA JANGID
77	PRAKHAR JAIN
78	PRATEEK THOLIYA
79	PRATIK SINGH
80	PRIYANSHU LOHAR
81	PRIYANSHU SHARMA
82	PULKIT GUPTA
83	RAGHAV AGARWAL
84	RAGHVENDER SINGH CHAUHAN
85	RAHUL KUMAR BALAI
86	RAJAT GUPTA
87	Rakshita Agarwal
88	RASHI KINRA
89	RASHI SHARMA
90	RITRIK ROHRA
91	ROSHAN KUMAR JHA
92	RUDRA PRATAP SINGH
93	SALONI CHHAPARWAL

94	SAMRITI DEVI
95	SANJANA JAWARIA
96	SANJAY KUMAR
97	SARIM UR REHMAN
98	SARTHAK BHATIA
99	SARTHAK SHARMA
100	SAURABH CHOUDHARY
101	SAURABH SINGH JAT
102	SHARAD SOURABH JHA
103	SHIV PRATAP SINGH CHOUHAN
104	SHIVAM GARG
105	SHIVANSH DOSI
106	SHUBHAM JAIN
107	SIDDHARTH HARSHIT
108	SIDDHI SAXENA
109	SIMRAN RATHORE
110	SOMIL JAIN
111	SONALI NISHAD
112	Soumya Agarwal
113	SOURABH VYAS
114	SUHANI JAIN
115	SUMIT GUPTA
116	TANISHA JAIN
117	TANU GAMBHIR
118	TANVI NEMNANI

119	TUSHAR MITTAL
120	UDIESHA GAUTAM
121	UTSAV JAIN
122	V VIGHNESH RAJAN
123	VANSH AGRAWAL
124	VIDHI SUKHNANI
125	VIKAS MITTAL
126	VINAYAK GUPTA
127	VISHAL DANDIA
128	YAMAN KUMAR MALIK
129	YASH DUBEY
130	YASH RAJ MISHRA
131	YATHARTH JAIN
132	MS. YAYATI
133	YOGESH SHARMA
134	MANISH MANOHAR CHANDWANI
135	MOHIT KUMAWAT
136	SMRITI SHARMA
137	GAURAV KUMAR
138	GAURAV SINGH CHOUHAN
139	ABHINAV MISHRA
140	AMAN SAINI
141	ANKUR SHARMA
142	ANSH KHANDELWAL
143	ANSHIKA KHANDELWAL

144	ASHIMA MEHTA
145	BHAVYA ANAND
146	DEBOPAM SINHA
147	DEEPANSHU MAHESHWARI
148	HARSH KUMAR

Course:Linux

Session: 2021-22

Duration: January - June, 2022

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

1. **Ubuntu desktop**
   - Ubuntu Desktop
   - Main Menu
   - System Tray
   - Trash Bin icon (RHS corner)
   - Desktop icon (LHS corner), pen-drive
2. **Synaptic package manager**
   - Synaptic Package Manager
   - How to install packages
3. **Ubuntu software system**
   - Ubuntu-Software-Center
   - Installing softwares through Ubuntu Software Center
4. **Basic Commands**
   - Commands with example
   - Command interpreter
   - Shell
   - Using man
   - Apropos
   - Whatis
   - Using --help option
5. **General Purpose Utilities in Linux**
   - echo
   - uname
   - who
   - passwd
   - date
   - cal
   - Brief overview on Files and directories
   - pwd
   - ls
   - cat

6. **File System**

- File
- Directory
- File Inode
- Types of Files
- Home directory and Current directory
- Change Directory(cd)
- mkdir,rmdir

7. **Working with Regular Files**

- cat
- rm
- cp
- mv
- cmp
- wc

8. **File Attributes**

- chown, chmod, chmod -R, displaying files with ls -l
- chmod u+, chmod a-w, chmod g+w, chmod -r, chgrp
- inode, hard link, symbolic link

9. **Redirection Pipes**

- Input,output and error stream
- Redirection : > and >>
- Pipes : |

10. **Working with Linux Process**

- Process
- Shell process
- Process spawning - parent and child process
- Process attributes - pid, ppid
- Init Process
- User process & System process
- ps with options

11. **The Linux Environment**

- Environment variable vs Local variables
- set command
- env command
- SHELL, HOME, PATH, LOGNAME, PS1, PS2

- history
- ! and ~
- alias

12. Basics of System Administration

- Root login-su
- User management - UID, GID, useradd, usermod, userdel
- Discs – Du, df

13. Simple filters

- Head
- tail
- sort
- cut
- paste

Introduction to Linux - Intermediate

1. **The grep command**

- To see the content of a file
- To list the entries of a particular stream
- To ignore cases
- Lines that do not match the pattern
- To list the line numbers with the entries
- To store the result in another file
- To know the count

2. **More on grep command**

- Search using grep
- To match more than one pattern
- To check a word that has different spelling
- Character class
- The use of *
- To match any one character using dot
- To match a pattern at the beginning of the file
- To match a pattern at the end of the file

3. **The sed command**

- sed
- To print using sed

- Line Addressing
- Context Addressing

4. More on sed command

- substitute
- insert
- delete

List of students enrolled

1	Aman Kumar Pandey
2	Abhishek Jain
3	Aditi Priya
4	Akash Chandel
5	Akshat Jain
6	Aman Baheti
7	Amit Godara
8	Amit Lawaniya
9	Anshu Verma
10	Ashish Maheshwari
11	Ashwani Malav
12	Ayush Jangir
13	Ayushi Garg
14	Bhavya Bhatnagar
15	Bhavya Khatri
16	Bhushan Ameta
17	Brijkishore Sharma
18	Daksh Sharma
19	Devanshu Jangid

20	Faisal Khan
21	Gunjan Gupta
22	Harsh Kanojia
23	Himani Devi
24	Ishita Vaid
25	Jyoti Sharma
26	Khushwant Panwar
27	Kiran Solanki
28	Lakshya Gupta
29	Maharshi Bhatnagar
30	Mahima Dariyani
31	Mahima Sharma
32	Manan Sharma
33	Mudit Kukreti
34	Nakshatra Bhardwaj
35	Nitin Chittoria
36	Parth Bhandari
37	Piyush Gupta
38	Pooja Chaudhary
39	Rajeev Sharma
40	Rakesh Singh
41	Ritika Agarwal
42	Sabhyata Agarwal
43	Sangeeta Sharma

44	Saumya Gautam
45	Shashank Pandiya
46	Shivam Gaur
47	Shubham Udsaria
48	Shubhi Samaria
49	Siddharth Rawat
50	Sonu Saini
51	Sourav Soni
52	Udyan Srivastava
53	Ujala Jhanwar
54	Vibhu Mathur
55	Vidushi Pareek
56	Vipul Gupta
57	Virendra Rathore
58	Vishal Sen
59	Yash Saxena
60	Arnav Rajoria
61	Deepak Sharma
62	Gorakh Gupta
63	Himanshu Shekhar
64	Nitesh Sharma
65	Parikshit Rathore
66	Praveen Kumar
67	Aaditya Gautam

68	Abhay Chaudhary
69	Aditi Singh
70	Ankit Yadav
71	Ansh Mehta
72	Bahadur Choudhary
73	Cmaune Sharma
74	Divyansha Jain
75	Kritick Kapoor
76	Lakshaya Sharma
77	Manish Saxena
78	Manthan Soni
79	Prakhar Khatter
80	Pranjal Mathur
81	Prateek Yadav
82	Vikas Kumar
83	Abhishek Dusad
84	Aditi Jain
85	Anjali Mukherji
86	Anmol Kumar
87	Antima Agarwal
88	Arshad Khan
89	Arun Sharma
90	Atul Rao
91	Ayus Jajodia

92	Dheeraj Meena
93	Divyanshu Acharya
94	Ekansh Chaturvedi
95	Gaurav Upadhyay
96	Hemant Chouhan
97	Hidanshu Sikri
98	Khushi Garg
99	Krishan Kumawat
100	Kunal Kaushik
101	Kunal Sharma
102	Lakshya Vilas
103	Lokendra Tanwar
104	Md Shamshad
105	Nilesh Dadheech
106	Nitesh Jangid
107	Paritosh Ajmera
108	Purva Agarwal
109	Rahul Kumar
110	Rishabha Mandawariya
111	Roshan Suthar
112	Sanskruti Khandelwal
113	Saurabh Sharma
114	Shubham Jaiman
115	Shweta Shrawani

116	Yash Gaur
117	Yash Soni
118	Yatharth Varshney
119	Yogesh Dabodiya
120	Ruchi Kumari

Course:Java

Session: 2021-22

Duration: January - June, 2022

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

1. **Getting started with Java – installation**
   - Install jdk from Synaptic Package Manager
   - Choose openjdk-6-jdk from the list of packages available
   - Mark it for installation
   - The installation will take a few seconds
   - Verify the installation
   - At the command prompt type java -version, so the version number of the jdk will be displayed
   - Run a simple java program and see if it works
   - Type javac TestProgram.java for compiling the code and java TestProgram for executing the code
2. **Java - First program**
   - write simple java program
   - print "My First Java Program!" on Console
   - save the file
   - file name given to the java file
   - compile the file
   - run the file
   - correct the errors
   - naming conventions for class
   - naming conventions for method
   - naming conventions for variable
3. **Installing Eclipse**
   - Install Eclipse on Ubuntu on the Terminal
   - Set up the proxy on the Terminal
   - Then fetch the list of all the available softwares
   - Type sudo apt-get update
   - Then install eclipse on the Terminal
   - Type sudo apt-get install eclipse
   - Verify if Eclipse is installed on the system
   - Installing Eclipse on Debian,Kubuntu,Xubuntu
   - Installing Eclipse on Redhat

- Installing Eclipse on Fedora,centos and suse linux

4. Getting started with Eclipse

- Eclipse is an Integrated Development Environment
- It is a tool on which one can write, debug and run java programs easily
- Open Dash Home and type Eclipse in the search box.
- We get Workspace Launcher
- On clicking on Workbench we get the Eclipse IDE
- Go to File->New->Project and select Java Project
- Create a project named EclipseDemo and create a class inside DemoClass
- Learn about Package Explorer and Editor portlet

5. Hello World Program

- Open Eclipse
- Create a Java Project named DemoProject
- Create a class named DemoClass
- Class name and file name will be the same
- Eclipse suggests various possibilities as we type a command
- Eclipse also completes the parentheses by automatically adding the closing parentheses
- Include the statement that we want to print
- Eclipse also completes the quotes by adding the closing quote
- Compile and execute the program
- Change the code to print

6. Errors and Debugging

- When writing a Java Program, here is a list of typical errors:
- Missing semicolon(;)
- Missing double quotes(".")
- Mis-match of filename and classname
- Typing the print statement n lower case
- The line which has the error will be indicated with a red cross mark on the left margin
- The list of errors is displayed by hovering the mouse over the cross mark
- Create a class ErrorFree with Errors, debug the code and run it
- Eclipse also offers intelligent fixes

7. Programming features of Eclipse

- Auto completion
- Sets the corresponding closing brace when we open the brace

- Provides a drop-down list of methods when you start typing the code.
- Syntax highlighting
- Classname is highlighted in pink color and method in blue color.
- Keyboard shortcuts
- F11 to debug a program and Ctrl plus H to search a specific file.
- Error highlighting
- Cross symbol in the program denotes errors
- Remove semicolon and error details are displayed when mouse is hovered over cross symbol.

8. Numerical datatypes

- Define datatypes and numerical datatypes
- int
- float
- byte
- short
- long
- double
- range of each numerical datatypes
- declaration and initializationof numerical datatypes.
- valid and invalid declaration

9. Arithmetic Operations

- Define an operator
- Define arithmetic operators
- addition
- subtraction
- multiplication
- division
- modulo
- simple program to demonstrate arithmetic operators
- appropriate datatypes for appropriate values
- save, compile and run the program

10. Strings

- char datatype
- letter, digit, punctuation marks, **tab**, or a space are all characters.
- Program explaining the variable and the character data.
- Introduction to strings
- Creating string by Direct Initialization
- Creating string by using new operator
- String length()

- String concat()
- String toUpperCase()
- String toLowerCase()

11. Primitive type conversions

- define type conversion or type casting
- higher order integer to lower order integer- Explicit type casting
- program to show explicit type casting
- common mistake in explicit type casting.
- program to show common mistake in explicit type casting
- lower order integer to higher order integer – Implicit type casting
- program to show implicit type casting
- char to integer
- integer to char
- program to show char to int type casting.

12. Relational Operations

- boolean datatype
- equal to and not equal to
- less than and less than or equal to
- greater than and greater than or equal to

13. Logical Operations

- use of logical operators
- and (&&) operator
- example to explain **and** operator
- program to demonstrate **and** operator
- or (||) operator
- example to explain **or** operator
- program to demonstrate **or** operator
- not (!) operator
- program to demonstrate **or** operator
- save, compile and run the programs

14. If else construct

- Conditional Statements and types of Conditional Statements
- Use of if statement
- Syntax for if statement
- Program using if statement
- Use of if else statement
- Syntax for if else statement
- Program using if else statement

- Use of if else if statement
- Syntax for if else if statement
- Program using if else if statement

15. Nested if and ternary operator

- explain nested if
- nested if syntax
- program to demonstrate nested if
- explain the control flow of the program
- explain ternary operator
- syntax for ternary operator
- explain the syntax
- program to demonstrate ternary operator
- comparison between ternary operator and nested if
- save, compile and run the program

16. Switch statement

- define switch case statement
- compare switch and nested if
- switch case syntax
- working of a switch case statement
- use of keyword switch
- valid and invalid use of keyword **case**
- use of keyword default
- use of keyword break
- program to demonstrate switch case statement
- save, compile and run the program to check the output

17. While loop

- Loop control statement
- types of loop control statements
- Introduction to while loop
- syntax of while loop
- Program using while loop
- Check the output.
- Introduction to infinite loop
- loop variable modification
- Check the output
- How to terminate the infinite loop

18. For loop

- syntax

- introduction to for loop
- for loop syntax
- loop vaiable
- loop condition
- loop variable increment or decrement
- loop block
- flow of loop
- advantage of using loop

19. Do while loop

- define do while
- do while syntax
- working of do while loop
- example of do while loop
- explain the do while programming
- save, compile and run the program to check the output
- how different is it from the while loop
- program to demonstrate the differences

20. Introduction to Arrays

- About Arrays
- Declare an Array
- Initialize an array
- Intilalization using for loop
- Index of an array elements
- change values of an array
- print the value of an array
- Advantage of an array.

21. Array operations

- import java.util.Arrays
- use methods from class Arrays
- toString() method
- sort() method
- fill() method
- copyof() method
- copyofRange() method
- about parameters for each method.

22. Creating class

- Whatever we can see in this world are all objects
- Objects can be categorized into groups known as class

- This is class in real world
- Human Being is an example of class in real world
- Class in java is the blue print from which individual objects are created
- Class consists defines a set of properties called variables and a set of behaviors called methods
- Syntax for creating class
- Create a simple class Student using Eclipse
- The Student class can contain properties

23. Creating Object

- An object is an instance of a class
- Each object consist of state and behavior
- Object stores it state in fields or variables
- It exposes its behavior through methods
- Reference variables
- Create a class named TestStudent
- Create an object of the Student class
- Use new operator
- Check what the reference variable contains
- Create one more object of the Student class and check what the reference variable contains

24. Instance fields

- Also known as non-static fields
- Open the TestStudent class which we have created
- Access the fields roll_number and name using dot operator
- See the output
- Initialize the field and see the output
- Change the modifier of the fields to private
- Debug the error that you get
- Change the modifier to protected
- Each object of a class will have unique values
- Create two objects of the Student class

25. Methods

- method definition
- write simple method
- method returning value
- call a method in another method
- flow of the program
- call a static method
- call a method from another class

- method signature
- method body

26. Default constructor

- what is a constructor?
- what is a default constructor?
- when is it called?
- define a constructor
- initialize the variables
- call the constructor
- difference between constructor and method

27. Parameterized constructors

- What is a parameterized constructor?
- create constructor without parameter
- create a constructor with parameter
- assign values to the variables in the constructor
- pass arguments during the constructor call
- working of parameterized constructor
- show common errors
- resolve the errors
- create another parameterized constructor
- why to use constructor?

28. Using this keyword

- this is a reference to the current object
- helps to avoid name conflicts
- we can use this keyword inside a constructor to call another one
- the constructors must be in the same class
- explicit constructor invocation
- Explain it using the parameterized constructor code
- Make this statement the last one in the constructor
- You will get an error
- this statement should be the first one inside a constructor

29. Non-static block

- Non-static block
- Any code written between two curly brackets
- Executed for each object that is created
- Executes before constructor's execution
- can initialize instance member variables of the class
- create a class named NonStaticTest

- Create a non-static block and a constructor inside it
- Check the output
- Include multiple non-static blocks
- they will be executed in the sequence in which they appear in the class
- Check the output
- Non-static block is not a substitute for constructor

30. Constructor Overloading

- define multiple constructor
- what is constructor overloading?
- constructor with different number of parameters.
- parameters with different datatypes.
- how is constructor overloaded?
- flow of overloading process.
- advantage of constructor overloading.

31. Method Overloading

- define multiple methods.
- methods with same name.
- methods with different number of parameters.
- methods with different datatypes of parameter.
- what is method overloading?
- example for overloadin method
- how to overload method?
- advantage of method overloading.
- error in method overloading.

32. Taking user input in Java

- What is BufferedReader?
- Importing three classes from Java.io package
- How to take the input from the user?
- Syntax to implement BufferedReader
- What is InputStreamReader?
- Create object of InputStreamReader
- Create object of BufferedReader
- About IOException
- About throws keyword
- Typecasting

Intermediate Level

1. Subclassing and Method Overriding

- Definition of subclassing
- Demo of subclassing using an Employee and Manager class
- Single inheritance
- Use of extends keyword
- Private members in a super class
- Definition of method overriding
- Annotation
- @Override Annotation

2. Calling methods of the superclass

- super keyword
- Call methods of the super class
- Constructor of the super class
- Demo of super keyword using an Employee and Manager class
- Single inheritance
- Use of extends keyword
- Private members in a super class

3. Using final keyboard

- final keyword
- What is final keyword and its application?
- Where final keyword can be declared?
- final variable
- final static variables
- static block
- final variable as parameter
- final method
- private final method
- final class

4. Polymorphism

- Polymorphism in Java
- Run-time polymorphism
- Virtual Method Invocation
- Compile-time polymorphism
- Role of JVM
- IS-A test
- Static binding
- Dynamic binding

5. Abstract Classes

- Abstract Classes in Java
- What are Abstract Methods
- What are Concrete Methods
- Properties of Abstract Methods and Abstract Classes
- How to use Abstract Methods

6. Java Interfaces

- Java Interfaces
- Implementing Interface
- Implementation Classes
- Interfaces Vs Abstract classes
- Implementing Multiple Interfaces
- Usage of Interfaces with an example

7. Static Variables

- What is Static Variable in Java?
- Usage of Static Variables with Example
- Static Variables Vs Instance Variables
- Final Static Constants

8. Static Methods

- What is static method in Java?
- Static methods Vs Instance methods
- Usage of static method with example
- Passing object variables in a static method

9. Static Blocks

- What is a static block
- Declaring and defining a static block
- How static blocks are invoked and executed

10. Exception Handling

- What is an Exception
- Types of Exceptions

1. Checked Exceptions
2. Unchecked Exceptions

- Explaining *ArrayIndexOutOfBoundsException*
- Demonstrating Checked Exceptions with example
- Handling Exceptions using try-catch blocks
- Explaining *ArithmeticException*
- Demonstrating Unchecked Exceptions with example
- Explaining *FileNotFoundException*
- Usage of finally block
- Explaining *NullPointerException*

11. Custom Exceptions

- What is a Custom Exception
- Demonstration of custom exception
- Custom exception example - "InvalidMarkException"
- Usage of "throw" keyword
- How to resolve errors in custom exceptions
- Resolve error using "Add throws declaration" option
- Usage of "throws" keyword
- Example for "FileNotFoundException"
- How to handle multiple exceptions
- How to use "surround with try/catch" option

List of students enrolled

1	Aman Baheti
2	Virendra Rathore
3	Gorakh Gupta
4	Divyansha Jain
5	Antima Agarwal
6	Divyanshu Acharya
7	Khushi Garg
8	Yash Soni
9	Arshad Khan
10	Dheeraj Meena
11	Ekansh Chaturvedi

Course:C and Cpp

Session: 2021-22

Duration: June - December, 2022

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

1) **First C Program**

- -Header Files example: #include <stdio.h>
- main()
- Curly braces { }
- printf()
- semicolon ;
- Compiling a C program example: gcc filename.c -o output parameter
- Executing a C program example: ./output parameter
- Errors

2) **First C++ Program**

- Header files --example: #include <iostream>
- main()
- Curly braces { }
- -cout<<
- semicolon ;
- Compiling a C++ program example: g++ filename.cpp -o output parameter
- Executing a C program example: ./output parameter

3) **Tokens in C and C++**

- Data types, constants, identifiers
- Keywords example: if, break, else
- Constants
- Data types example: int, float, char, double
- Format specifiers example: %d, %f, %c, %lf
- Range of data types
- Variables
- Identifier
- Errors

4) **Functions in C and C++**

- What is a function
- Syntax for declaration of a function
- Function with arguments example: return-type function-name(parameter);
- Function without arguments example: return-type function-name;
- Calling a function
- Errors

5) **Scope of Variables in C and C++**

- Introduction
- Syntax of declaring a variable example: data-type var-name;
- Syntax for initializing a variable example: data-type var-name = value;
- Scope of variables
- Global variable
- Local variable
- Error

6) **If And Else If statement in C and C++**

- What are Statements.
- Syntax for if and
- If-else Statement
- Errors

7) **Nested if and switch statement in C and C++**

- Nested if statement.
- Switch statement.
- Syntax for nested-if statement
- Syntax for switch statement
- break statement
- Comparison between nested if-else and switch statement
- Errors

8) **Increment and Decrement Operators in C and C++**

- Increment Operator example: ++
- Postfix increment example: a++
- Prefix increment example: ++a
- Decrement Operator example: --
- Postfix decrement example: a--
- Prefix decrement example: --a

- Typecasting
- Errors

9) **Arithmetic Operators in C and C++**

- Arithmetic Operators
- Addition Operator example: a + b
- Subtraction Operator example: a - b
- Multiplication Operator example: a * b
- Division Operator example: a \ b
- Modulus Operator example: a % b
- Errors

10) **Relational Operators in C and C++**

- Double Equal to example: a == b
- Not Equal to example: a != b
- Greater Than example: a > b
- Less Than example: a < b
- Greater than Equal To example: a >= b
- Less Than Equal To example: a <= b
- Errors

11) **Logical Operators in C and C++**

- And &&
- Or ||
- Not !
- Errors

Intermediate level

12) **Loops in C and C++**

- Loops
- Syntax for while and do-while loop
- Comparison of while and do-while loop
- Syntax for
- for loop
- Errors

13) **Arrays in C and C++**

- What are arrays

- 1-D Arrays
- Syntax for Declaration of arrays example: data type array_name [size];
- Syntax for Initialization of arrays example: data type array_name [size]=value;
- Accepting values from the user
- Errors

14) **Working with 2-D Arrays in C and C++**

- What are 2-D Arrays.
- Range of arrays
- Syntax for Declaration of 2-D arrays example: data type array_name[row][column];
- Syntax for initialization of 2-D arrays example: data type array_name[row][column]=

{
{row-val},{col-val}
};

- Errors

15) **Strings in C and C++**

- What is a string
- Syntax for declaring a string
- Syntax for initializing a string
- To read a string from keyboard
- Errors

16) **String Library Functions in C and C++**

- What are string library functions.
- Types of string library functions
    - Strcpy
    - Strlen
    - Strcmp
    - Strcat
- Errors

Advanced level

17) **Working with Structures in C and C++**

- Introduction
- Syntax of structures
- Declaration and initialization

- Declaration of structure variable
- Accessing structure variables

18) **Understanding Pointers in C and C++**

- Introduction
- Syntax of Pointer example: int *iptr;
- Declaration example:

int a; (integer a) int *aptr; (pointer to an integer *aptr) aptr = &a; (aptr set to address of a) Address Pointer

- Errors

19) **Function call in C and C++**

- types of function calls
- function pass by value
- function pass by reference

20) **File Handling in C**

- File handling functions
- Opening a File closing a file example: fopen, fclose
- Reading data from a File

List of students enrolled

1	Aabhas Nama
2	Abhay Bhardwaj
3	Abhay Mangal
4	Abhinav Mathur
5	Abhishek Sharma
6	Abhishek Singh
7	Abhishek Singh
8	Adarsh Sain
9	Aditya Kumar Meena

10	Aditya Narayan
11	Ajay Kumar Sharma
12	Akash Kumar
13	Amartia Anand
14	Amol Kumari
15	Ankush Gupta
16	Anshuman Singh Rathore
17	Anushka Jain
18	Archita Gocher
19	Arun Singh
20	Ashish Gurjar
21	Ashutosh Jangir
22	Astha Jain
23	Avni Jain
24	Ayush Pandey
25	Bhoomika Bulchandani
26	Chakshit Gunidia
27	Charvi Dadhich
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29	Mr. Chitaansh
30	Chitvan Tak
31	Dhiraj Kumar
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33	Dhruvtash Gupta

34	Dikshant Sharma
35	Divyansh Gupta
36	Divyansh Sharma
37	Gaurav Kumar Gupta
38	Gaurav Kumar Saini
39	Gautam Kumar Kamat
40	Hammir Chaturvedi
41	Hariom Kumar
42	Harshit Parwani
43	Hemant Kumar Atal
44	Hiren Vaishnav
45	Jagrati Meena
46	Jamuna Jangid
47	Jayesh Mour
48	Jayesh Vashishtha
49	Kamal Nayan
50	Kanak Singhal
51	Kartik Tiwari
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56	Khushi Garg
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62	Lavina Lahoty
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65	Megha Jangid
66	Mohit Kumar Singh
67	Mohit Yadav
68	Moksh Avasthi
69	Muskan Meena
70	Naman Agarwal
71	Navdeep Choudhary
72	Navneet Kumar
73	Niharika Chugh
74	Om Jaiswal
75	Om Verma
76	Param Agarwal
77	Parshant Sharma
78	Pawani Bhardwaj
79	Prachi Dhiliwal
80	Pradeep Bhat
81	Prajjawal Nirvan

82	Prashansha Khandelwal
83	Pratyush Saraswat
84	Prince Singhal
85	Priya Gupta
86	Pulkit Sharma
87	Purvi Tanwar
88	Radhika Ojha
89	Raghav Gupta
90	Ritu Yadav
91	Rohit Jarwal
92	Sahil Yadav
93	Sakshi Singh
94	Sambhav Jain
95	Ms. Samridhi
96	Samyak Jain
97	Sanchit Agrawal
98	Shikha Kumari
99	Shivani Lamba
100	Siddharth Choabey
101	Sooraj Pachouri
102	Sunil Kumawat
103	Suraj Singh Shekhawat
104	Swati Aggarwal
105	Tanish Khandal

106	Tushar Vijayvargia
107	Umang Sharma
108	Utkarsh Bhargava
109	Utkarsh Gautam
110	Utkarsh Khandelwal
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115	Yash Sharma
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122	Manav Rathore
123	Sourav Majee

Course: Arduino

Session: 2021-22

Duration: June - December, 2021

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

1. **Overview of Arduino**
   - Learning objectives of Arduino
   - Prerequisites for learning Basic level Arduino tutorials
   - Prerequisites for learning Intermediate level Arduino tutorials
   - Who can use Arduino?
   - Glimpse of Spoken Tutorials available on Arduino series
2. **Electronic components and connections**
   - Breadboard and its internal connections
   - LED and its connections
   - Tri-color LED
   - Resistor
   - Simple circuit using LED, resistor and breadboard
   - Common mistakes when using breadboard to make connections
   - Pushbutton and its connections
   - Common mistakes when using pushbutton to make connections
   - Seven segment display and its connections
   - Demonstration of all the above components
3. **Introduction to Arduino**
   - About Arduino device
   - Features of Arduino
   - Components of Arduino board
   - Description of Microcontrollers
   - Few examples where a Microcontroller is used
   - Installation of Arduino IDE on Ubuntu Linux OS
   - Run the arduino executable file
   - The Arduino IDE window
4. **Arduino components and IDE**
   - Set up a physical connection between Arduino and a computer
   - Connect the Arduino board to the computer using the USB cable
   - Various components available in Arduino hardware
     - ATMEGA 328 microcontroller chip

- About Arduino BootLoader
- Digital Pins
- Analog Pins
- Blinking LEDs that are helpful for troubleshooting
- Ground Pins
- External power adapter
- Arduino programming language

5. First Arduino Program

- Write an Arduino program to blink an LED
- Arduino program is saved as Sketch
- Default program environment with two empty functions -
  - setup - function for setting up a micro-controller
  - loop - infinite loop
- Program to turn on the LED
- Compile the program into binary format
- Program to turn off the LED

6. Arduino with Tricolor LED and Push button

- Tricolor LED - Common Cathode Tricolor LED
- Other external devices that are required for this experiment
- Understand the connection circuit details
- Connect a tricolor LED to Arduino board
- Write a program to blink tricolor LED
- Use Pushbutton to control the blinking
- How to reduce the delay of the blink

7. Arduino with LCD

- Connect an LCD to Arduino board
- See the details of the circuit connection
- See how to do the soldering
- Setup the components as per the circuit diagram
- The aim is to write two strings on the LCD display
- Write a program to display a text message on the LCD

8. Display counter using Arduino

- Connect an LCD and a Push button to Arduino board.
- Add a pushbutton and make a simple counter
- Write a program in the Arduino IDE
- See that pushbutton is working successfully
- Modify the program to set a counter
- Output: count is increased whenever the button is pressed

9. **Seven Segment Display**

- Connect a seven segment display to Arduino board
- Types of seven segment display
- Connection details of common cathode seven segment display
- Connection details of common anode seven segment display
- Circuit connection explanation
- Live setup of the connection
- Program to blink LEDs in seven segment display
- High and low state of LED's in the seven segment
- Program to display digits 0 to 4 in seven segment display
- Compile and upload the program

10. **Pulse Width Modulation**

- About Pulse Width Modulation
- About duty cycle and frequency
- Formula to calculate the duty cycle
- Experiment to control the brightness of LED by varying the duty cycle
- Experiment to control the speed and direction of a DC motor
- Circuit connection explanation of the above experiments
- Source code for the above experiments
- Demonstration of the output

11. **Analog to Digital Conversion**

- About DHT11 sensor
- Arduino resolution concepts
- Circuit connection details of DHT11 sensor and Arduino
- Features of DHT11
- Download the DHT11 Arduino library to run this program.
- Code to detect the temperature and humidity using DHT11 sensor
- Display the output in the Serial Monitor screen
- Display the output in the Serial Plotter screen

12. **Wireless Connectivity to Arduino**

- About ESP8266-01 WiFi module
- Various pins of ESP8266-01 WiFi module
- Circuit connection of ESP8266 - 01 module with Arduino
- Setup the read-write permission to the USB port
- Download and install ESP8266 WiFi module in Arduino IDE
- Establish a connection between WiFi module and a laptop or a mobile phone
- Source code for the above experiment
- Demonstration of the output

Intermediate Level

1. Assembly of Robot

- Components required to build a Robot
- About soldering DC motors
- Acrylic Robot Chassis with screws and nuts
- Steps to mount the motor on the Chassis
- Fixing the wheels of the Robot
- Assembled Robot
- About .apk file
- About MIT App inventor to build an app
- Code file for Car Bluetooth RC.apk
- Steps to install the app on the Android phone

2. Robot Control using Bluetooth

- Components required for Bluetooth communication
- About Bluetooth communication
- About Data Mode and AT Command Mode
- Circuit connection details of Arduino board and HC-05 Bluetooth module
- Actual setup of the connections
- Program to control the movement of the Robot
- Configure the Bluetooth in Android phone
- Working of the Car Bluetooth RC App
- Working of the Robot
- Control the movement of the Robot using Bluetooth communication

3. Introduction to IoT

- About IoT
- IoT system components
- About Thingspeak platform
- Create an account in Thingspeak
- Login to the account and create a new channel
- Enter the channel information
- Show the graph outline
- Generate the API keys
- Importance of Write API key and Read API key
- Copy the Write API key

4. Sending data to the cloud using IoT devices

- External components required for sending data to the cloud
- About MQTT Protocol
- Circuit connection of DHT11 and WiFi module with Arduino
- Setup the MB102 module on Breadboard
- Circuit connections required for the experiment
- Configure the ESP8266 module to communicate
- Download a DHT sensor library
- Program in Arduino IDE for interfacing WiFi module and DHT11 sensor
- Working of ThingSpeak channel
- Graph of temperature and humidity values from the DHT11 sensor in ThingSpeak platform
- Data Import/Export option to download the data as CSV file

Advance Level

1. **Assembly programming through Arduino**

- Write an assembly program to display a digit on seven segment display
- Arduino - Assembly code reference
- Arduino ATmega328 Pin mapping
- Connection circuit details
- Installing AVRA and AVRDUDE assembler
- How to connect and check the port number of Arduino
- Assembly program to glow the dot LED on the seven segment display
- Assembly program to display digit two on the seven segment display
- Assembly program to display digit five on the seven segment display using decoder
- How to save the file, assemble and upload to the Arduino

2. **Digital Logic Design with Arduino**

- Write an assembly to verify the logical AND operation
- Use the m328Pdef.inc file that is available in the code files link of this tutorial.
- Explanation of the Source code for logical AND operation
- Save the file and generate the.hex file
- Upload the code to the Arduino
- Displaying the output on the Seven segment display
- Replace the program with or to perform logical OR operation
- Replace the program with xor to perform logical XOR operation
- Implement and verify the below combinational logics:
  - A = W′
  - B = WX′Z′ + W′X
  - C = WXY′ + X′Y + W′Y

- D = WXY + W'Z

3. AVR-GCC programming through Arduino

- Write an assembly program to display a digit on seven segment display
- Arduino - Assembly code reference
- Arduino ATmega328 Pin mapping
- Connection circuit details
- Installing AVRA and AVRDUDE assembler
- How to connect and check the port number of Arduino
- Assembly program to glow the dot LED on the seven segment display
- Assembly program to display digit two on the seven segment display
- Assembly program to display digit five on the seven segment display using decoder
- How to save the file, assemble and upload to the Arduino

4. Interfacing LCD through AVR-GCC programming

- Interface a LCD to Arduino board
- Pin connections details of the Arduino and LCD
- Image showing the connections
- Live set up of the connections
- Write an AVR-GCC program to display a digit on LCD
- Using avr/io.h, util/delay.h, stdlib.h libraries in the program
- Using ClearBit() and SetBit() function
- Various functions used to excute the output
- Using make FNAME command to compile and upload to Arduino
- Displaying the output digit 5 on the LCD

5. Mixing Assembly and C programming

- Combining Assembly and C programming
- Explanation of the circuit connections
- Live setup of the connection
- Assembly routine program which initialises and sets pin 13 of Arduino as output
- Call that Assembly routine in AVR-GCC program to blink the Dot LED of the Seven Segment display
- Use the Makefile that is available in the code files link of this tutorial.
- Explanation of the Source code of the subroutine and main program
- Save the file and generate the .hex file
- Upload the code to the Arduino
- Display the output on the Seven segment display

6. Getting Ready for Arduino FLOSS

- About FLOSS Arduino website
- Download the e-book and code files from the FLOSS Arduino website
- About Arduino Shield
- About tools and user code
- About various experiments used in the e-book
- Upload a program in Arduino IDE to check the working of the shield
- About FLOSS Firmware
- Why do we need FLOSS Firmware?
- Upload the FLOSS firmware to the Arduino Uno board
- Important points to remember

7. Arduino Programming with Scilab and Xcos

- About Getting ready for Arduino FLOSS tutorial
- Refer to chapter 3 of the e-book for installation of Arduino IDE and Scilab
- Points to be noted before proceeding
- Interfacing Arduino with Scilab
- About Arduino-Scilab toolbox
- Set the Scilab working directory to the toolbox folder
- Run the scilab script to check whether the firmware is properly installed or not
- Scilab program to read the status of the pushbutton and display it on the GUI
- Xcos program to turn the LED on or off, depending on the pushbutton status
- Important points to remember

8. Arduino Programming with Python

- About Getting ready for Arduino FLOSS tutorial
- Refer to chapter 3 of the e-book for installation of Arduino IDE and Python
- Points to be noted before proceeding
- Interfacing Arduino with Python
- About Arduino-Python toolbox
- Run the Python script to check whether the firmware is properly installed or not
- Python program for Interfacing a Light Emitting Diode.
- Program to turn on blue LED
- Output of the experiment
- Important points to remember

9. Arduino Programming with Julia

- About Getting ready for Arduino FLOSS tutorial

- Refer to chapter 3 of the e-book for installation of Arduino IDE and Julia
- Points to be noted before proceeding
- Interfacing Arduino with Python
- About Arduino-Julia toolbox
- How to execute Julia test_firmware.jl
- Julia program for Interfacing a Potentiometer
- Program to turn on LEDs depending on the potentiometer threshold
- Output of the experiment
- Important points to remember

10. Arduino Programming with OpenModelica

- About Getting ready for Arduino FLOSS tutorial
- Refer to chapter 3 of the e-book for installation of Arduino IDE and OpenModelica
- Points to be noted before proceeding
- Interfacing Arduino with OpenModelica
- About Arduino-OpenModelica toolbox
- Load the Arduino OpenModelica toolbox
- OpenModelica program for interfacing a thermistor
- Program to read and display the thermistor values
- Output of the experiment

List of students enrolled

1	ADITI PRIYA
2	AKASH CHANDEL
3	AKSHAT JAIN
4	AMAN BAHETI
5	AMIT LAWANIYA
6	ANSHU VERMA
7	ASHISH MAHESHWARI
8	ASHWANI MALAV
9	AYUSH JANGIR
10	AYUSHI GARG
11	BHUSHAN AMETA
12	DAKSH SHARMA

13	FAISAL KHAN
14	HARSH KANOJIA
15	HIMANI DEVI
16	JYOTI SHARMA
17	MAHARSHI BHATNAGAR
18	MAHIMA DARIYANI
19	PARTH BHANDARI
20	RAJEEV SHARMA
21	SANGEETA SHARMA
22	SAUMYA GAUTAM
23	SHASHANK PANDIYA
24	SHUBHAM UDSARIA
25	SONU SAINI
26	UDYAN SRIVASTAVA
27	UJALA JHANWAR
28	VIPUL GUPTA
29	VIRENDRA RATHORE
30	VISHAL SEN
31	ARNAV RAJORIA
32	DEEPAK SHARMA
33	GORAKH GUPTA
34	HIMANSHU SHEKHAR
35	AADITYA GAUTAM
36	ABHAY CHAUDHARY
37	ANKIT YADAV
38	ANSH MEHTA
39	CMAUNE SHARMA
40	DIVYANSHA JAIN
41	MANTHAN SONI

42	PRAKHAR KHATTER
43	PRANJAL MATHUR
44	ADITI JAIN
45	ANJALI MUKHERJI
46	AYUSH JAJODIA
47	DIVYANSHU ACHARYA
48	KHUSHI GARG
49	LOKENDRA TANWAR
50	NILESH DADHEECH
51	PARITOSH AJMERA
52	PURVA AGARWAL
53	ROSHAN SUTHAR
54	SANSKRUTI KHANDELWAL
55	SAURABH SHARMA
56	SHUBHAM JAIMAN
57	YASH SONI
58	RUCHI KUMARI
59	NAMAN GUPTA
60	ASHUTOSH JANGIR
61	CHITVAN TAK
62	ARYAMAN CHAUDHARY
63	HARSHIT VERMA
64	YOGESH SHARMA
65	GAURAV SINGH CHOUHAN
66	RITIKA AGARWAL
67	SAHIL YADAV

Course: Python

Session: 2021-22

Duration: June - December, 2021

Assessment procedures: Certification Exam (Qualifying score >=40%)

Curriculum of the Course:

Getting started with ipython

1. Use Python 3.5.2
2. Use Ipython version 5.1.0
3. IPython is an enhanced interactive Python interpreter.
4. Invoke the IPython interpreter
5. Quit the IPython interpreter
6. Navigate the IPython session history
7. Use tab-completion to work faster.
8. See the documentation of functions using question mark.
9. Interrupt commands using Ctrl + C when we make an error.
10. round command

Using the plot command interactively

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Start IPython with pylab.
4. ImportError if matplotlib is not installed
5. clf() function
6. Use the linspace function to create equally spaced points in a region.
7. Find the length of sequences using len function.
8. Plot mathematical functions using plot.
9. Clear drawing area using clf.
10. Usage of buttons in the UI of the plot window such as - save, zoom, move axis, back and forward and Home

Embellishing a plot

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Modify the attributes of a plot
4. Pass additional keyword arguments to plot command
5. Add title to a plot using 'title' command.
6. Incorporate LaTeX style formatting by adding a $ sign before and after the string.
7. Label x and y axes using xlabel() and ylabel() commands.
8. Add annotations to a plot using annotate() command.

9. Get the limits of axes using xlim() and ylim() commands.
10. Set the limits of axes using xlim() and ylim() commands.

Saving plots

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Save plots using the savefig() function.
4. Save the plots in different formats like

- pdf
- ps
- png
- svg
- eps

Multiple plots

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Draw multiple plots which are overlaid.
4. Operations on individual plots.
5. Use the figure command.
6. Distinguish between multiple overlaid plots.
7. Use the legend command.
8. Serial number of the plot to select corresponding plot.
9. Switch between the plots
10. Saving individual plots.

Subplots

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Creating subplots
4. Switching between subplots.
5. Subplot command
6. Passing arguments to subplot command.
7. First argument is the number of rows of subplots.
8. Second argument is the number of columns of subplots
9. Third argument specifies the serial number for subplot.

Additional features of IPython

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Retrieve the history using %history command.

4. View only a part of history by passing argument to %history command.
5. Pass arguments to %history to get particular lines of code
6. Save the required lines of code in required order using '%save' command.
7. Use '%run -i' command to run a saved script.

Module 2: Plotting Experimental Data

loading data from files

1. load data from file
2. single column
3. multiple columns separated by delimiter
4. cat command
5. loadtxt()
6. columns separated by spaces
7. columns separated by semi-colon
8. unpack argument
9. delimiter argument
10. three columns of data

Plotting the data

1. plotting data
2. list
3. list element-wise squaring
4. plot data points
5. clear plots
6. errorbar function
7. dots or filled circles in plot
8. plot with red pluses
9. explore documentation in ipython
10. plot with errorbars
11. using format argument

Other types of plots

1. scatter plot
2. scatter function
3. scatter plot with various arguments
4. logarithmic plot
5. loglog function
6. cat command
7. loadtxt function
8. unpack parameter of loadtxt
9. linspace

10. scatter versus plot

Plotting charts

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. To produce scatter plot
4. Plot a pie chart using pie() function
5. Plot a bar chart using bar() function
6. Access the matplotlib online help
7. Charts with line hatching

Module 4: Handling Large Data Files

Getting started with lists

1. What is a list?
   - Define List
   - List index
2. Create:
   - List with elements
   - Empty list
   - List within a list
3. Find out the list length using len function
   - Access elements using their index numbers
   - Append elements to list using the function append
   - Delete element from list using the del and remove function

Getting started with for

1. For loop syntax
2. Example to use For loop
3. Indentation in for loop
4. Create blocks in python using for
5. Iterate over a list using for loop
6. How to get out of the block
7. use of Range() function
8. Range function in for loop
9. How to use Python interpreter
10. IPython interpreter to specify blocks

Getting started with strings

1. What are strings?
2. How are strings denoted in Python?
3. String concatenation
4. Multiply a string with an integer
5. Accessing individual elements of a string
6. Accessing elements of a string using negative indices
7. Split() function
8. Join() function
9. Define a string in different ways
10. Print a string repeatedly

Getting started with files

1. Open a file
2. Open() function
3. Different Modes of opening a file
4. Read() method
5. Read the content of the file line by line
6. Read the entire content of the file
7. Append the lines of a file to a list
8. Close a file
9. Demonstration using a txt file
10. Splitlines() method

Parsing data

1. What is Parsing data?
2. split function and its syntax
3. What is string tokenizing?
4. How to split a string on whitespace?
5. split function with argument
6. strip function and example
7. Converting string into floats and integers
8. Example to read a huge .txt file line by line and parse each record
9. Perform computations on the .txt file
10. Execute the file using %run command

Statistics

1. Statistical operations in Python
2. Installation of Numpy for mathematical and logical operations
3. Installation of pip to install python libraries
4. loadtxt() function with example
5. Getting the shape of an array
6. Getting the sum of a column in an array

7. How to calculate mean?
8. Calculate mean across each of the axis of the array
9. How to calculate median?
10. How to calculate standard deviation?

Module 5: Arrays and Matrices

Getting started with arrays

1. Overview of array
2. Usage of numpy library
3. How to create arrays
4. How to create two dimensional array
5. arange() method
6. reshape() method
7. How to find the shape of an array?
8. Create a new array with elements of different datatypes
9. Identity matrix
10. Zeros method

Accessing parts of arrays

1. Create a one-dimensional array
2. Create a two-dimensional array
3. Accessing individual elements of an array
4. How to change the value of an array
5. How to change more than one elements at a time
6. Negative indexing of arrays
7. Slicing of an array
8. Striding of an array
9. Access only the odd rows and columns of an array
10. Examples to demonstrate all the manipulations of arrays

Image manipulation using Arrays

1. Read images into arrays
2. How to access parts of an array?
3. imread command
4. imshow command
5. show command
6. How to check the dimensions of an array?
7. Example to access parts of an image
8. How to stride over an array?
9. Example to access an RGB image
10. Slice an image of different dimension

Basic Matrix Operations

1. Create matrices from lists
2. asmatrix method
3. arange and reshape methods
4. Basic matrix operation
5. Addition, subtraction and multiplication of a matrix
6. Determinant of a matrix
7. eye(), allclose() functions
8. Inverse of a matrix
9. eigenvalues and eigenvectors of a matrix
10. diag() function

Advanced Matrix Operations

1. flatten() function
2. Example to convert a multidimensional matrix to single dimension matrix
3. Frobenius norm of a matrix
4. Demonstration of Frobenius norm of a matrix
5. Inverse of a matrix
6. Infinity norm of a matrix
7. norm documentation
8. Singular value decomposition
9. svd() function
10. smat function

Least square fit

1. Generating a Least Square fit line
2. Generating L vs t square
3. loadtxt function
4. Usage of numpy library
5. Plotting L vs t square
6. Steps for least square fit line
7. Matrix formulation tsq=A.p
8. Generating the two matrices tsq and A
9. Finding transpose of a matrix
10. lstsq() function

Module 6: Python Language: Basics

Basic datatypes & operators

1. Data types in Python
2. Demonstration of int, float and complex data types with examples
3. Different functions associated with int data type

4. Complex numbers and their functions
5. Boolean operations with examples
6. Operator precedence with parentheses
7. Different operators available in Python3
8. Modulo operator with examples
9. How to do exponent operation in Python?
10. How to find the square root of a number in Python?

Sequence datatypes

1. List, string and tuple sequence data types with examples
2. How to access a list using index numbers?
3. Access the string elements
4. Access the tuple elements
5. How to add different sequence data types?
6. How to find the length of a variable?
7. Find the sum of a list
8. Convert list to tuple
9. Convert tuple to list
10. Convert string to list and list to string

Input/output

1. Input Output in Python
2. Various output statements
3. Print a string
4. Print a string with newline character
5. How to use format operators?
6. Example for integer format
7. Example for string format
8. Example for float format
9. Getting input from the user using Input()function
10. Display a prompt to get the input
11. Save the script as filename.py and execute using %run command

Conditionals Statements

1. if condition statement
2. Demonstration of if statement with example
3. if/else condition statement with example
4. Importance of indentation in a program
5. Usage of colon in program
6. Condition statement using elif
7. Examples using if/elif/else block

8. Ternary conditional statement
9. Difference between if/else and ternary conditional statements
10. How to use pass statement?

Loops

1. Explanation of while loop
2. Demonstration of while loop with example
3. Print the squares of all the even numbers below 10 using while loop
4. How to use for loop?
5. Print the squares of all the even numbers below 10 using for loop
6. for loop with range function
7. How to use break statement in for loop
8. pass statement in for loop
9. continue statement in for loop
10. Demonstration of pass, break and continue statements

Module 7: Python Language: Datastructures

Manipulating lists

1. Various manipulation in lists
2. Slicing of lists
3. Syntax and demonstration of slicing of lists
4. How to use step value in slicing
5. Striding of list
6. Examples with various parameters in striding of list
7. sort method in list
8. Usage of sorted() built-in function
9. Reverse a list
10. Striding with negative values
11. How to store a new reversed list in another variable

Manipulating strings

1. How to slice a string
2. Various way to get substrings using index
3. Reverse a string
4. How to check if a given string is a palindrome or not
5. Replace characters in a string
6. Convert a string to uppercase
7. Convert a string to lowercase
8. How to use for loop in a list
9. Join method
10. Join list elements to form a string

Getting started with tuples

1. What are tuples?
2. How to declare tuples?
3. Examples to declare tuples
4. Demonstration of creating tuple
5. Accessing tuples by their index positions
6. Iteration over tuples
7. Demonstration of immutability property of tuples
8. How to swap values in tuples
9. Similarities of tuples with lists
10. Tuple packing and unpacking

Dictionaries

1. Overview of dictionaries
2. Creating an empty dictionary
3. Creating a non empty dictionary
4. About key:value pair
5. How to access the dictionary elements
6. Demonstration of wrong key
7. Add, delete and modify an item in a dictionary
8. Usage of method in
9. Retrieve the keys and values by using the methods keys() and values()
10. Iterate over elements of a dictionary using a for loop

Sets in Python

1. What are sets in python?
2. Input sets
3. Create sets
4. How to create empty sets?
5. Operations on sets
6. Add and remove methods
7. Union and intersection methods
8. Difference and symmetric_difference methods
9. Subset and superset
10. Length and containership on sets

Module 8: Python Language: Advanced

Getting started with functions

1. About Functions
2. How to define a function
3. Example for defining a function

4. Calling a function with arguments
5. Calling a function without arguments
6. Return values from a function
7. Indentation in coding
8. Documenting or commenting code
9. How to use docstrings in python function
10. How to write a function circle to return area and perimeter with radius r

Advanced features of functions

1. Functions with default arguments
2. Various examples for default arguments
3. Interchanging the default and non-default arguments
4. Call a function with keyword arguments
5. Call a function without keyword arguments
6. Functions with positional arguments
7. Functions with arbitrary arguments
8. Demonstration of arbitrary arguments
9. Usage of * and ** in defining a function
10. Python built-in-functions

Using python modules

1. Python modules
2. Run a Python script from command line
3. How to import modules in python scripts?
4. How to import required functions from a module?
5. Usage of namespace
6. Advantages of using import functions
7. Using alias to the module
8. Demonstration of import functions
9. Run python scripts in ipython interpreter
10. Python standard library of modules

Writing python scripts

1. About Python modules
2. What is importing?
3. How to write a function and save it as a script
4. Run a python script
5. Import a module
6. Example to import a module
7. usage of __name__ variable
8. Write test condition using the name variable
9. How importing works in new IPython console

10. Different ways of running the Python script

Testing and debugging

1. What is software testing?
2. Write a simple function
3. How to write test cases?
4. Create simple tests for a function
5. Run the script and test the code
6. Automate tests
7. Example for test case fail
8. Coding style
9. How to give meaningful names in coding
10. Python coding standards

Handling Errors and Exceptions

1. Errors in Python
2. Syntax errors and exception
3. Exceptions with example
4. Syntax error with example
5. Demonstration of ValueError exception
6. Demonstration of ZeroDivisionError exception
7. try except clause in Python
8. What is debugging?
9. Using %debug for debugging in ipython
10. try except with else clause

List of students enrolled

1	Keshav Meena
2	Aarush Goyal
3	Abhinav Singh
4	Adish Jain
5	Aditya Garg
6	Aditya Gupta
7	Akshita Patidar
8	Aman Khan

9	Amit Kumar
10	Amit Singh
11	Anjali Sharma
12	Ankit Sharma
13	Ansh Gupta
14	Anshul Sisodiya
15	Archit Bajpai
16	Arpit Agrawal
17	Arpit Jain
18	Aryaman Chaudhary
19	Mr. Aryan
20	Arzoo Jalendra
21	Ashish Sharma
22	Avadhesh Chasta
23	Avdhesh Behl
24	Avinash Gupta
25	Bhanu Pratap Singh
26	Bhavesh Ghorela
27	Deepesh Gupta
28	Devanshi Dadhich
29	Devendra Kaur
30	Divya Ramani
31	Durgesh Mishra
32	Eshita Goyal
33	Garvit Tambi

34	Gaurav Sharma
35	Gitesh Khatri
36	Hansika Agarwal
37	Hanu Singh Kumawat
38	Hardik Tyagi
39	Harsh Trivedi
40	Harsh Vardhan
41	Harshit Sharma
42	Harshit Verma
43	Himanshu Vasistha
44	Hiten Jain
45	Jai Veer Singh
46	Jay Shrivastava
47	Jayant Kumar Mehra
48	Jigyasa Karodiwal
49	Kanika Singhal
50	Kartik Sharma
51	Kavish Jaradi
52	Khushi Sa Rathore
53	Kratik Jamboo Khandelwal
54	Kumari Ridhi
55	Kumari Sidhi
56	Kunal Verma
57	Kusum Sharma
58	Lokesh Patidar

59	Malika Khandelwal
60	Manan Purohit
61	Manish Saini
62	Manisha Balani
63	Manoj Garg
64	Manoviraj Singh Shekhawat
65	Mansha Modi
66	Mansi Sharma
67	Mehak Jain
68	Mohit Agarwal
69	Moin Ali
70	Mudit Dhingra
71	Mulkit Sain
72	Neha Maheshwari
73	Neha Maheshwari
74	Nishant Kumar
75	Nitin Sharma
76	Parul Jain
77	Pooja Jangid
78	Prakhar Jain
79	Prateek Tholiya
80	Pratik Singh
81	Priyanshu Lohar
82	Priyanshu Sharma
83	Pulkit Gupta

84	Raghav Agarwal
85	Raghvender Singh Chauhan
86	Rahul Kumar Balai
87	Rajat Gupta
88	Rakshita Agarwal
89	Rashi Kinra
90	Rashi Sharma
91	Ritrik Rohra
92	Roshan Kumar Jha
93	Rudra Pratap Singh
94	Saloni Chhaparwal
95	Samriti Devi
96	Sanjana Jawaria
97	Sanjay Kumar
98	Sarim Ur Rehman
99	Sarthak Bhatia
100	Sarthak Sharma
101	Saurabh Choudhary
102	Saurabh Singh Jat
103	Sharad Sourabh Jha
104	Shiv Pratap Singh Chouhan
105	Shivam Garg
106	Shivansh Dosi
107	Shubham Jain
108	Siddharth Harshit

109	Siddhi Saxena
110	Simran Rathore
111	Somil Jain
112	Sonali Nishad
113	Soumya Agarwal
114	Sourabh Vyas
115	Suhani Jain
116	Sumit Gupta
117	Tanisha Jain
118	Tanu Gambhir
119	Tanvi Nemnani
120	Tushar Mittal
121	Udiesha Gautam
122	Utsav Jain
123	V Vighnesh Rajan
124	Vansh Agrawal
125	Vidhi Sukhnani
126	Vikas Mittal
127	Vinayak Gupta
128	Vishal Dandia
129	Yaman Kumar Malik
130	Yash Dubey
131	Yash Raj Mishra
132	Yatharth Jain
133	Ms. Yayati

134	Yogesh Sharma
135	Manish Manohar Chandwani
136	Mohit Kumawat
137	Smriti Sharma
138	Gaurav Kumar
139	Gaurav Singh Chouhan
140	Abhinav Mishra
141	Aman Saini
142	Ankur Sharma
143	Ansh Khandelwal
144	Anshika Khandelwal
145	Ashima Mehta
146	Bhavya Anand
147	Debopam Sinha
148	Deepanshu Maheshwari
149	Harsh Kumar

Course: Java

Course Code: Java

Session: ~~2019-20~~ 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

Basic Level

Introduction to Java

1. Getting started with Java – installation
    - Install jdk from Synaptic Package Manager
    - Choose openjdk-6-jdk from the list of packages available
    - Mark it for installation
    - The installation will take a few seconds
    - Verify the installation
    - At the command prompt type java -version, so the version number of the jdk will be displayed
    - Run a simple java program and see if it works
    - Type javac TestProgram.java for compiling the code and java TestProgram for executing the code
2. Java - First program
    - write simple java program
    - print "My First Java Program!" on Console
    - save the file
    - file name given to the java file
    - compile the file
    - run the file
    - correct the errors
    - naming conventions for class
    - naming conventions for method

- naming conventions for variable

Eclipse

3. Installing Eclipse
    - Install Eclipse on Ubuntu on the Terminal
    - Set up the proxy on the Terminal
    - Then fetch the list of all the available softwares
    - Type sudo apt-get update
    - Then install eclipse on the Terminal
    - Type sudo apt-get install eclipse
    - Verify if Eclipse is installed on the system
    - Installing Eclipse on Debian,Kubuntu,Xubuntu
    - Installing Eclipse on Redhat
    - Installing Eclipse on Fedora,centos and suse linux
4. Getting started with Eclipse
    - Eclipse is an Integrated Development Environment
    - It is a tool on which one can write, debug and run java programs easily
    - Open Dash Home and type Eclipse in the search box.
    - We get Workspace Launcher
    - On clicking on Workbench we get the Eclipse IDE
    - Go to File->New->Project and select Java Project
    - Create a project named EclipseDemo and create a class inside DemoClass
    - Learn about Package Explorer and Editor portlet
5. Hello World Program
    - Open Eclipse
    - Create a Java Project named DemoProject
    - Create a class named DemoClass
    - Class name and file name will be the same
    - Eclipse suggests various possibilities as we type a command
    - Eclipse also completes the parentheses by automatically adding the closing parentheses
    - Include the statement that we want to print
    - Eclipse also completes the quotes by adding the closing quote

- Compile and execute the program
- Change the code to print

6. Errors and Debugging
    - When writing a Java Program, here is a list of typical errors:
    - Missing semicolon(;)
    - Missing double quotes(".")
    - Mis-match of filename and classname
    - Typing the print statement n lower case
    - The line which has the error will be indicated with a red cross mark on the left margin
    - The list of errors is displayed by hovering the mouse over the cross mark
    - Create a class ErrorFree with Errors, debug the code and run it
    - Eclipse also offers intelligent fixes
7. Programming features of Eclipse
    - Auto completion
    - Sets the corresponding closing brace when we open the brace
    - Provides a drop-down list of methods when you start typing the code.
    - Syntax highlighting
    - Classname is highlighted in pink color and method in blue color.
    - Keyboard shortcuts
    - F11 to debug a program and Ctrl plus H to search a specific file.
    - Error highlighting
    - Cross symbol in the program denotes errors
    - Remove semicolon and error details are displayed when mouse is hovered over cross symbol.

Fundamental Programming Structures in Java

8. Numerical datatypes
    - Define datatypes and numerical datatypes
    - int
    - float
    - byte
    - short

- long
- double
- range of each numerical datatypes
- declaration and initializationof numerical datatypes.
- valid and invalid declaration

9. Arithmetic Operations
    - Define an operator
    - Define arithmetic operators
    - addition
    - subtraction
    - multiplication
    - division
    - modulo
    - simple program to demonstrate arithmetic operators
    - appropriate datatypes for appropriate values
    - save, compile and run the program
10. Strings
    - char datatype
    - letter, digit, punctuation marks, **tab**, or a space are all characters.
    - Program explaining the variable and the character data.
    - Introduction to strings
    - Creating string by Direct Initialization
    - Creating string by using new operator
    - String length()
    - String concat()
    - String toUpperCase()
    - String toLowerCase()
11. Primitive type conversions
    - define type conversion or type casting
    - higher order integer to lower order integer- Explicit type casting
    - program to show explicit type casting
    - common mistake in explicit type casting.
    - program to show common mistake in explicit type casting
    - lower order integer to higher order integer – Implicit type casting
    - program to show implicit type casting

- char to integer
- integer to char
- program to show char to int type casting.

Control flow

12. Relational Operations
    - boolean datatype
    - equal to and not equal to
    - less than and less than or equal to
    - greater than and greater than or equal to
13. Logical Operations
    - use of logical operators
    - and (&&) operator
    - example to explain **and** operator
    - program to demonstrate **and** operator
    - or (||) operator
    - example to explain **or** operator
    - program to demonstrate **or** operator
    - not (!) operator
    - program to demonstrate **or** operator
    - save, compile and run the programs
14. if else construct
    - Conditional Statements and types of Conditional Statements
    - Use of if statement
    - Syntax for if statement
    - Program using if statement
    - Use of if else statement
    - Syntax for if else statement
    - Program using if else statement
    - Use of if else if statement
    - Syntax for if else if statement
    - Program using if else if statement
15. nested if and ternary operator
    - explain nested if
    - nested if syntax

- program to demonstrate nested if
- explain the control flow of the program
- explain ternary operator
- syntax for ternary operator
- explain the syntax
- program to demonstrate ternary operator
- comparison between ternary operator and nested if
- save, compile and run the program

16. switch statement

- define switch case statement
- compare switch and nested if
- switch case syntax
- working of a switch case statement
- use of keyword switch
- valid and invalid use of keyword **case**
- use of keyword default
- use of keyword break
- program to demonstrate switch case statement
- save, compile and run the program to check the output

17. while loop

- Loop control statement
- types of loop control statements
- Introduction to while loop
- syntax of while loop
- Program using while loop
- Check the output.
- Introduction to infinite loop
- loop variable modification
- Check the output
- How to terminate the infinite loop

18. for loop

- syntax
- introduction to for loop
- for loop syntax
- loop vaiable
- loop condition

- loop variable increment or decrement
- loop block
- flow of loop
- advantage of using loop

19. do while loop

- define do while
- do while syntax
- working of do while loop
- example of do while loop
- explain the do while programming
- save, compile and run the program to check the output
- how different is it from the while loop
- program to demonstrate the differences

Arrays

20. Introduction to Arrays

- About Arrays
- Declare an Array
- Initialize an array
- Intilalization using for loop
- Index of an array elements
- change values of an array
- print the value of an array
- Advantage of an array.

21. Array operations

- import java.util.Arrays
- use methods from class Arrays
- toString() method
- sort() method
- fill() method
- copyof() method
- copyofRange() method
- about parameters for each method.

Classes & Objects

22. Creating class

- Whatever we can see in this world are all objects
- Objects can be categorized into groups known as class
- This is class in real world
- Human Being is an example of class in real world
- Class in java is the blue print from which individual objects are created
- Class consists defines a set of properties called variables and a set of behaviors called methods
- Syntax for creating class
- Create a simple class Student using Eclipse
- The Student class can contain properties

23. Creating Object

- An object is an instance of a class
- Each object consist of state and behavior
- Object stores it state in fields or variables
- It exposes its behavior through methods
- Reference variables
- Create a class named TestStudent
- Create an object of the Student class
- Use new operator
- Check what the reference variable contains
- Create one more object of the Student class and check what the reference variable contains

24. Instance fields

- Also known as non-static fields
- Open the TestStudent class which we have created
- Access the fields roll_number and name using dot operator
- See the output
- Initialize the field and see the output
- Change the modifier of the fields to private
- Debug the error that you get
- Change the modifier to protected
- Each object of a class will have unique values
- Create two objects of the Student class

25. Methods

- method definition

- write simple method
- method returning value
- call a method in another method
- flow of the program
- call a static method
- call a method from another class
- method signature
- method body

Constructors

26. Default constructor
    - what is a constructor?
    - what is a default constructor?
    - when is it called?
    - define a constructor
    - initialize the variables
    - call the constructor
    - difference between constructor and method
27. Parameterized constructors
    - What is a parameterized constructor?
    - create constructor without parameter
    - create a constructor with parameter
    - assign values to the variables in the constructor
    - pass arguments during the constructor call
    - working of parameterized constructor
    - show common errors
    - resolve the errors
    - create another parameterized constructor
    - why to use constructor?
28. Using this keyword
    - this is a reference to the current object
    - helps to avoid name conflicts
    - we can use this keyword inside a constructor to call another one
    - the constructors must be in the same class
    - explicit constructor invocation

- Explain it using the parameterized constructor code
- Make this statement the last one in the constructor
- You will get an error
- this statement should be the first one inside a constructor

29. Non-static block
    - Non-static block
    - Any code written between two curly brackets
    - Executed for each object that is created
    - Executes before constructor's execution
    - can initialize instance member variables of the class
    - create a class named NonStaticTest
    - Create a non-static block and a constructor inside it
    - Check the output
    - Include multiple non-static blocks
    - they will be executed in the sequence in which they appear in the class
    - Check the output
    - Non-static block is not a substitute for constructor
30. Constructor Overloading
    - define multiple constructor
    - what is constructor overloading?
    - constructor with different number of parameters.
    - parameters with different datatypes.
    - how is constructor overloaded?
    - flow of overloading process.
    - advantage of constructor overloading.
31. Method Overloading
    - define multiple methods.
    - methods with same name.
    - methods with different number of parameters.
    - methods with different datatypes of parameter.
    - what is method overloading?
    - example for overloadin method
    - how to overload method?
    - advantage of method overloading.
    - error in method overloading.

32. Taking user input in Java
    - What is BufferedReader?
    - Importing three classes from Java.io package
    - How to take the input from the user?
    - Syntax to implement BufferedReader
    - What is InputStreamReader?
    - Create object of InputStreamReader
    - Create object of BufferedReader
    - About IOException
    - About throws keyword
    - Typecasting

Intermediate Level

1. Subclassing and Method Overriding
    - Definition of subclassing
    - Demo of subclassing using an Employee and Manager class
    - Single inheritance
    - Use of extends keyword
    - Private members in a super class
    - Definition of method overriding
    - Annotation
    - @Override Annotation
2. Calling methods of the superclass
    - super keyword
    - Call methods of the super class
    - Constructor of the super class
    - Demo of super keyword using an Employee and Manager class
    - Single inheritance
    - Use of extends keyword
    - Private members in a super class
3. Using final keyboard
    - final keyword
    - What is final keyword and its application?
    - Where final keyword can be declared?
    - final variable
    - final static variables

- static block
- final variable as parameter
- final method
- private final method
- final class

4. Polymorphism
    - Polymorphism in Java
    - Run-time polymorphism
    - Virtual Method Invocation
    - Compile-time polymorphism
    - Role of JVM
    - IS-A test
    - Static binding
    - Dynamic binding
5. Abstract Classes
    - Abstract Classes in Java
    - What are Abstract Methods
    - What are Concrete Methods
    - Properties of Abstract Methods and Abstract Classes
    - How to use Abstract Methods
6. Java Interfaces
    - Java Interfaces
    - Implementing Interface
    - Implementation Classes
    - Interfaces Vs Abstract classes
    - Implementing Multiple Interfaces
    - Usage of Interfaces with an example
7. Static Variables
    - What is Static Variable in Java?
    - Usage of Static Variables with Example
    - Static Variables Vs Instance Variables
    - Final Static Constants
8. Static Methods
    - What is static method in Java?
    - Static methods Vs Instance methods
    - Usage of static method with example

- Passing object variables in a static method

9. Static Blocks
    - What is a static block
    - Declaring and defining a static block
    - How static blocks are invoked and executed
10. Exception Handling
    - What is an Exception
    - Types of Exceptions
        - Checked Exceptions
        - Unchecked Exceptions
    - Explaining *ArrayIndexOutOfBoundsException*
    - Demonstrating Checked Exceptions with example
    - Handling Exceptions using try-catch blocks
    - Explaining *ArithmeticException*
    - Demonstrating Unchecked Exceptions with example
    - Explaining *FileNotFoundException*
    - Usage of finally block
    - Explaining *NullPointerException*
11. Custom Exceptions
    - What is a Custom Exception
    - Demonstration of custom exception
    - Custom exception example - "InvalidMarkException"
    - Usage of "throw" keyword
    - How to resolve errors in custom exceptions
    - Resolve error using "Add throws declaration" option
    - Usage of "throws" keyword
    - Example for "FileNotFoundException"
    - How to handle multiple exceptions
    - How to use "surround with try/catch" option

List of Students Enrolled

#	Name of Student
1	AAKRITI SAMBYAL

2	ABHAY JAIN
3	ABHINAV SHARMA
4	AJAY SHARMA
5	AKSHITA SUTHAR
6	ANAND SAMANTNANI
7	ANANT SHARMA
8	ANCHAL JAIN
9	ANIRUDH KOOLWAL
10	ANISH GUPTA
11	ANJALI HINDUJA
12	ANKIT AGRAWAL
13	ANKIT DHARENDRA
14	ANKIT KUMAR
15	ANSHUL SIMLOTE
16	ANUBHAV JAIN
17	ANUJA DADHEECH

18	ASHOK CHOUDHARY
19	ASTHA KHANDELWAL
20	AVISH DHIRAWAT
21	AYUSH AGRAWAL
22	CHANDESHWAR KUMAR
23	CHETAN JAIN
24	CHIRAG MISRA
25	DEEPAK GUPTA
26	DEEPANSHU AGRAWAL
27	DEEPENDRA NAMA
28	DEVBRAT DEVBRAT
29	DHRUV UPADHYAY
30	DILKHUSH SHARMA
31	GARV KUMAR
32	GAURAV VAISHNAV
33	GIRISH KARWASARA

34	HARDIK SOMANI
35	HARSHIT JAIN
36	HARSHUL GUPTA
37	ANKUSH UPADHYAY
38	ESHAAN CHAUHAN
39	HIMANSHU JAIN
40	HIMANSHU SHARMA
41	HRIDYANGAM GARG
42	ISHAN GOYAL
43	JAHNAVI SACHDEVA
44	JALADH SINGHAL
45	JAY PATEL
46	JEET PATEL
47	JEETENDRA KUMAR
48	JEEVAN SINGH
49	KAUSHAL SARASWAT

50	KAUSTUBH SHARMA
51	KAVISH GUPTA
52	KESHAV BHANDARI
53	KHUSHI MITTAL
54	KHYATI GUPTA
55	KRITIKA SINGHAL
56	KUSHAGRA MEHTA
57	LOKESH JAIN
58	MANPREET LALA
59	MANSI GUPTA
60	MANTHAN ROHIL
61	MAYANK MISHRA
62	MEGHA PATHAK
63	MEHUL SHARMA
64	MOHIT BATRA

65	MOHIT KUMAR
66	MUKUL SINGHAL
67	NAYAN AGRAWAL
68	NIDHI KHANDELWAL
69	NILANSHI MITTAL
70	NIMIT GOGORYA
71	NITESH GARG
72	PALAK WADHWA
73	PARMANAND SARASWAT
74	PIYUSH SARAF
75	PIYUSH SHARMA
76	PRACHI JAIN
77	PRADEEP YADAV
78	PRAGATI JAIN
79	PRAKHAR MANAK BOHARA

80	PRATEEK AGRAWAL
81	PRATYUSH KHANDELWAL
82	PRINCE JAIN
83	PRIYANSH GUPTA
84	PUNEET MANGHWANI
85	PUNIT JAIN
86	PUSHPANK HARPLANI
87	RAGHAV AGRAWAL
88	RAGHAV PALIWAL
89	RAHUL SHARMA
90	RAHUL SHARMA
91	RAHUL SINGH
92	RAHUL TAK
93	RAJESH SOHU
94	RAJNEESH RAJNEESH

95	RITESH PORWAL
96	RITIK AGARWAL
97	ROHIT JAIN
98	SACHIN KUMAR
99	SATYAM LAHOTY
100	SAURABH YADAV
101	SHAILESH GOYAL
102	SHARAD PAREEK
103	SHASHANK JINDAL
104	SHASHANK MEEL
105	SHIV MODI
106	SHIVAM SHARMA
107	SHIVANI KUMAWAT
108	SHORYA UPADHAYAY
109	SHUBHAM SHARMA

110	SIDDHARTH GUPTA
111	SOUMYA KHARWAS
112	SUHANI MAHESHWARI
113	SURENDRA KUMAR
114	TANISHQUE JAIN
115	TARUN SHARMA
116	TARUN TAMBOLI
117	TARUNN BISHNOI
118	TUSAR CHOUDHARY
119	TUSHAR KATARA
120	TUSHAR VERMA
121	UMANG VANAWAT
122	UTKARSH SINGH
123	UTSAV JAYASWAL
124	V SUBHASHINI

125	VAIBHAV AMARNANI
126	VIKAS JAIN
127	VINAY SHARMA
128	VINIT SWAMI
129	VISHNU JANGID
130	YASH SHARMA
131	YOSHIT MATHUR
132	AAYUSH SUHALKA
133	ABHISHEK GOYAL
134	AKSHITA GOYAL
135	AMAN BAHETI
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137	ARCHIT SHARMA
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149	ISHANK JAIN
150	JAHANVI JAIN
151	JAIKISHAN DIDWANIA
152	KAUSHAL SHARMA
153	KHUSHI GOYAL
154	KHUSHI JAIN
155	KRITIK SHARMA

156	NIKHIL VASWANI
157	NIPUN GOYAL
158	PRACHI PORWAL
159	PRATEEK SALUJA
160	PRIYANSHI SUWALKA
161	PUSHPENDRA JAIN
162	RISHITA MAROO
163	SALONI MATHUR
164	SAMARTH CHATURVEDI
165	SAMRIDH RAGHAV
166	SETU CHANDWAR
167	SHIVAM JHA
168	SHREYA SINGH PARIHAR
169	SHREYANSH DEEP
170	SHUBHA SHARMA
171	SIMRAN KOOLWAL

172	VAIBHAV GEHANI
173	VINAY SHARMA
174	VISHAL SHARMA
175	VISHAVADEEP SHEKHAWAT
176	VIVEK JAIN
177	YATI SHEKHAWAT
178	ANANYA BISHT
179	DIKSHITA SAMDANI
180	MANVI ASIJA
181	SAURAV RANJAN
182	ZEHRA KHAN
183	ANUKRITI GARG
184	PARAS JAIN
185	AAKARSH RAJ
186	AASTHA GUPTA
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205	KISHITA GUPTA
206	MIHIR JAIN
207	NEERAJ JAIN
208	NIKHIL KHANDELWAL
209	PIYUSH SONI
210	PRAGYA KUMARI
211	PRIYANSH AJMERA
212	PULKIT GARHWAL
213	PULKIT VERMA
214	RAHUL KHATIK
215	RAJAT BALOTIA
216	RISHABH KHANDELWAL
217	ROHIT AGARWAL
218	ROHIT KALWANI

219	ROOPAL YADAV
220	RUPESH PRASAD
221	SAKSHAM SHARMA
222	SANYAM AUDHICHYA
223	SHANTANU DONGRE
224	SIDDHESH DOSI
225	SNEHA MATHUR
226	SURAJ SHRIVASTAVA
227	SUSHANT SINGH
228	SWATI PANCHOLI
229	TUSHAR THANVI
230	UJJWAL GARG
231	VARSHA YADAV
232	VIKAS MAURYA
233	YASH SAXENA

234	YATHARTH CHOUBISA
235	YOGESH KUMAR
236	YOGESH SAINI
237	SINGH POURNIMA YOGENDRA
238	SRISHTY ARORA
239	KRISHNESH KHALORA
240	RITWICK JOSHI
241	ANUJ SHARMA
242	KAVYA PRASANNAN
243	ASHISH CHAURSIYA
244	PRIYA GOCHER
245	PRAJJWAL SHARMA
246	SHUBHAM GUPTA
247	NIKHIL SHARMA

248	SANYOG SHARMA
249	SARTHAK ARORA
250	SUMITRA JHANWAR
251	ANKIT SAINI
252	VIDHI KULSHRESTHA
253	PRIYAL GOYAL
254	DARSHAN MOHAN TAK
255	SARTHAK JOSHI
256	ROHIT KUCHERIA
257	MUSKAAN JOSHI
258	LIPI SINGH PARIHAR
259	PUNEET SHARMA
260	SHUBHAM SHARMA
261	SHREY BHARGAVA
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Course: Python

Course Code: Python

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

Module 1: Basic Plotting

Getting started with ipython

1. Use Python 3.5.2
2. Use Ipython version 5.1.0
3. IPython is an enhanced interactive Python interpreter.
4. Invoke the IPython interpreter
5. Quit the IPython interpreter
6. Navigate the IPython session history
7. Use tab-completion to work faster.
8. See the documentation of functions using question mark.
9. Interrupt commands using Ctrl + C when we make an error.
10. round command

Using the plot command interactively

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Start IPython with pylab.
4. ImportError if matplotlib is not installed
5. clf() function
6. Use the linspace function to create equally spaced points in a region.
7. Find the length of sequences using len function.
8. Plot mathematical functions using plot.
9. Clear drawing area using clf.
10. Usage of buttons in the UI of the plot window such as - save, zoom, move axis, back and forward and Home

Embellishing a plot

1. Use Python 3.4.3

2. Use Ipython version 5.1.0
3. Modify the attributes of a plot
4. Pass additional keyword arguments to plot command
5. Add title to a plot using 'title' command.
6. Incorporate LaTeX style formatting by adding a $ sign before and after the string.
7. Label x and y axes using xlabel() and ylabel() commands.
8. Add annotations to a plot using annotate() command.
9. Get the limits of axes using xlim() and ylim() commands.
10. Set the limits of axes using xlim() and ylim() commands.

Saving plots

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Save plots using the savefig() function.
4. Save the plots in different formats like
    - pdf
    - ps
    - png
    - svg
    - eps

Multiple plots

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Draw multiple plots which are overlaid.
4. Operations on individual plots.
5. Use the figure command.
6. Distinguish between multiple overlaid plots.
7. Use the legend command.
8. Serial number of the plot to select corresponding plot.
9. Switch between the plots
10. Saving individual plots.

Subplots

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Creating subplots

4. Switching between subplots.
5. Subplot command
6. Passing arguments to subplot command.
7. First argument is the number of rows of subplots.
8. Second argument is the number of columns of subplots
9. Third argument specifies the serial number for subplot.

Additional features of IPython

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Retrieve the history using %history command.
4. View only a part of history by passing argument to %history command.
5. Pass arguments to %history to get particular lines of code
6. Save the required lines of code in required order using '%save' command.
7. Use '%run -i' command to run a saved script.

Module 2: Plotting Experimental Data

loading data from files

1. load data from file
2. single column
3. multiple columns separated by delimiter
4. cat command
5. loadtxt()
6. columns separated by spaces
7. columns separated by semi-colon
8. unpack argument
9. delimiter argument
10. three columns of data

Plotting the data

1. plotting data
2. list
3. list element-wise squaring
4. plot data points
5. clear plots
6. errorbar function

7. dots or filled circles in plot
8. plot with red pluses
9. explore documentation in ipython
10. plot with errorbars
11. using format argument

Other types of plots

1. scatter plot
2. scatter function
3. scatter plot with various arguments
4. logarithmic plot
5. loglog function
6. cat command
7. loadtxt function
8. unpack parameter of loadtxt
9. linspace
10. scatter versus plot

Plotting charts

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. To produce scatter plot
4. Plot a pie chart using pie() function
5. Plot a bar chart using bar() function
6. Access the matplotlib online help
7. Charts with line hatching

Module 4: Handling Large Data Files

Getting started with lists

1. What is a list?
    - Define List
    - List index
2. Create:
    - List with elements
    - Empty list
    - List within a list

3. Find out the list length using len function
    - Access elements using their index numbers
    - Append elements to list using the function append
    - Delete element from list using the del and remove function

Getting started with for

1. For loop syntax
2. Example to use For loop
3. Indentation in for loop
4. Create blocks in python using for
5. Iterate over a list using for loop
6. How to get out of the block
7. use of Range() function
8. Range function in for loop
9. How to use Python interpreter
10. IPython interpreter to specify blocks

Getting started with strings

1. What are strings?
2. How are strings denoted in Python?
3. String concatenation
4. Multiply a string with an integer
5. Accessing individual elements of a string
6. Accessing elements of a string using negative indices
7. Split() function
8. Join() function
9. Define a string in different ways
10. Print a string repeatedly

Getting started with files

1. Open a file
2. Open() function
3. Different Modes of opening a file
4. Read() method
5. Read the content of the file line by line
6. Read the entire content of the file
7. Append the lines of a file to a list

8. Close a file
9. Demonstration using a txt file
10. Splitlines() method

Parsing data

1. What is Parsing data?
2. split function and its syntax
3. What is string tokenizing?
4. How to split a string on whitespace?
5. split function with argument
6. strip function and example
7. Converting string into floats and integers
8. Example to read a huge .txt file line by line and parse each record
9. Perform computations on the .txt file
10. Execute the file using %run command

Statistics

1. Statistical operations in Python
2. Installation of Numpy for mathematical and logical operations
3. Installation of pip to install python libraries
4. loadtxt() function with example
5. Getting the shape of an array
6. Getting the sum of a column in an array
7. How to calculate mean?
8. Calculate mean across each of the axis of the array
9. How to calculate median?
10. How to calculate standard deviation?

Module 5: Arrays and Matrices

Getting started with arrays

1. Overview of array
2. Usage of numpy library
3. How to create arrays
4. How to create two dimensional array
5. arange() method
6. reshape() method

7. How to find the shape of an array?
8. Create a new array with elements of different datatypes
9. Identity matrix
10. Zeros method

Accessing parts of arrays

1. Create a one-dimensional array
2. Create a two-dimensional array
3. Accessing individual elements of an array
4. How to change the value of an array
5. How to change more than one elements at a time
6. Negative indexing of arrays
7. Slicing of an array
8. Striding of an array
9. Access only the odd rows and columns of an array
10. Examples to demonstrate all the manipulations of arrays

Image manipulation using Arrays

1. Read images into arrays
2. How to access parts of an array?
3. imread command
4. imshow command
5. show command
6. How to check the dimensions of an array?
7. Example to access parts of an image
8. How to stride over an array?
9. Example to access an RGB image
10. Slice an image of different dimension

Basic Matrix Operations

1. Create matrices from lists
2. asmatrix method
3. arange and reshape methods
4. Basic matrix operation
5. Addition, subtraction and multiplication of a matrix
6. Determinant of a matrix
7. eye(), allclose() functions

8. Inverse of a matrix
9. eigenvalues and eigenvectors of a matrix
10. diag() function

Advanced Matrix Operations

1. flatten() function
2. Example to convert a multidimensional matrix to single dimension matrix
3. Frobenius norm of a matrix
4. Demonstration of Frobenius norm of a matrix
5. Inverse of a matrix
6. Infinity norm of a matrix
7. norm documentation
8. Singular value decomposition
9. svd() function
10. smat function

Least square fit

1. Generating a Least Square fit line
2. Generating L vs t square
3. loadtxt function
4. Usage of numpy library
5. Plotting L vs t square
6. Steps for least square fit line
7. Matrix formulation tsq=A.p
8. Generating the two matrices tsq and A
9. Finding transpose of a matrix
10. lstsq() function

Module 6: Python Language: Basics

Basic datatypes & operators

1. Data types in Python
2. Demonstration of int, float and complex data types with examples
3. Different functions associated with int data type
4. Complex numbers and their functions
5. Boolean operations with examples
6. Operator precedence with parentheses

7. Different operators available in Python3
8. Modulo operator with examples
9. How to do exponent operation in Python?
10. How to find the square root of a number in Python?

Sequence datatypes

1. List, string and tuple sequence data types with examples
2. How to access a list using index numbers?
3. Access the string elements
4. Access the tuple elements
5. How to add different sequence data types?
6. How to find the length of a variable?
7. Find the sum of a list
8. Convert list to tuple
9. Convert tuple to list
10. Convert string to list and list to string

Input/output

1. Input Output in Python
2. Various output statements
3. Print a string
4. Print a string with newline character
5. How to use format operators?
6. Example for integer format
7. Example for string format
8. Example for float format
9. Getting input from the user using Input()function
10. Display a prompt to get the input
11. Save the script as filename.py and execute using %run command

Conditionals Statements

1. if condition statement
2. Demonstration of if statement with example
3. if/else condition statement with example
4. Importance of indentation in a program
5. Usage of colon in program

6. Condition statement using elif
7. Examples using if/elif/else block
8. Ternary conditional statement
9. Difference between if/else and ternary conditional statements
10. How to use pass statement?

Loops

1. Explanation of while loop
2. Demonstration of while loop with example
3. Print the squares of all the even numbers below 10 using while loop
4. How to use for loop?
5. Print the squares of all the even numbers below 10 using for loop
6. for loop with range function
7. How to use break statement in for loop
8. pass statement in for loop
9. continue statement in for loop
10. Demonstration of pass, break and continue statements

Module 7: Python Language: Datastructures

Manipulating lists

1. Various manipulation in lists
2. Slicing of lists
3. Syntax and demonstration of slicing of lists
4. How to use step value in slicing
5. Striding of list
6. Examples with various parameters in striding of list
7. sort method in list
8. Usage of sorted() built-in function
9. Reverse a list
10. Striding with negative values
11. How to store a new reversed list in another variable

Manipulating strings

1. How to slice a string
2. Various way to get substrings using index
3. Reverse a string

4. How to check if a given string is a palindrome or not
5. Replace characters in a string
6. Convert a string to uppercase
7. Convert a string to lowercase
8. How to use for loop in a list
9. Join method
10. Join list elements to form a string

Getting started with tuples

1. What are tuples?
2. How to declare tuples?
3. Examples to declare tuples
4. Demonstration of creating tuple
5. Accessing tuples by their index positions
6. Iteration over tuples
7. Demonstration of immutability property of tuples
8. How to swap values in tuples
9. Similarities of tuples with lists
10. Tuple packing and unpacking

Dictionaries

1. Overview of dictionaries
2. Creating an empty dictionary
3. Creating a non empty dictionary
4. About key:value pair
5. How to access the dictionary elements
6. Demonstration of wrong key
7. Add, delete and modify an item in a dictionary
8. Usage of method in
9. Retrieve the keys and values by using the methods keys() and values()
10. Iterate over elements of a dictionary using a for loop

Sets in Python

1. What are sets in python?
2. Input sets
3. Create sets
4. How to create empty sets?

5. Operations on sets
6. Add and remove methods
7. Union and intersection methods
8. Difference and symmetric_difference methods
9. Subset and superset
10. Length and containership on sets

Module 8: Python Language: Advanced

Getting started with functions

1. About Functions
2. How to define a function
3. Example for defining a function
4. Calling a function with arguments
5. Calling a function without arguments
6. Return values from a function
7. Indentation in coding
8. Documenting or commenting code
9. How to use docstrings in python function
10. How to write a function circle to return area and perimeter with radius r

Advanced features of functions

1. Functions with default arguments
2. Various examples for default arguments
3. Interchanging the default and non-default arguments
4. Call a function with keyword arguments
5. Call a function without keyword arguments
6. Functions with positional arguments
7. Functions with arbitrary arguments
8. Demonstration of arbitrary arguments
9. Usage of * and ** in defining a function
10. Python built-in-functions

Using python modules

1. Python modules
2. Run a Python script from command line
3. How to import modules in python scripts?

4. How to import required functions from a module?
5. Usage of namespace
6. Advantages of using import functions
7. Using alias to the module
8. Demonstration of import functions
9. Run python scripts in ipython interpreter
10. Python standard library of modules

Writing python scripts

1. About Python modules
2. What is importing?
3. How to write a function and save it as a script
4. Run a python script
5. Import a module
6. Example to import a module
7. usage of __name__ variable
8. Write test condition using the name variable
9. How importing works in new IPython console
10. Different ways of running the Python script

Testing and debugging

1. What is software testing?
2. Write a simple function
3. How to write test cases?
4. Create simple tests for a function
5. Run the script and test the code
6. Automate tests
7. Example for test case fail
8. Coding style
9. How to give meaningful names in coding
10. Python coding standards

Handling Errors and Exceptions

1. Errors in Python
2. Syntax errors and exception
3. Exceptions with example
4. Syntax error with example

5. Demonstration of ValueError exception
6. Demonstration of ZeroDivisionError exception
7. try except clause in Python
8. What is debugging?
9. Using %debug for debugging in ipython
10. try except with else clause

Details of Student Certified

S.no	Name of Student
1	AAKASH SHARMA
2	AAYUSH GARG
3	ABHINAV MISHRA
4	ABHINAV PARAKH
5	ABHISHEK DIXIT
6	ABHISHEK GALANI
7	ABHISHEK GARG
8	ABHISHEK GOYAL
9	ABHISHEK RAJORA
10	ABHISHEK SARASWAT
11	ABHISHEK SHARMA
12	Aditi Goyal
13	ADITI JAIN
14	ADITIPRAVEEN GUPTA
15	ADITYA BHARDWAJ
16	ADITYA BHARGAVA
17	ADITYA NEHRA
18	AJAY PRAJAPAT
19	AKASH GUPTA
20	AKSHAT GADODIA
21	AKSHAT KHANDELWAL
22	AKSHAT LAKHERA
23	AKSHAT SINGHAL
24	AKSHIT SHUKLA
25	AKSHITA JAIN
26	AKSHITA SHARMA
27	AKSHITA SINGHVI
28	AMAN AGARWAL
29	AMAN JAIN
30	AMISHI GUPTA
31	ANCHAL GUPTA
32	ANKIT MATHUR
33	ANSHIKA MITTAL
34	ANSHUL JETHLIYA

35	ANUJ UPADHYAY
36	ANUJ SHARMA
37	ANURAG SHARMA
38	APURV KUMAR
39	ARJUN CHHIPA
40	ARPIT TYAGI
41	ARUNABH JAIN
42	ARYAN SHARMA
43	ASHIMA GUPTA
44	AVI JAIN
45	AYUSHI BANSAL
46	AYUSHI BISHT
47	BHARAT KUMAR
48	BHAVESH MAMTANI
49	BHAVYA PATNI
50	BHAVYA SHARMA
51	BHAWESH VERMA
52	BRIJESH NENWANI
53	CHARU AGARWAL
54	CHINMAY AGRAWAL
55	CHIRAG ARORA
56	DEEP SHAH
57	DEEPAK JAIRAMANI
58	DEEPAK KUMAWAT
59	DEEPANDRAPAL KABA
60	DEEPANSHU JAIN
61	DEEPESH SHARMA
62	DEEPSHIKHA DEEPSHIKHA
63	DEVANSH PAREEK
64	DHANANJAY NATHAWAT
65	DHIREN GUPTA
66	DISHA GARG
67	DIVYAM MITTAL
68	DIVYANSH MATHUR
69	DIVYANSHU PAREEK
70	DIVYANSHU SHARMA
71	FAIZAN KHAN
72	GARVIT JAISWAL
73	GARVIT TAMRA
74	GAURAV BHANDARI
75	GAURAV GUPTA
76	GAURAV GUPTA
77	GAUTAM SHARMA
78	GAUTAM TINKER
79	GAZAL GUPTA
80	HARSH KUMAR

81	HARSH MUNDHRA
82	HARSHIL NANDWANA
83	HARSHIT RATHI
84	HARSHIT KUMAR SEVKANI
85	HARSHITA GUPTA
86	HARSHITA SHARMA
87	HEMANG AGRAWAL
88	HIMANSHU CHOUHAN
89	HIMANSHU KALAL
90	HRITIK AGRAWAL
91	ISHIKA GARG
92	JATIN MITTAL
93	JATIN SHARMA
94	JAYANT GUPTA
95	JITENDRA MUNDEL
96	KALASH JAIN
97	KANIKA AGRAWAL
98	KARANKUMAR DUA
99	KAREENA KHANNA
100	KARISHMA SAINI
101	KARMVEER SINGH
102	KARTIK DUSAD
103	KARTIK GUPTA
104	KARTIK SHARMA
105	KAUSHIK JAIN
106	KAUSTUBH PAREEK
107	KHUSHI GOYAL
108	KHUSHI MALASIYA
109	KHYATI CHANDAK
110	KIRTI SONI
111	KSHITIJ KHANDELWAL
112	KUNAL SHRINGI
113	KUSHAL AGRAWAL
114	KUSHAL RAWAT
115	LALIT CHOUDHARY
116	LALIT KUMAWAT
117	LOKESH CHOUBISA
118	MADHUR KHANDELWAL
119	MAHENDRA NETWAL
120	MANAN JAIN
121	MANASVI KHATTER
122	MANISH MANISH
123	MANISH VIJAY
124	MANISHKUMAR SUTHAR
125	MANU CHOUDHARY
126	MANU PAREEK

127	MAYANK SHARMA
128	MEENAL GUPTA
129	MEHUL MEHTA
130	MEHUL MODI
131	MEHUL NANDWANA
132	MITANSH AGRAWAL
133	MOHIT AGARWAL
134	MOHIT BABANI
135	MOHIT JAIN
136	MOHIT JAIN
137	MOHIT VIJAY
138	MOHITKUMAR PAMNANI
139	MUKUL SHARMA
140	MUKUND SHARMA
141	MUSKAN JAIN
142	MUSKAN TAILOR
143	NAGENDER SINGH
144	NAGENDRASINGH TANWAR
145	NAMAN BHARDWAJ
146	NAMAN GOYAL
147	NAVDEEP DHAKAR
148	NIKHIL KHANDELWAL
149	NIKHILKUMAR LAMBA
150	NIKITA SINGH
151	NIKUNJ SAHU
152	NIMISH KAPOOR
153	NIPUN JAIN
154	NISHITA MATHUR
155	OSWINPATRICK ROZARIO
156	PALAK GUPTA
157	PALAK GUPTA
158	PALAK VASHISHTHA
159	PARTH DINGLIWAL
160	PARTH SHARMA
161	PIYUSH ARORA
162	PIYUSHI AGARWAL
163	PRABHAT GUPTA
164	PRADEEP DHUPAR
165	PRAGATI PRAGATI
166	PRAGYA SHARMA
167	PRAKSHAL JAIN
168	PRANAYA VASHISTHA
169	PRATIK AGRAWAL
170	PREKSHA GUPTA
171	PRITISHA JAIN

172	PRIYA SINGH RAGHAV
173	PRIYANSHI VIG
174	PRIYANSHU PARETA
175	PRIYANSHU SHUKLA
176	PRIYANSHU JINDAL
177	PRIYUL JAIN
178	PUNEET TANWAR
179	RADHIKA OJHA
180	RAGHAV BHANDARI
181	RAJAT MALIK
182	RAJAT VYAS
183	RASHIKA JOSHI
184	RISHABH JAIN
185	RISHABH MANGAL
186	RISHI SHARMA
187	RISHI SINGHAL
188	RISHIT RASTOGI
189	RITESH SHARMA
190	RITESH SHARMA
191	RITIK SONI
192	RITIKA AGARWAL
193	RITISH KHURANA
194	ROHIT ROHIT
195	ROHIT VERMA
196	RONAK VIJAYVERGIA
197	Ronit Jain
198	SAKSHI KHANDELWAL
199	SAMARTHNARAIN SHARMA
200	SAMRIDHI ARYA
201	SARANSH CHOUHAN
202	SAURABH PAREEK
203	SHAYAN QURESHI
204	SHIKHAR GUPTA
205	SHIV MAHESHWARI
206	SHIVAM TODWAL
207	SHIVANG YADAV
208	SHOBHIT JAIN
209	SHREY SACHDEVA
210	SHREYA MAHESHWARI
211	SHREYANSH GARG
212	SHRUTI RANDER
213	SHRUTI RAWAT
214	SHUBHAM PAREEK
215	SHUBHAM NAGAR
216	SHUBHI GUPTA

217	SMITH SAINI
218	SNEHA SHARMA
219	SOMESH KAPOOR
220	SOURABH SISODIA
221	SUHANI SINGHAL
222	SUHANI WADHWA
223	SUNILKUMAR SHARMA
224	SUNNY KULSHRESTHA
225	SUSHIL KUMAR SADHNANI
226	SWAPNIL KASHYAP
227	TANIK JAIN
228	TANISHQ JINDAL
229	TANISHQ PALIWAL
230	TANMAY GARG
231	TANMAY JAIN
232	TANMAY SHARMA
233	TANU VIJAY
234	TANUSHREE GUPTA
235	TANYA KHANDELWAL
236	TAPESH SHARMA
237	TARUN JAIN
238	TEJPAL CHOUDHARY
239	TIWARI RAHUL
240	TUSHAR BATRA
241	UMANG MISHRA
242	UTSAV YADAV
243	VADANSHI PALIWALA
244	VAIBHAV SHARMA
245	Vanshika Agarwal
246	VARUNKUMAR SONI
247	VIKALP JAIN
248	VIKASKUMAR PRASAD
249	VIKESHKUMAR PATIDAR
250	VINAY BANSAL
251	VINAY RAJ DHADDHA
252	VIRAL JAIN
253	VISHAKHA CHAUHAN
254	VISHAL KUMAR NAMA
255	VIVEK CHOUDHARY
256	YASH GOYAL
257	YASH GUPTA
258	YASH JANYANI
259	YASH MATHUR
260	YASH SHARMA

261	YASHVIR SINGH NATHAWAT
262	YASHWANTSINGH RATHORE
263	YUVRAJ SINGH

Course: Cpp

Course Code: Cpp

Session: ~~2019-20~~ 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

- 1 Introduction to C
- 2 Basic Level
- 3 Intermediate level
- 4 Advanced level

Basic Level

1) **First C Program**

- -Header Files
    - example: #include <stdio.h>
- main()
- Curly braces { }
- printf()
- semicolon ;

- Compiling a C program
    - example: gcc filename.c -o output parameter
- Executing a C program
    - example: ./output parameter
- Errors

2) **First C++ Program**

- Header files
    - --example: #include <iostream>
- main()
- Curly braces { }
- -cout<<
- semicolon ;

- Compiling a C++ program

- example: g++ filename.cpp -o output parameter
- Executing a C program
    - example: ./output parameter

3) **Tokens in C and C++**

- Data types, constants, identifiers
- Keywords
    - example: if, break, else
- Constants
- Data types
    - example: int, float, char, double
- Format specifiers
    - example: %d, %f, %c, %lf
- Range of data types
- Variables
- Identifier
- Errors

4) **Functions in C and C++**

- What is a function
- Syntax for declaration of a function
- Function with arguments
    - example: return-type function-name(parameter);
- Function without arguments
    - example: return-type function-name;
- Calling a function
- Errors

5) **Scope of Variables in C and C++**

- Introduction
- Syntax of declaring a variable
    - example: data-type var-name;
- Syntax for initializing a variable
    - example: data-type var-name = value;
- Scope of variables

- Global variable
- Local variable
- Error

6) **If And Else If statement in C and C++**

- What are Statements.
- Syntax for if and
- If-else Statement
- Errors

7) **Nested if and switch statement in C and C++**

- Nested if statement.
- Switch statement.
- Syntax for nested-if statement
- Syntax for switch statement
- break statement
- Comparison between nested if-else and switch statement
- Errors

8) **Increment and Decrement Operators in C and C++**

- Increment Operator
    - example: ++
- Postfix increment
    - example: a++
- Prefix increment
    - example: ++a
- Decrement Operator
    - example: --
- Postfix decrement
    - example: a--
- Prefix decrement
    - example: --a
- Typecasting
- Errors

9) **Arithmetic Operators in C and C++**

- Arithmetic Operators
- Addition Operator
    - example: a + b
- Subtraction Operator
    - example: a - b
- Multiplication Operator
    - example: a * b
- Division Operator
    - example: a \ b
- Modulus Operator
    - example: a % b
- Errors

10) **Relational Operators in C and C++**

- Double Equal to
    - example: a == b
- Not Equal to
    - example: a != b
- Greater Than
    - example: a > b
- Less Than
    - example: a < b
- Greater than Equal To
    - example: a >= b
- Less Than Equal To
    - example: a <= b
- Errors

11) **Logical Operators in C and C++**

- And &&
- Or ||
- Not !
- Errors

Intermediate level

12) **Loops in C and C++**

- Loops
- Syntax for while and do-while loop
- Comparison of while and do-while loop
- Syntax for
- for loop
- Errors

13) **Arrays in C and C++**

- What are arrays
- 1-D Arrays
- Syntax for Declaration of arrays
    - example: data type array_name [size];
- Syntax for Initialization of arrays
    - example: data type array_name [size]=value;
- Accepting values from the user
- Errors

14) **Working with 2-D Arrays in C and C++**

- What are 2-D Arrays.
- Range of arrays
- Syntax for Declaration of 2-D arrays
    - example: data type array_name[row][column];
- Syntax for initialization of 2-D arrays
    - example: data type array_name[row][column]=

{
{row-val},{col-val}
};

- Errors

15) **Strings in C and C++**

- What is a string
- Syntax for declaring a string

- Syntax for initializing a string
- To read a string from keyboard
- Errors

16) **String Library Functions in C and C++**

- What are string library functions.
- Types of string library functions
    - Strcpy
    - Strlen
    - Strcmp
    - Strcat
- Errors

Advanced level

17) **Working with Structures in C and C++**

- Introduction
- Syntax of structures
- Declaration and initialization
- Declaration of structure variable
- Accessing structure variables

18) **Understanding Pointers in C and C++**

- Introduction
- Syntax of Pointer
    - example: int *iptr;
- Declaration
    - example:

int a; (integer a) int *aptr; (pointer to an integer *aptr) aptr = &a; (aptr set to address of a) Address Pointer

- Errors

19) **Function call in C and C++**

- types of function calls
- function pass by value
- function pass by reference

20) **File Handling in C**

- File handling functions
- Opening a File closing a file
    - example: fopen, fclose
- Reading data from a File

List of Students Enrolled

#	Name of Student
1	AAKRITI SAMBYAL DUBEY
2	ABHAY JAIN YADAV
3	ABHINAV SHARMA CHOUDHARY
4	AJAY SHARMA JAIN
5	AKSHITA SUTHAR NAMA
6	ANAND SAMANTNANI SHARMA
7	ANANT SHARMA SHARMA
8	ANCHAL JAIN AGGARWAL
9	ANIRUDH KOOLWAL SHARMA

10	ANISH GUPTA KUMAR
11	ANJALI HINDUJA SHARMA
12	ANKIT AGRAWAL PANCHOLI
13	ANKIT DHARENDRA SHAHARA
14	ANKIT KUMAR AGARWAL
15	ANSHUL SIMLOTE JOSHI
16	ANUBHAV JAIN KATARE
17	ANUJA DADHEECH ARORA
18	ASHOK CHOUDHARY SAINI
19	ASTHA KHANDELWAL RATHI
20	AVISH DHIRAWAT GARG
21	AYUSH AGRAWAL JHANWAR
22	CHANDESHWAR KUMAR PODAR
23	CHETAN JAIN SHERAWAT

24	CHIRAG MISRA JANGID
25	DEEPAK GUPTA BHAYANA
26	DEEPANSHU AGRAWAL BOHRA
27	DEEPENDRA NAMA YADAV
28	DEVBRAT DEVBRAT JAJOO
29	DHRUV UPADHYAY GOYAL
30	DILKHUSH SHARMA SHARMA
31	GARV KUMAR JOSHI
32	GAURAV VAISHNAV REHMAN
33	GIRISH KARWASARA SINGH
34	HARDIK SOMANI SHARMA
35	HARSHIT JAIN MALANI
36	HARSHUL GUPTA VIJAYVERGIYA
37	ANKUSH UPADHYAY KHATRI

38	ESHAAN CHAUHAN GOEL
39	HIMANSHU JAIN GUPTA
40	HIMANSHU SHARMA PATWARI
41	HRIDYANGAM GARG GUPTA
42	ISHAN GOYAL KHATRI
43	JAHNAVI SACHDEVA VALECHA
44	JALADH SINGHAL SINGH
45	JAY PATEL SHARMA
46	JEET PATEL ALWANI
47	JEETENDRA KUMAR BACHLAS
48	JEEVAN SINGH GAHLOT
49	KAUSHAL SARASWAT SHAH
50	KAUSTUBH SHARMA SHUKLA
51	KAVISH GUPTA JAIN

52	KESHAV BHANDARI KOTHARI
53	KHUSHI MITTAL SHARMA
54	KHYATI GUPTA CHAPLOT
55	KRITIKA SINGHAL RANKA
56	KUSHAGRA MEHTA SINGH
57	LOKESH JAIN PAREVA
58	MANPREET LALA SHARMA
59	MANSI GUPTA DADHICH
60	MANTHAN ROHIL JAIN
61	MAYANK MISHRA SHARMA
62	MEGHA PATHAK SOPRA
63	MEHUL SHARMA AGARWAL
64	MOHIT BATRA .
65	MOHIT KUMAR GUPTA

66	MUKUL SINGHAL HAZRATI
67	NAYAN AGRAWAL VASHISTHA
68	NIDHI KHANDELWAL TAILOR
69	NILANSHI MITTAL HOSMANE
70	NIMIT GOGORYA CHORDIA
71	NITESH GARG JAIN
72	PALAK WADHWA KUMAR SAINI
73	PARMANAND SARASWAT LATA
74	PIYUSH SARAF AGARWAL
75	PIYUSH SHARMA AGARWAL
76	PRACHI JAIN JAIN
77	PRADEEP YADAV MATHUR
78	PRAGATI JAIN AGARWAL
79	PRAKHAR MANAK BOHARA TEJWANI

80	PRATEEK AGRAWAL JAIN
81	PRATYUSH KHANDELWAL SHARMA
82	PRINCE JAIN SHARMA
83	PRIYANSH GUPTA KHANDELWAL
84	PUNEET MANGHWANI JAIN
85	PUNIT JAIN KUMAR JANGID
86	PUSHPANK HARPLANI CHOUDHARY
87	RAGHAV AGRAWAL SHANDILYA
88	RAGHAV PALIWAL SHARMA
89	RAHUL SHARMA PRAJAPAT
90	RAHUL SHARMA KAMAL
91	RAHUL SINGH JAIN
92	RAHUL TAK SHARMA
93	RAJESH SOHU PANDEY

94	RAJNEESH RAJNEESH GULYANI
95	RITESH PORWAL CHANDALIYA
96	RITIK AGARWAL SINGH
97	ROHIT JAIN KHANDELWAL
98	SACHIN KUMAR SAXENA
99	SATYAM LAHOTY AGARWAL
100	SAURABH YADAV DUTT SHARMA
101	SHAILESH GOYAL BARDIYA
102	SHARAD PAREEK GUPTA
103	SHASHANK JINDAL SAXENA
104	SHASHANK MEEL MANGAL
105	SHIV MODI GEDAR
106	SHIVAM SHARMA JHURANI
107	SHIVANI KUMAWAT MATHUR

108	SHORYA UPADHAYAY SAWARN
109	SHUBHAM SHARMA HUSSAIN
110	SIDDHARTH GUPTA THAKRAL
111	SOUMYA KHARWAS KUMARI
112	SUHANI MAHESHWARI AGARWAL
113	SURENDRA KUMAR BIRLA
114	TANISHQUE JAIN KUMAR
115	TARUN SHARMA BANSAL
116	TARUN TAMBOLI SHARMA
117	TARUNN BISHNOI SINGH
118	TUSAR CHOUDHARY RAM
119	TUSHAR KATARA GUPTA
120	TUSHAR VERMA CHAUHAN
121	UMANG VANAWAT KHANDELWAL

122	UTKARSH SINGH MEHRA
123	UTSAV JAYASWAL SINGH
124	V SUBHASHINI PRASAD
125	VAIBHAV AMARNANI MODI
126	VIKAS JAIN AGARWAL
127	VINAY SHARMA MISHRA
128	VINIT SWAMI SHAH
129	VISHNU JANGID AGARWAL
130	YASH SHARMA TANWAR
131	YOSHIT MATHUR SINGH
132	AAYUSH SUHALKA SHARMA
133	ABHISHEK GOYAL CHATURVEDI
134	AKSHITA GOYAL TRIPATHI
135	AMAN BAHETI PURI

136	APURV AGARWAL RAGHUVANSHI
137	ARCHIT SHARMA YADAV
138	ARYAN BHARGAVA PANDITA
139	AYUSH DEV MISHRA
140	DEEPAK YADAV BHARDWAJ
141	DEEPANK JAIN SHARMA
142	DEVENDRA SHARMA JAIN
143	DHAIRYA SHARMA BANSAL
144	GAGAN GUPTA MAHESHWARI
145	GAURAV BIYANI SAXENA
146	HARSH AGRAWAL AGARWAL
147	HARSHIT JHALANI GUPTA
148	HIMANSHU SOMANI SHARMA
149	ISHANK JAIN KHAN

150	JAHANVI JAIN NAHAR
151	JAIKISHAN DIDWANIA SINGH
152	KAUSHAL SHARMA INDORIYA
153	KHUSHI GOYAL SHARMA
154	KHUSHI JAIN SHARMA
155	KRITIK SHARMA VYAS
156	NIKHIL VASWANI RAJ
157	NIPUN GOYAL GUPTA
158	PRACHI PORWAL SHARMA
159	PRATEEK SALUJA GUPTA
160	PRIYANSHI SUWALKA SOMANI
161	PUSHPENDRA JAIN AGARWAL
162	RISHITA MAROO SHARMA
163	SALONI MATHUR JAIN

164	SAMARTH CHATURVEDI SHARMA
165	SAMRIDH RAGHAV GUPTA
166	SETU CHANDWAR SHARMA
167	SHIVAM JHA YADAV
168	SHREYA SINGH PARIHAR KUMAR SEN
169	SHREYANSH DEEP AGARWAL
170	SHUBHA SHARMA CHOUDHARY
171	SIMRAN KOOLWAL PRAKASH
172	VAIBHAV GEHANI RATHORE
173	VINAY SHARMA PORWAL
174	VISHAL SHARMA JOSHI
175	VISHAVADEEP SHEKHAWAT JAIN
176	VIVEK JAIN GUPTA
177	YATI SHEKHAWAT KHANDELWAL

178	ANANYA BISHT TALI
179	DIKSHITA SAMDANI BHATI
180	MANVI ASIJA JAIN
181	SAURAV RANJAN PANDEY
182	ZEHRA KHAN AGARWAL
183	ANUKRITI GARG SODHANI
184	PARAS JAIN ALWANI
185	AAKARSH RAJ MALPANI
186	AASTHA GUPTA KHANDELWAL
187	ABHISHEK AGARWAL RIYAZ
188	AMIT SINGH RAWAT GUPTA
189	ANIRUDH SHARMA SINGH CHAWLA
190	ANUSHKA MUKHERJEE SHARMA
191	ARCHITA VIJAY SHARMA

192	ARIHANT JAIN AGARWAL
193	ARYAN SAINI GUPTA
194	AYUSHI CHAUHAN VYAS
195	BHAVYA SARASWAT AGRAWAL
196	BHUPESH AGGARWAL CHITTORA
197	CHETAN KUMAWAT BANSAL
198	CHIRAG MOGRA TOLANI
199	DEEPAK BAIRAGI RATHI
200	DEEPANSHI SHARMA SHARMA
201	DEVENDRA SAINI AKHTAR
202	GARIMA GOYAL RATHORE
203	HARSHITA MATHUR AGARWAL
204	HEMANG KHURANA PAREEK
205	KISHITA GUPTA MITTAL

206	MIHIR JAIN MAHESHWARI
207	NEERAJ JAIN KOTHARI
208	NIKHIL KHANDELWAL PANJWANI
209	PIYUSH SONI CHAUHAN
210	PRAGYA KUMARI KUMAWAT
211	PRIYANSH AJMERA SINGHAL
212	PULKIT GARHWAL SINGH
213	PULKIT VERMA CHAUHAN
214	RAHUL KHATIK SAINI
215	RAJAT BALOTIA JAIN
216	RISHABH KHANDELWAL KAUSHIK
217	ROHIT AGARWAL AGGARWAL
218	ROHIT KALWANI SINGH
219	ROOPAL YADAV AGARWAL

220	RUPESH PRASAD CHITTORA
221	SAKSHAM SHARMA MALPANI
222	SANYAM AUDHICHYA SHARMA
223	SHANTANU DONGRE MOHSEEN
224	SIDDHESH DOSI KUMAR
225	SNEHA MATHUR MODI
226	SURAJ SHRIVASTAVA MEHTA
227	SUSHANT SINGH VARSHNEY
228	SWATI PANCHOLI JAIN
229	TUSHAR THANVI HARLALKA
230	UJJWAL GARG SHARMA
231	VARSHA YADAV MISHRA
232	VIKAS MAURYA KOUL NAQIB

233	YASH SAXENA AGARWAL
234	YATHARTH CHOUBISA JAIN
235	YOGESH KUMAR KUMAR
236	YOGESH SAINI KUMAR
237	SINGH POURNIMA YOGENDRA GUPTA
238	SRISHTY ARORA GAHLOT
239	KRISHNESH KHALORA RAJ
240	RITWICK JOSHI SHARMA
241	ANUJ SHARMA NARUKA
242	KAVYA PRASANNAN GUPTA
243	ASHISH CHAURSIYA MENROY
244	PRIYA GOCHER AGARWAL JAIN

Course: Linux

Course Code: Linux

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

1. Ubuntu desktop
    - Ubuntu Desktop
    - Main Menu
    - System Tray
    - Trash Bin icon (RHS corner)
    - Desktop icon (LHS corner), pen-drive
2. Synaptic package manager
    - Synaptic Package Manager
    - How to install packages
3. Ubuntu software system
    - Ubuntu-Software-Center
    - Installing softwares through Ubuntu Software Center
4. Basic Commands
    - Commands with example
    - Command interpreter
    - Shell
    - Using man
    - Apropos
    - Whatis
    - Using --help option
5. General Purpose Utilities in Linux
    - echo
    - uname
    - who
    - passwd
    - date
    - cal
    - Brief overview on Files and directories

- pwd
- ls
- cat

6. File System
    - File
    - Directory
    - File Inode
    - Types of Files
    - Home directory and Current directory
    - Change Directory(cd)
    - mkdir,rmdir
7. Working with Regular Files
    - cat
    - rm
    - cp
    - mv
    - cmp
    - wc
8. File Attributes
    - chown, chmod, chmod -R, displaying files with ls -l
    - chmod u+, chmod a-w, chmod g+w, chmod -r, chgrp
    - inode, hard link, symbolic link
9. Redirection Pipes
    - Input,output and error stream
    - Redirection : > and >>
    - Pipes : |
10. Working with Linux Process
    - Process
    - Shell process
    - Process spawning - parent and child process
    - Process attributes - pid, ppid
    - Init Process
    - User process & System process
    - ps with options
11. The Linux Environment
    - Environment variable vs Local variables

- set command
- env command
- SHELL, HOME, PATH, LOGNAME, PS1, PS2
- history
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- alias

12. Basics of System Administration
    - Root login-su
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13. Simple filters
    - Head
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Introduction to Linux - Intermediate

1. The grep command
    - To see the content of a file
    - To list the entries of a particular stream
    - To ignore cases
    - Lines that do not match the pattern
    - To list the line numbers with the entries
    - To store the result in another file
    - To know the count
2. More on grep command
    - Search using grep
    - To match more than one pattern
    - To check a word that has different spelling
    - Character class
    - The use of *
    - To match any one character using dot
    - To match a pattern at the beginning of the file
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3. The sed command

- sed
- To print using sed
- Line Addressing
- Context Addressing

4. More on sed command
    - substitute
    - insert
    - delete

Details of Student Certified

S.no	Name of Student
1	AAYUSHI SHARMA
2	AGRAWALPRANJAL PANKAJ
3	AKSHAT MATHUR
4	AKSHAT PARAKH
5	AMARPRATAP SINGH
6	ARYAN SHARMA
7	ATUL PANCHARIA
8	AYUSHSINGH TOMAR
9	BAJRANG SINGH SHEKHAWAT
10	BHANUPRIYA PANWAR
11	BHAVYA SHARMA
12	CHAITANYA SHARMA
13	CHHAVI SHARMA
14	CHINMAY GUPTA
15	DARSHIKA MAHESHWARI
16	DHAIRYA GUPTA
17	DIVYANSH PRADHAN
18	DUSHYANT JAKHAR
19	HAPPYSINGH CHARAN
20	HARSH KUMAWAT
21	HARSHIL SODANI
22	HARSHIT KHANDELWAL
23	HARSHIT MITTAL
24	HARSHITA PALIWAL
25	HARSHKUMAR SAHU
26	ISHA TRIPATHI
27	JYOTI AGRAWAL
28	KANISHK AGARWAL
29	KARTIK SHARMA
30	KARTIKEYA DIXIT
31	KESHAV GAUTAM
32	KHUSHI PAREEK

33	KRISHNA RATHI
34	LAKSHYA METHI
35	LAVANYA TALWAR
36	LAXITA SINGH
37	manas rathore
38	MANAV MANNA
39	MIHIR PANDIYA
40	MONAY CHHATTANI
41	NAKSHATRA GARG
42	PIYUSH MAKAD
43	PRAFULL BHARGAVA
44	RAHUL GOYAL
45	RAKSHA MODI
46	RAKSHIT ROCHWANI
47	RISHABH DHAYAL
48	SAKSHAM BHALLA
49	SHILPI SHUKLA
50	SHRAY MATHUR
51	SHUBHIKSHA KHANDELWAL
52	SRISHTI KULSHRESTHA
53	SUDEEP SHUKLA
54	SUKHLEEN SINGH
55	SURABHI SOMAI
56	SURYANSH JOHARI
57	TANISH KANDIRA
58	TANISHA CHOUDHARY
59	TARUN JAIN
60	TISHA GUPTA
61	VAIBHAV BAIRATHI
62	VED SHARMA
63	VEDANT KALIA
64	YASH ACHRA
65	KAMAL KISHORE
66	HIMANSHU JANGIR

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- Context Addressing

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    - insert
    - delete

Details of Student Certified

S.no	Name of Student
1	AADITYA TRIVEDI
2	AAKASH DADHICH
3	AASTHA JAIN
4	AAYUSH SHARMA
5	AAYUSH SHARMA
6	ABHIRAJSINGH BHADAURIA
7	ADITI AGARWAL
8	ADITI PAREEK
9	ADITI SHARMA
10	ADITYA SHARMA
11	ADITYA VIJAYVARGIYA
12	ADVITIYA SINGH
13	AKASH RAWAT
14	AKHILESH CHATURVEDI
15	AKSHAT JAIN
16	AKSHAT PAREEK
17	AKSHAT SHARMA
18	AKSHAT SHARMA
19	AKSHAT SURANA
20	AKSHAT GUPTA
21	AKSHI JAIN
22	AKSHITA SHARMA
23	AKUL SAXENA
24	ALPESH GUPTA
25	AMAN BHARGAVA
26	AMEY VIJAYWARGIYA
27	AMIT KUMAR
28	ANANT BHARDWAJ
29	ANANYA MATHUR
30	ANGELINAFREDA SMITH
31	ANIKET SHARMA
32	ANISH CHOUDHARY
33	ANJALI GUPTA

34	ANJALI SHARMA
35	ANJESH JAIN
36	ANKUR YADAV
37	ANMOL KASHYAP
38	ANSHIKA GOYAL
39	ANSHUL GORA
40	ANSHUMAN SINGH NARUKA
41	ANURAG AGRAWAL
42	ANURAG SHARMA
43	ARIHANT POKHARNA
44	ARNAV GODARA
45	ARPITA SHARMA
46	ARUN SAHIJPAL
47	ARYAN MISHRA
48	ASHTAMI TAK
49	ASHU AGARWAL
50	ASHUTOSH TIWARI
51	ASHWIN GUPTA
52	AYUSH AGARWAL
53	AYUSH GUPTA
54	AYUSH JALAN
55	AYUSH KUMAR
56	AYUSH MAHESHWARI
57	AYUSH SINGHAL
58	AYUSH SONI
59	AYUSH AGARWAL
60	AYUSH JALAN
61	AYUSHI AGARWAL
62	BADAL SONI
63	BHAVESH SINGHAL
64	BHOMESH RAZDAN
65	BRIJESHSHARMA JANGID
66	CHETESH SHARMA
67	CHEZAL SHEKHAWAT
68	CHINMAY PAREEK
69	CHIRAG JAIN
70	DEEPESH KHANDELWAL
71	DEEPIT SHARMA
72	DEVESH KASERA
73	DEVESH GUPTA
74	DHARMI KAPADIYA
75	DHEERAJKUMAR GARG
76	DHRUV MITTAL
77	DHRUVI GOYAL
78	DIPESHKUMAR KARESIA
79	DIVYA DULANI

80	DIVYA JAIN
81	DIVYAM AGARWAL
82	DIVYANSH GUPTA
83	DIVYANSH GUPTA
84	DIVYANSH JAITLIA
85	DIVYANSH VIJAY
86	DIVYANSHI BHARDWAJ
87	GARVIT MATHUR
88	GAURAV JINDAL
89	GAUTAMKUMAR JAIN
90	GEETANSHIKHA GAUTAM
91	GEETIKA MATHUR
92	GULSHAN SHARMA
93	HARDIK JAIN
94	HARSH GOYAL
95	HARSH SHRINGI
96	HARSH SONI
97	HARSHIL SHARMA
98	HARSHIT AGARWAL
99	HARSHIT JAIN
100	HARSHIT TOTUKA
101	HIMANSHU KUMAWAT
102	HIMANSHU PATNI
103	HIMANSHU CHAUDHARY
104	ISHAAN KHANDELWAL
105	ISHAN MEHTA
106	ISHITA VYAS
107	JATIN MITTAL
108	JATIN YADAV
109	JAYESH GUPTA
110	JAYESH KHATRI
111	JIGYASA SINGH
112	JITENDRA SINGH
113	KAMLESH SHARMA
114	KANISHK SHARMA
115	KARTIK JAIN
116	KARTIKEY SHARMA
117	KASISH AGARWAL
118	KESHAV GAUR
119	KESHAV PAREEK
120	KHUSHI AGARWAL
121	KHUSHI GARG
122	KHUSHI PUNIA
123	KOMAL NUWAL
124	KOMAL YADAV
125	KRIISHNANSHU BHARGAVA

126	KRISHNA MURARI
127	KRITI GARG
128	KUL PRATAP SINGH
129	KULDEEP JOSHI
130	KULDEEP NAGAR
131	KUNIKA KHANDELWAL
132	KUSH VASANIYA
133	KUSHAGRA MUNDRA
134	KUSHAGRA SHARMA
135	LAKSHAY DADHICH
136	LAKSHITA NATANI
137	LAKSHYA PUROHIT
138	LAVANYA SHARMA
139	LAVI KUMAR GOYAL
140	MANJEET SINGH
141	MANNAT GOYAL
142	MAYANK LALWANI
143	MEGHANSHI MATHUR
144	MIHIR JAIN
145	MITALI AGARWAL
146	MOHAK SAINI
147	MOHIT MOHIT
148	MOHIT AGARWAL
149	MOHIT AGRAWAL
150	MOHIT BANSAL
151	MUDIT CHOUDHARY
152	MUSKAN GOYAL
153	NAGENDRA SINGH
154	NAMAN GOYAL
155	NAMAN MITTAL
156	NAVEEN YADAV
157	NAVYA GUPTA
158	NICKY LAKHISARANI
159	NIDHI YADAV
160	NIHARIKA RATHORE
161	NIKITA GUPTA
162	NIKSHAY KHANDELWAL
163	NIKUNJSINGH GEHLOT
164	NILESH GUPTA
165	NISHANT BHARWANI
166	NISHTHA SAINANI
167	NITYA SINGH
168	PARTH DWIVEDI
169	PARTH NAGDEV
170	PAWAN KUMAR
171	PIYUSH AGRAWAL

172	PIYUSH CHOUDHARY
173	PIYUSH JAIN
174	PRACHI VYAS
175	PRADEEP SINGH
176	PRAJWAL SONI
177	PRATEEK GAUR
178	PRATEEK SOMANI
179	PRATEEK SHARMA
180	PRATHA BHARDWAJ
181	PRATHAM KOTHARI
182	PRATIKSHA SHARMA
183	PRATYUSH CHHIPA
184	PREETI GURJAR
185	PRERIT GOYAL
186	PRINCE KUMAR
187	PRISHA KASAT
188	PRITHVIRAJ SINGH
189	PRIYA AGRAWAL
190	PRIYAL KHANDELWAL
191	PRIYANSH LAVADIA
192	PRIYANSH SONI
193	PRIYANSHU GOYAL
194	PRIYANSHU PARASHAR
195	PRIYANSHU SUHALKA
196	PULKIT VASHISHTH
197	PURVI GOYAL
198	PURVI HARPALANI
199	RAGHAVSINGH MANHAS
200	RAHUL JAIN
201	RAHUL KUMAR
202	RAHUL SUTHAR
203	RAHUL KUMAR
204	RAJENDRASINGH DEVRA
205	RAJESH PAREEK
206	RAKSHITA JADOUN
207	RASHI RAJA BUNDELA
208	RISHIKA BANSAL
209	RITESH LAVTI
210	RITIKA SINGH
211	RITIN AGARWAL
212	RIYA MEHTA
213	ROHAN MISHRA
214	RONAK GUPTA
215	RONAK KUMAWAT
216	RUCHIN KHANNA
217	SAKSHAM JAIN

218	SAKSHI AGARWAL
219	SAKSHI GUPTA
220	SAKSHI NAGPAL
221	SANIDHYA BHARDWAJ
222	SANJANA SAXENA
223	SANYAM JAIN
224	SARTHAK DEWANDA
225	SARTHAK GAINAN
226	SARTHAK MAHESHWARI
227	SATYAM SHARMA
228	SHAGUN AGARWAL
229	SHAGUN GAUTTAM
230	SHAILENDRA SINGH
231	Shashank Purohit
232	SHAURYA HARSH
233	SHEETAL JHANWAR
234	SHEKHAR SHARMA
235	SHIVAM GAUR
236	SHIVAM SHARMA
237	SHREYA JINDAL
238	SHREYA SUMAN
239	SHUBH SHARMA
240	SHYAM AGARWAL
241	SIDDARTH AGARWAL
242	SIDDHARTH GOYAL
243	SIMMI JAIN
244	SINDHOOR SINGH
245	SOMU DEY
246	SONIA DEVI
247	SONU KUMAR
248	SOURABH SINGH
249	SRISHTY AGARWAL
250	TAMANNA SHARMA
251	Tanisha Mudgal
252	TANISHK GOYAL
253	TANMAY MUDGAL
254	TANYA VERMA
255	TARUNKANT SHARMA
256	TUSHAR CHOUBEY
257	TUSHAR SANADHYA
258	TUSHAR SINGHAL
259	UMANG MATHUR
260	V BHUVANESH
261	VAIBHAV SAHU
262	VIPUL JAIN
263	VIPUL KAUSHIK

264	VISHAL KATARIYA
265	VISHAL KUMAWAT
266	VISHAL SHARMA
267	VISHAL SINGH CHOUHAN
268	Vishnu Banjara
269	VIVEK PANWAR
270	VIVEK TOMAR
271	VIVEK KUMAR GUPTA
272	YASH JAIN
273	YUVRAJKISHAN SHARMA
274	YUVRAJSINGH NARUKA

Course: Latex

Course Code: Latex

Session: 2~~019-20~~ 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

- 1 Basic Level LaTeX
- 2 Intermediate Level
- 3 Advanced Level

Basic Level LaTeX

1. LaTeX on Windows using TeXworks
    - Installing MikTeX on Windows
    - Writing basic LaTeX document using TeXworks editor
    - Configuring MikTeX to download missing packages
2. Report Writing
    - report style having chapter, section and subsection
    - article style having section, subsection and subsubsection
    - Automatic generation of table of contents
    - toc file to store the information that goes into the table of contents
    - Automatic numbering of section numbers
    - Appendix; its appearance in report and article style
    - exiting from LaTeX when a compilation error occurs
3. Letter Writing
    - Letter document class
    - From address
    - Automatic generation and format of date
    - Starting a new line with double slash
    - To address
    - Starting a new paragraph with a blank line
    - itemize environment for bullet points
    - enumerate environment for numbered points
    - Closing statement
    - Signature

- Carbon copy

4. Mathematical Typesetting
    - $ sign to begin and end mathematical expressions
    - Creating alpha, beta, gamma and delta
    - Space being used as a terminator of symbols
    - Creating spaces in mathematical formulae
    - Difference in font of text and formula
    - Difference in the minus sign in text and in formula
    - frac command to create fractions
    - Subscripts and superscripts
    - Use of braces {} to demarcate arguments
    - Not equal to, greater than or equal to, less than or equal to, much less than
    - Right arrow, left arrow, left right arrow, up arrow
    - Integral sign, limits of an integral
    - Matrices of different rows and columns
5. Equations
    - amsmath package and align and align* environments to create equations
    - Matrix differential equation
    - aligning two equations using &, with and without intervening text
    - Automatic numbering of equations using align
    - Labeling equations with the label command
    - Cross referencing equation numbers through the ref command
    - Inserting text between two aligned equations through the intertext command
    - Automatic generation of equation numbers at run time allows insertion and removal of an equation from a set of equations
    - Labeling sections and subsections for easy and fool-proof cross referencing
    - Breaking an equation into more than one line
    - Suppression of equation numbers in the align environment using the nonumber command
    - Use of backslash (\) to make braces appear as braces
    - left[, right] and also left[. (i.e. left bracking fullstop)
    - Blank lines in the align environment is not permissible

6. Numbering Equations
    - amsmath
    - numbering equations
    - align environment
    - nonumber command
    - labelling equations with the label command
    - cross referencing equations with the ref command
    - case dependence of variables in label command
    - taking help from stackexchange
    - learning from ltx-primer.pdf
    - typing if-else with cases command
7. Tables and Figures
    - Creating tables and figures in Latex
8. Beamer
    - Creating a presentation using a Beamer
9. Bibliography
    - Creaing Bibliography in Latex

Intermediate Level

1. Feedback diagram with Maths
    - Open the .fig file saved in the feedback control tutorial
    - Put $G(z) = \frac z{z-1}$ in the second block diagram
    - Choose the special flag
    - Save and export it as combined tex and pdf
    - Show that if "special" is not chosen, we get only text
    - Change /frac into /dfrac
    - Show that at the time of compilation, dfrac unknown error
    - Include \usepackage{amsmath} in the tex file
    - Recompile it and show that the equation is now coming properly
    - Use pdfcrop to trim the pdf file, mention Briss
2. newcommand in LaTeX
    - What is a command?
    - Different types of commands with examples
    - Defining a new command
    - Defining short commands for long repeated input.
    - Commands with parameter

- Passing parameters to the commands defined
- Renewcommand
- Redefining the existing commands to the required output

3. newenvironment in LaTeX
    - What is an environment?
    - Defining a new environment
    - Defining environments with parameters
    - Renewenvironment
    - Redefining an existing environment to the required output
4. Writing Style Files in LaTeX
    - About LaTeX Styles files.
    - Writing a Style file for LaTeX.
    - Importing a Style file in LaTeX.
    - Defining a standard Style file for LaTeX.
    - newcommand in LateX.newenvironment in LaTeX.
    - RequirePackage command in LaTeX.
    - usepackage command in LaTeX.
    - Style file identification.
    - Preliminary declarations of a Style file.
    - NeedsTeXFormat.
    - ProvidesPackage.
5. Indic Language Typesetting in LaTeX
    - Typeset a document in Indic language using XeLaTeX.
    - Indic language fonts bundle.
    - Installing Indic language Fonts.
    - Installing Nirmala UI Fonts.XeLaTeX Compiler.
    - Using Fontspec package.
    - Using Polyglossia package.
    - Select language command.
    - Set default language in LaTeX.
    - Set other language in LaTeX.

List of Students Enrolled

#	Name of Student

1	ABHIRAJ TAK
2	AKSHAYA MAKKAR
3	AMANPREET SINGH BAGGA
4	ANANYA GUPTA
5	ANKIT GUPTA
6	ANKIT KUMAR
7	ANSHUL JAIN
8	ANURAG CHATURVEDI
9	APOORVA SAPRA
10	ASISH KUMAR
11	ASTHA BHARGAVA
12	AVINASH NAGAR
13	AYUSH RANJAN
14	BHANU PRATAP SINGH
15	BHAVESH MITTAL

16	BHAVYA KASHYAP
17	CHAITANYA SHARMA
18	DEEPAK NEHRA
19	DEEPAK WASWANI
20	DEVANSH SHARMA
21	DIPESH KALAL
22	DIVYA SHANKER ACHARYA
23	GAURAV MITTAL
24	HARISH PRADHAN
25	HARMUKH WATTAL
26	HARSHIT KHANDELWAL
27	HRITIK SAMARIA
28	KAPIL BHAGCHANDANI
29	KRISHNA SHARMA
30	MADHAV DIXIT

31	MONIT RANJAN
32	NIKHIL KUMAWAT
33	PRADEEP SAINI
34	ZUBER MOHAMMED
35	PUSHPAK GUPTA
36	RAHUL KUMAWAT
37	RAJAT SAINI
38	RISHABH VERMA
39	SAKSHI GUPTA
40	SHARON THOMAS
41	SHASHANK RUNTHALA
42	SHAURYA SISODIA
43	SHEFALI ARORA
44	SHIKHAR AGARWAL

45	SHIVAM GUPTA
46	SHUBHAM TAK
47	SIDDHANT JAIN
48	SIDDHARTH JAIN
49	SMRITI BAGGA
50	SNEHIL BHATNAGAR
51	TUSHAR MATHUR
52	UJJWAL BANSAL
53	VAIBHAV LODHA
54	VAIBHAV SHARMA
55	VIBHU JAIN
56	VIKAS RAJ PUROHIT
57	YASH DAGUR
58	HARSH SHARMA
59	PRACHI KESWANI
60	PRATEEK BHATT

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62	RAHUL KUMAR
63	RIYANSH KHANDELWAL
64	SAHIL AGARWAL
65	SHRIYANSH SHARMA
66	VISHAL TULSANI
67	WASIM KHAN
68	YASH LADDHA
69	ZUBIN MEHTA
70	AMANDEEP GANGWAR
71	ANSHUL GAKKHAR
72	ARPIT MATHUR
73	BHAVYAM JAIN
74	DEHUL PARASHAR
75	GARIMA SINGHAL

76	HARSHVARDHAN SINGH KHIDIYA
77	HIMANSHU MODI
78	JITENDRA CHATWANI
79	JITENDRA YADAV
80	MAMTA SIYAK
81	MOHIT SONI
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98	TALIB HUSSAIN
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101	VIVEK KUMAR GUPTA
102	AMAN SHARMA
103	ANISHA MITTAL
104	SHIVAM SONI

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106	NEHA MATHUR
107	AAKRITI JAIN
108	AAYUSH GARG
109	AAYUSH PALIWAL
110	ABHIJIT KUMAR JHA
111	ADITYA UPNEJA
112	AKSHAY KUMAR SHARMA
113	ANJALI PODDAR
114	ANKITA JHA
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127	MOHIT CHOUHAN
128	NAMIT PATNI
129	PAWAN KUMAR
130	SAUMYA SINGH
131	ABHINAV SINGH
132	ABHISHEK KUMAWAT
133	ARCHIT KHANDELWAL
134	ASHWIN ROYAL

135	BHANWAR SINGH
136	HARSHIT GUPTA
137	KASHISH BHATEJA
138	KESHAV SHARMA
139	NISHCHAL SHAH
140	PRIYAL JAIN
141	RAHUL SONI
142	RAJAT SHARMA
143	RAKSHA CHOUDHARY
144	RITIKA GOYAL
145	RUCHIKA THORY
146	SAMRIDHI PRASAD
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150	SIMRAN DHINGRA

151	SITA CHOUDHARY
152	SUMIT MAINDOLIYA
153	TAPESH KUMAR
154	TARUN GUPTA
155	UMA KUMARI
156	UMANG PODDAR
157	VARUN GANDHI
158	VARUN MAHIRCHANDANI
159	VATSAL BHATT
160	VIKAS PRAJAPAT
161	VINAYAK VASHISHTHA
162	VISHNU KUMAWAT
163	YASH MISHRA
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171	HARSH SANCHAWAT
172	HARSHAL JAIN
173	HARSHDEEP WALIA
174	HIMANSHU GARG
175	HITAKSHI MALHOTRA
176	JANAK RAO
177	KASHISH WADHWA
178	KUNAL MAHATMA
179	NAMAN KINGER
180	NEHA SHARMA
181	PALAK SAROJA

182	PRANJALI MAHESHWARI
183	SAURAV KUMAR
184	SHASHANK PANT
185	ARADHANA BHARTI
186	ARPIT SACHAN
187	ASHISH BANSAL
188	ATUL JAIN
189	AYUSH MEHTA
190	DEEPANKAR SHARMA
191	DIVISHA DADHICH
192	HEENA VASDANI
193	HITESH GOYAL
194	KANIKA GOYAL
195	MEDHA SHUKLA
196	MINAL JAIN

197	NALIN UNIYAL
198	NIMESH VIJAY
199	NOOPUR RATHORE
200	PALLAVI JAIN
201	PRANSHU SHARMA
202	PULKIT TOTLA
203	SHRUTI AGARWAL
204	TAMANNA SHARMA
205	VAIBHAV PALIWAL
206	VANISHA ARORA
207	YASH GOYAL
208	YASHITA JAIN
209	YASIR KADRI
210	PRANJAL AGRAWAL
211	KAPIL SONI
212	SONALI PANDEY

213	HRITVIK PATIDAR
214	YASHESH GUPTA
215	NAVYA SOLANKI
216	UMANG ARORA
217	PRIYA KHANDELWAL
218	CHARU SHARMA
219	AYUSH PANDEY
220	PIYUSH TAYAL
221	HARSHITA SINARI
222	SAKSHI DAYANI
223	ABDUL QADIR
224	SANDEEP SINGH
225	YASH SHARMA
226	SHEFALI GOYAL
227	ISHA SONI
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Course: ~~Python~~ PHP and MySQL

Course Code: Python

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

PHP Basics: Level 1

Installing a Webserver with PHP and MySQL (XAMPP)

1. XAMPP in Windows
    - Installing XAMPP in Windows
    - XAMPP is a cumulative package consisting of Apache, PHP and MySQL Packages is available for Windows
    - In this tutorial the XAMPP will be installed and the default Webserver directory will be **"htdocs"**.
2. XAMPP in Linux
    - Installing XAMPP in Linux
    - XAMPP is a cumulative package consisting of Apache, PHP and MySQL Packages is available for Linux
    - In this tutorial the XAMPP will be installed and the default Webserver directory will be **"opt"**.

Echo PHP Function, PHP Variables, If and Switch Statements

3. Echo Function
    - The echo() function outputs one or more strings.
    - Syntax: echo(strings);
    - Ex. echo "Hello World!";
4. Variables in PHP
    - Variables are used for storing values, like text strings, numbers or arrays.
    - When a variable is declared, it can be used over and over again in your script.
    - All variables in PHP start with a $ sign symbol.

- The correct way of declaring a variable in PHP: $var_name = value;

5. If Statement
    - if statement - use this statement to execute some code only if a specified condition is true.
    - if...else statement - use this statement to execute some code if a condition is true and another code if the condition is false.
    - if...elseif....else statement - use this statement to select one of several blocks of code to be executed.
6. Switch Statement
    - switch statement - use this statement to select one of many blocks of code to be executed

PHP Operators

7. Arithmatic Operators
    - Ex. +,-,*,/,%,++,--
8. Comparison Operators
    - Ex. ==,!=,<>,>,<,>=,<=
9. Logical Operators
    - Ex. && (AND),|| (OR),! (NOT)

Arrays in PHP

10. Arrays
    - An array stores multiple values in one single variable.
    - Numeric array - An array with a numeric index.
    - Associative array - An array where each ID key is associated with a value.
    - Ex. Numeric Array:
      $fruits=array("Apple","Mango","Banana","Grapes");
11. Multi-Dimensional Arrays
    - In a multidimensional array, each element in the main array can also be an array. And each element in the sub-array can be an array, and so on.

Loops in PHP

- Loops execute a block of code a specified number of times, or while a specified condition is true.

12. Loops - While Statement

- The while loop executes a block of code while a condition is true.

```
while (condition)
{
code to be executed;
}
```

13. Loops - Do-While Statement

- The do...while statement will always execute the block of code once, it will then check the condition, and repeat the loop while the condition is true.

```
do
{
code to be executed;
}while (condition);
```

14. Loops - For Statement

- The for loop is used when you know in advance how many times the script should run.
- Syntax:

```
for (init; condition; increment)
{
code to be executed;
}
```

15. Loops - Foreach Statement

- The foreach loop is used to loop through arrays.

```
foreach ($array as $value)
{
code to be executed;
}
```

16.

17. **Functions in PHP**

18. Functions (Basic)

- To keep the script from being executed when the page loads, you can put it into a function.
- A function will be executed by a call to the function.
- You may call a function from anywhere within a page.
- Syntax:

```
function functionName()
{
code to be executed;
}
```

19. Functions (Advanced)
    - We can also pass parameters to functions during both the declaration and calling time.
    - function functionName($param1,$param2); //during function call.
    - function functionName($param1,$param2)

```
{
code to be executed
}
```

20.

21. **PHP Special Variables**

22. GET Variable
    - The built-in $_GET function is used to collect values from a form sent with method="get".
    - Information sent from a form with the GET method is visible to everyone (it will be displayed in the browser's address bar)
    - It has limits on the amount of information to send.

23. POST Variable
    - The built-in $_POST function is used to collect values from a form sent with method="post".
    - Information sent from a form with the POST method is invisible to others and has no limits on the amount of information to send.

PHP and HTML

24. Embedding PHP

- We can embed our PHP code anywhere in the webpage, by enclosing our script within the <?php..... //SCRIPT.....?>

25. Common Way to Display HTML
    - We can also use the HTML Code within the PHP Script. Almost each of the HTML Tags can be used within a PHP Script.

Common Errors

- The PHP Engine in the webserver also displays the user the error in case there is something wrong in the code along with the tentative line number where the fault may have occurred. Thus, in this way we can eradicate errors.

26. Common Errors (Part 1)
    - Learn how to spot errors and how to fix them
    - Common Parse errors
    - Parse errors due to missing comma or semicolon
    - Parse errors due to not ending single or double quotes correctly
27. Common Errors (Part 2)
    - Parse error due to missing or extra brackets
    - Matching brackets during complex mathematical operations
    - Purpose and usefulness of correct indentation
    - Errors due to missing or extra characters
    - Undefined variable and undefined index errors
28. Common Errors (Part 3)
    - "Cannot modify header information - headers already sent by..." errors when using header() function
    - Using ob_start() to turn on output buffering
    - "Failed to open stream; no such file or directory in..." errors when including a invalid file
    - Using a @ symbol to suppress errors

MYSQL Tutorials: Level 2

MySQL is a Relational Database Management System (RDBMS) that runs as a server providing multiuser access to a number of databases. A third party open source software "phpMyAdmin" will be used as a web-based front end for managing MySQL databases easily and efficiently. It is widely installed by Web hosts worldwide, since it is developed in PHP and is included in the convenient LAMP stack, MAMP, and WAMP software bundle installers.

1. MySQL (Part 1)
    - An Introduction to the PHPMyAdmin Interface.

- Creating a New Database
- Creating a new Table and entering the value of the field with the requisite datatype.
- SQL Query displayed in the PHPMyAdmin window.

2. MySQL (Part 2)
    - Connecting to the database and inserting dummy data into the database.
    - mysql_connect("server_addr", "username", "password") - Connect to the Database Server with the authorised user and password.
    - mysql_select_db("database_name") - Selecting a database within a connected database server.
3. MySQL (Part 3)
    - Writing some data into the database (INSERT and UPDATE Queries).
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - This function is used to run specific queries on our database.
    - INSERT QUERY - INSERT into *table* values ('att1', 'att2' , 'att3', 'att4' ,'att5') //Inserts Data into the table
    - UPDATE QUERY - UPDATE *table_name* SET att1='xyz' //Updates the Existing values stored in the table of the database.
4. MySQL (Part 4)
    - Getting data from the database table and displaying it.
    - SELECT QUERY - SELECT * FROM table_name WHERE att1='abc' // Query returns the value from the database where att1 = abc
    - mysql_num_rows() - Gives us the number of rows there are in the query we have just given out.
    - ORDER BY - Helps to order the output result as when selecting the values form the database. {Use of DESC for Descending ordering / ASC for Ascending ordering}
5. MySQL (Part 5)
    - mysql_fetch_assoc — Fetch a result row as an associative array.
    - array mysql_fetch_assoc (resource $result) //Returns an associative array that corresponds to the fetched row and moves the internal data pointer ahead. mysql_fetch_assoc() is equivalent to calling mysql_fetch_array() with MYSQL_ASSOC

for the optional second parameter. It only returns an associative array.

6. MySQL (Part 6)
    - Getting data from the database with the help of an HTML form.
    - Creating a FORM where a user can specify a name and selecting the appropriate value from the database.
7. MySQL (Part 7)
    - Changing the existing values of the databse table using HTML Forms.
    - Update unique records using the id than individual values.
8. MySQL (Part 8)
    - DELETE QUERY - To Delete the specific or all the entries of the Database.
    - DELETE FROM table_name WHERE field='xyz' // Deletes the entry from the database where the field = xyz.

PHP Advanced: Level 3

1. Name Splitter(Part 1)
    - We Input a fullname into a form and then splitting it into firstname and lastname
    - Use of : strlen(string) - This function counts total no of characters, including numbers and white spaces in the string
    - Use of: mb_substr(string,starting_position,no_of_characters) - This function takes a specific character from a string and a range of no of characters preceeding it.
2. Name Splitter(Part 2)
    - Divided the string into 2 halves through searching space, first half is stored as firstname and second half as lastname.
    - Use of : substn(string,starting_position,length) - This function results a substring starting from specified position to no of characters required.
3. PHP Dynamic Pages (Part 1)
    - We learn to create website with standard template and when on clicking the link changes only the content of page ,new page is not loaded.
    - Use of : include(variable) - This function is used to brought up all the content of variable page onto the current page.So that by

changing the variable content of the website can be altered without reloading a similar page content everytime.

4. PHP Dynamic Pages (Part 2)
    - Making the dynamic linking user-friendly in case an error is obtained by include() function, i.e. checking if the file connected exists or not.
    - Use of : file_exists(variable) ->This function is results boolean value true(1) if the file exists and false(0) if not.
5. Simple Visitor Counter
    - Counts how many users have viewed your page as per count of refresh button clicked
    - fopen("file_name","parameter") opens a file (Creates it if not exists).parameter assigns the mode, w for writting mode, a for append mode
    - file_get_contents("file_name")- This function is used to obtain content from the file.
    - fwrite("file_name",variable) - This function writes into the file value present in variable.
6. Unique Visitor Counter (Part 1)
    - Counts how many users visiting based on their IP addresses. It obtains IP addresses stored in ip-file to match with user's IP
    - $_SERVER[] - *This is an array containing information such as headers, paths and script locations.*
    - $_SERVER['REMOTE_ADDR'] - It informs about the IP address from which the user is viewing the current page.
7. Unique Visitor Counter (Part 2)
    - Retrieves IP addresses stored and compares them with IP of user viewing the current page.
    - fopen("file_name","parameter") opens a file (Creates it if not exists).parameter assigns the mode, w for writing mode, a for append mode
    - fwrite("file_name",variable) - This function writes into the file value present in variable.
    - intval(string) -This function converts an string value into a integer value.
8. Unique Visitor Counter (Part 3)

- In this video errors have been corrected. Here counter keeps on increases

9. PHP String Functions (Part 1)
    - strlen(string) - This function counts total no of characters, including numbers and white spaces in the string
    - mb_substr(string,starting_position,no_of_characters) - This function takes a specific character from a string and a range of no of characters preceeding it.
    - explode("delimiter",string) -This function breaks down the string into a array. Delimiter is used to know from where to break string.
    - implode(string,"delimiter") -This function joins the array into a string. Delimiter is used to know how to join array elements.
    - nl2br() -This function prints the content in exactly same form as written. Used in case for breaking lines.
10. PHP String Functions (Part 2)
    - strrev(string) -This function is used to reverse the inputed string
    - strtolower(string) -This function is used to convert all alphabatic characters in string to thier small/lower case form.
    - strtoupper(string) -This function is used to convert all alphabatic characters in string to thier capital/upper case form.
    - substr_count(string,sub_string,) -This counts the no of substrings matching the particular value in string. It retuns an integer value.
    - substr_replace(original_string,string_to_replace) -This function replaces the cuntent of substring into original string.
11. Basic PHP Proxy
    - Providing the proxy to our page of a url.
    - foreach() - this loop looks through a block of code for each element in an array.
    - erag_replace(current_content, altered content,page) - This function is used to manipulate content of a proxy page.
12. Basic Advert Rotation (Part 1)
13. Basic Advert Rotation (Part 2)
14. Find and Replace
15. Date and Time (Part 1)
16. Date and Time (Part 2)
17. Creating Images with PHP

18. File Upload (Part 1)
    - Setup html form for file uploading
    - Upload file and get file related information like file name, file size, etc
    - Check for error messages after uploading file
19. File Upload (Part 2)
    - Move file from temporary area to user specified location
    - Restrict uploading to only specific file type
    - Restrict uploading to a maximum file size
20. Cookies (Part 1)
    - What are cookies
    - Set cookies using setcookie function
    - Understaing how to set expiry time of cookies
    - Read and print values from existing cookies
    - Print every cookie that we have stored
21. Cookies (Part 2)
    - Check if a cookie exists or not using isset
    - Unset a cookie when no longer required
    - Change the value of a existing cookie
22. Sessions
    - A PHP session variable is used to store information about, or change settings for a user session.
    - Session variables hold information about one single user, and are available to all pages in one application.
    - session_start() - Starting a PHP Session
    - $_SESSION['variable_name']=value - Stores the value in the Session variable.
    - session_stop() - Stopping a PHP Session
23. Search Engine Crawler Detection
24. Swear Word Filter (Part 1)
25. Swear Word Filter (Part 2)
26. Rename Function
27. SQL Injection (Part 1)
28. SQL Injection (Part 2)
29. MD5 Encryption

- Calculates the MD5 hash of str using the RSA Data Security, Inc.'s MD5 Message-Digest Algorithm, and returns that hash (Its a one way encrypting technique).
- Syntax : string md5 (string $str [, bool $raw_output = false])
- Used in encrypting passwords and storing them in a database.

30. Sending Email (Part 1)
    - Create HTML form for getting email subject and message from the user
    - Using the mail() function to send email
31. Sending Email (Part 2)
    - Validating whether the name and message have been entered by the user
    - Check the length of the string using the strlen() function.
    - Set up the to, subject and message field of the mail() function
    - Send email and check for any errors
32. Sending Email (Part 3)
    - Fix the "Sendmail from not set in php dot ini" error
    - Create the mail "From:" header
    - Using a local or external mail server to send email
    - Using the ini_set() and ini_get() functions to set and read internal php configuration options respectively
33. Upload an Avatar Profile Image (Part 1)
34. Upload an Avatar Profile Image (Part 2)
35. Upload an Avatar Profile Image (Part 3)
36. Upload an Avatar Profile Image (Part 4)
37. Form Validation(Part 1)
38. Form Validation(Part 2)
39. Admin Only Pages (Part 1)
40. Admin Only Pages (Part 2)
41. Admin Only Pages (Part 3)
42. Create a news Feature (Part 1)
43. Create a news Feature (Part 2)
44. Create a news Feature (Part 3)
45. Display Images from a Directory
    - Using opendir() to open a directory handle
    - Using readdir() to read a directory that is already opened

- Printing the directory listing

46. Pagination (Part 1)
47. Pagination (Part 2)
48. Language Chooser
49. PHP/ MYSQL Based Project - Basic Register and Login Module

- User Login
    1. User Login Part 1
        - Collecting information from user in a form & connecting to authorized database.
        - mysql_connect("hostname", "username", "password") - Connect to the Database Server with the authorized user and password.
        - mysql_select_db("database_name") - This selects a database within a connected database server
    2. User Login Part 2
        - retrieves information about inputed username and checks whether given password matches with the password in database.
        - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database.Here it collects information from field username from specified table.
        - mysql_num_rows('query') - This function is user to counts no of rows retrieved from the query given to the database.
        - mysql_fetch_assoc('query')- This function fetches required information from the database in the form of array.
    3. User Login Part 3
        - Creating session for holding value and destroying that value by destroying session.
        - start_session() - Starts session to hold information from one pages to other until the session exists.
        - $_SESSION['variable_name']=value - Stores the value in the session variable.
        - session_destroy() - destroys the value present in session variable.
- User Password Change

1. User Password Change Part 1
    - We learn to obtain old existing password and new password from the user.
    - start_session() - Hold information from previous pages to session page.
    - $variable_name=$_SESSION['value'] - to retrieve value containing in PHP variable.
2. User Password Change Part 2
    - Checking whether encrypted old password matches with the database password and new password is same as confirm password.
    - md5("parameter")- encrypts parameter into irreversible logical code.
    - mysql_connect("hostname", "username", "password") - Connect to the Database Server with the authorized user and password.
    - mysql_select_db("database_name") - This selects a database within a connected database server
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database.Here it retrieves password of user logged in.
3. User Password Change Part 3
    - updating the new password in database.
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database. Here it updates new password into database.

- User Registration
    1. User Registration Part 1
        - Creating a form which allows user to input values in page
    2. User Registration Part 2
        - Striping tags of inputed strings and converting password into md5 encryption.
        - Use of : strip_tags(strigs) - cuts down unnecessary spaces,html tags and queries from string.
    3. User Registration Part 3

- Checking whether the username and password provided meet the required length sizes.
- Use of : strlen("string") - counts th character length of the string.

4. User Registration Part 4
    - Inserting inputed information from the user into the database table through query.
    - mysql_connect("hostname", "username", "password") - Connect to the Database Server with the authorized user and password.
    - mysql_select_db("database_name") - This selects a database within a connected database server
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database. Here it inserts different fields into the database table.
5. User Registration Part 5
    - Converting the password inputed from user to md5 encrypt form.
    - md5("parameter")- encrypts parameter into irreversible logical code.
6. User Registration Part 6
    - Checking the username provided so that condition for duplicate username can be avoided.
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - This is used to run specific queries on our database. Here it checks if username already exists in database.
    - mysql_num_rows('query') - This function is used to counts no of rows retieved from the query.
    - strtolower(string) - converts all characters of string into lower case.

List of Certified Student

S.no	Name of Student
1	AASHNA PURI
2	ABHISHEK BABAL
3	ABHISHEK SHARMA
4	ADITI SHAH
5	ADITI JAIN
6	ADITI SHARMA

7	ADITYA MISHRA
8	AKSHAT NAMA
9	AKSHITA SOPRA
10	AMAN KUMAR PANDEY
11	AMANDEEP SINGH
12	AMISHA AGGARWAL
13	ANIKA SHARMA
14	ANILKUMAR JANGID
15	ANJALI SHARMA
16	ANSHITA RAGHUVANSHI
17	ANSHSHIKHA AGARWAL
18	ANSHUL RANKA
19	ANURAG JOSHI
20	ANURAG MATHUR
21	ANUSHKA SHARMA
22	ARPIT KATARE
23	ARPIT SOMANI
24	ARUSHI ARORA
25	ASHIK SAINI
26	ASHITA RATHI
27	ASHUTOSH SHARMA
28	AYUSH GARG
29	AYUSH JHANWAR
30	AYUSH PODAR
31	AYUSH AYUSH
32	AYUSH MISHRA
33	BILAL HUSSAIN
34	CHANDRABHAN SHERAWAT
35	CHHAVI JANGID
36	CHIRAG BHAYANA
37	CHIRAG BOHRA
38	CHIRAG JAIN
39	CHIRAG JAIN
40	CHITWAN AGARWAL
41	DARSHAN KOTHARI
42	DEEPESH YADAV
43	DEVANG SHARMA
44	DEVANG VASHISTHA
45	DEVESH AGARWAL
46	DINESH PRASAD
47	DINESH KUMAR JAJOO
48	DISHA GOYAL
49	DIVYANSH SHUKLA
50	DIVYANSHI KHANDELWAL
51	EKLAVYA JOSHI

52	FARHAN REHMAN
53	GAGANDEEP SINGH
54	GAURANSH SHARMA
55	GAURANSHU MATHUR
56	GAURAV MEHTA
57	GAURAV MALANI
58	GAURAV VIJAYVERGIYA
59	GAURAV GAHLOT
60	GAUTAM KHATRI
61	GOVIND SHARMA
62	HARSH MODI
63	HARSH GUPTA
64	HARSH VARDHAN GOEL
65	HARSHITA DADHICH
66	HIMANSHU GUPTA
67	HITESH KUMAR
68	HRITIK KHATRI
69	IQJOT SINGH VALECHA
70	JAHANVI RATHI
71	JASH JAIN
72	JASPREET SINGH
73	JATIN HAZRATI
74	JAYESH SINGH
75	JINENDRA JAIN
76	JOGINDER SINGH
77	KALPANA MODI
78	KAMAL KUMAR
79	KARAN CHAUHAN
80	KARAN AGGARWAL
81	KARAN CHOUDHARY
82	KARTIK SAINI
83	KASHISH AGARWAL
84	KHUSHAL SHARMA
85	KHUSHBOO RATHORE
86	KHUSHI CHAPLOT
87	KRATI CHAUHAN
88	KRITI KOTHARI
89	KRITI SHARMA
90	KSHITIJ KUMAWAT
91	KSHITIJ MITTAL
92	KUSHAGRA SINGHAL
93	LAKSHYA SHARMA
94	LAVKUMAR PAREVA
95	LOVISH CHITTORA
96	MAHESH MALPANI
97	MANENDRASINGH BHATI

98	MANSI JAIN
99	MANSI PAREEK
100	MAYANK AGRAWAL
101	MAYANK NAHAR
102	MOHD MOHSEEN
103	MOHIT GUPTA
104	MOHIT AGARWAL
105	MOHIT SHARMA
106	MRITYUNJAI KAUSHIK
107	MUDIT MAHESHWARI
108	MUSKAN GUPTA
109	MUZAMIL RIYAZ
110	NAMAN BACHLAS
111	NIKHIL SHARMA
112	NIKHIL AGRAWAL
113	NIKHILSINGH KHATUWAL
114	NIMISHA SHARMA
115	NIRAMAY VYAS
116	NISHITA TOLANI
117	NITIN KHANDELWAL
118	NITIN SHARMA
119	OM PRAKASH
120	PIYUSH SHARMA
121	POOJA JAIN
122	PRAVEENKUMAR CHORDIA
123	PRAVESH JAIN
124	PREETI INDORIYA
125	PRITI AGARWAL
126	PRIYANKA KUMARI
127	PRIYANSH BANSAL
128	PRIYANSHU TALI
129	PULKIT JAIN
130	PUNEET ALWANI
131	PUNIT AGARWAL
132	RADHIKA MALPANI
133	RAHUL BHATI
134	RANGNATH RAM
135	RAVI GUPTA
136	RISHABH SHARMA
137	RISHBH PANDEY
138	RITIKA JAIN
139	RIYA AGARWAL
140	ROBINS KUMAR
141	ROUNAK MATHUR
142	SACHIN YADAV

143	SAHIL KHANDELWAL
144	SAHIL MEHRA
145	SAIJAL GULYANI
146	SAJAL BIRLA
147	SAMARTH SAXENA
148	SAMYAK BARDIYA
149	SANKET SAWARN
150	SARVESHKUMAR SAINI
151	SATYAM RAJ
152	SEENU MANGAL
153	SHIVAM TAILOR
154	SHRADHA SHARMA
155	SHRADHA JAIN
156	SHREYANSH JAIN
157	SHREYASH LATA
158	SHRUTI MEHTA
159	SHRUTI HARLALKA
160	SHRUTI AGARWAL
161	SHUBHAM KUMAR
162	SHUBHAM MENROY
163	SHUBHAMAGARWAL JAIN
164	SHYAM VARSHNEY
165	SOURABH SHARMA
166	SOURABHKUMAR MISHRA
167	SRISHTI GUPTA
168	SUDARSHAN SAXENA
169	SUMEDHA SHARMA
170	SUNIDHI SHARMA
171	SURISHTI RAJ
172	SURYANSH GAHLOT
173	SURYAPRATAP SINGH
174	SWAPNIL AGRAWAL
175	SWATI GUPTA
176	SYEDUROOJ KAMAL
177	VEDIKA CHANDALIYA
178	VIDITK BHATNAGAR
179	VIJAY CHOUDHARY
180	VIJAY THAKUR
181	VISHAKHA AGARWAL
182	VISHAL SHARMA
183	VISHNU SHARMA
184	VISHWANATH HOSMANE
185	YAMEENKHAN PATHAN
186	YASH AGARWAL

187	YASH KHANDELWAL
188	YASHIKA JAIN
189	YASHWANT TEJWANI

Course: Linux

Course Code: Linux

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

1. Ubuntu desktop
    - Ubuntu Desktop
    - Main Menu
    - System Tray
    - Trash Bin icon (RHS corner)
    - Desktop icon (LHS corner), pen-drive
2. Synaptic package manager
    - Synaptic Package Manager
    - How to install packages
3. Ubuntu software system
    - Ubuntu-Software-Center
    - Installing softwares through Ubuntu Software Center
4. Basic Commands
    - Commands with example
    - Command interpreter
    - Shell
    - Using man
    - Apropos
    - Whatis
    - Using --help option
5. General Purpose Utilities in Linux
    - echo
    - uname
    - who
    - passwd
    - date
    - cal
    - Brief overview on Files and directories
    - pwd
    - ls
    - cat

6. File System
    - File
    - Directory
    - File Inode
    - Types of Files
    - Home directory and Current directory
    - Change Directory(cd)
    - mkdir,rmdir
7. Working with Regular Files
    - cat
    - rm
    - cp
    - mv
    - cmp
    - wc
8. File Attributes
    - chown, chmod, chmod -R, displaying files with ls -l
    - chmod u+, chmod a-w, chmod g+w, chmod -r, chgrp
    - inode, hard link, symbolic link
9. Redirection Pipes
    - Input,output and error stream
    - Redirection : > and >>
    - Pipes : |
10. Working with Linux Process
    - Process
    - Shell process
    - Process spawning - parent and child process
    - Process attributes - pid, ppid
    - Init Process
    - User process & System process
    - ps with options
11. The Linux Environment
    - Environment variable vs Local variables
    - set command
    - env command
    - SHELL, HOME, PATH, LOGNAME, PS1, PS2
    - history
    - ! and ~

- alias

12. Basics of System Administration
    - Root login-su
    - User management - UID, GID, useradd, usermod, userdel
    - Discs – Du, df
13. Simple filters
    - Head
    - tail
    - sort
    - cut
    - paste

Introduction to Linux - Intermediate

1. The grep command
    - To see the content of a file
    - To list the entries of a particular stream
    - To ignore cases
    - Lines that do not match the pattern
    - To list the line numbers with the entries
    - To store the result in another file
    - To know the count
2. More on grep command
    - Search using grep
    - To match more than one pattern
    - To check a word that has different spelling
    - Character class
    - The use of *
    - To match any one character using dot
    - To match a pattern at the beginning of the file
    - To match a pattern at the end of the file
3. The sed command
    - sed
    - To print using sed
    - Line Addressing
    - Context Addressing
4. More on sed command
    - substitute
    - insert
    - delete

Details of Student Certified

S.no	Name of Student
1	AAYUSHI SHARMA
2	AGRAWALPRANJAL PANKAJ
3	AKSHAT MATHUR
4	AKSHAT PARAKH
5	AMARPRATAP SINGH
6	ARYAN SHARMA
7	ATUL PANCHARIA
8	AYUSHSINGH TOMAR
9	BAJRANG SINGH SHEKHAWAT
10	BHANUPRIYA PANWAR
11	BHAVYA SHARMA
12	CHAITANYA SHARMA
13	CHHAVI SHARMA
14	CHINMAY GUPTA
15	DARSHIKA MAHESHWARI
16	DHAIRYA GUPTA
17	DIVYANSH PRADHAN
18	DUSHYANT JAKHAR
19	HAPPYSINGH CHARAN
20	HARSH KUMAWAT
21	HARSHIL SODANI
22	HARSHIT KHANDELWAL
23	HARSHIT MITTAL
24	HARSHITA PALIWAL
25	HARSHKUMAR SAHU
26	ISHA TRIPATHI
27	JYOTI AGRAWAL
28	KANISHK AGARWAL
29	KARTIK SHARMA
30	KARTIKEYA DIXIT
31	KESHAV GAUTAM
32	KHUSHI PAREEK
33	KRISHNA RATHI
34	LAKSHYA METHI
35	LAVANYA TALWAR
36	LAXITA SINGH
37	manas rathore
38	MANAV MANNA
39	MIHIR PANDIYA
40	MONAY CHHATTANI
41	NAKSHATRA GARG
42	PIYUSH MAKAD
43	PRAFULL BHARGAVA
44	RAHUL GOYAL
45	RAKSHA MODI
46	RAKSHIT ROCHWANI
47	RISHABH DHAYAL
48	SAKSHAM BHALLA
49	SHILPI SHUKLA
50	SHRAY MATHUR
51	SHUBHIKSHA KHANDELWAL
52	SRISHTI KULSHRESTHA
53	SUDEEP SHUKLA
54	SUKHLEEN SINGH
55	SURABHI SOMAI
56	SURYANSH JOHARI
57	TANISH KANDIRA
58	TANISHA CHOUDHARY
59	TARUN JAIN
60	TISHA GUPTA
61	VAIBHAV BAIRATHI
62	VED SHARMA
63	VEDANT KALIA
64	YASH ACHRA
65	KAMAL KISHORE
66	HIMANSHU JANGIR

Course: Design Practice - II

Course Code: noc21-me102

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Geometrical Transformations

Week 2 : 3-D shapes/ solid modelling

Week 3 : Micro-electro Mechanical Systems (MEMS)/ Sensors and actuators

Week 4 : Rapid Prototyping (3-D printing)/ Rapid tooling

Week 5 : Creating forms and their geometric transformation models

Week 6 : Strength and Stiffness of Structural Elements/ Mechanisms

Week 7 : Mechatronics/ Introduction to Control

Week 8 : Intelligent Product Design

List of students enrolled

S. No	Name of Student
1.	Avinash Mittal
2.	Govind Pandey
3.	HARSH VARDHAN SINGH CHUNDAWAT
4.	Puneet Kumawat
5.	Aditya Jain

Course: Engineering Metrology

Course Code: noc21-me105

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to Engineering Metrology

Week 2 : Introduction to Engineering Metrology

Week 3 : Statistics in Metrology

Week 4 : Linear Measurements

Week 5 : Angular and rotation measurements

Week 6 : Comparators

Week 7 : Optical measurements, and temperature measurements Week 8 : Screw threads metrology, and gears metrology

Week 9 : Transducers

Week 10: Flow and Pressure measurements, and strain measurements

Week 11: Surface finish metrology, and mechatronics

Week 12: Nano-metrology, and Quality control

List of students enrolled

S. No	Name of Student
1	Priyansh Indoria
2	Yogendra Singh

Course: Basics of Finite Element Analysis – I

Course Code: noc21-me109

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Intro & concepts

Week 2 : Mathematical concepts

Week 3 : 1-D BVP problems of 2nd order

Week 4 : Applications: heat transfer/solid mechanics

Week 5 : Beams

Week 6 : Errors & convergence

Week 7 : Time dependent problems

Week 8 : Eigen value problems and closure

List of students enrolled

S. No	Name of Student
1	Abhishek Sharma I
2	Abhishek Sharma II
3	Shreshth Singh

Course: Basics of Materials Engineering

Course Code: noc21-me113

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction, Crystal Structure

Week 2: Imperfections in solids

Week 3: Imperfections in solids (Contd)

Week 4: Mechanical properties of materials

Week 5: Failure of Materials

Week 6: Failure of Materials (Contd)

Week 7: Basics of Fracture Mechanics

Week 8: Fatigue failure theories

Week 9: Fatigue failure theories (Contd)

Week 10: Phase diagrams

Week 11: Phase diagrams (Contd)

Week 12: Thermal Processing and Heat Treatment of Steels

List of students enrolled

S. No	Name of Student
1.	Chinmay jain
2.	Christy Dipu
3.	Deepak Kumar Sai
4.	HARSH VARDHAN SINGH CHUNDAWAT
5.	Harshika Kumari
6.	Harsh maheshwari
7.	Harsh Tanwar
8.	Priyanshu Jangid
9.	Karan Chawda
10.	Kartik somani
11.	Kunal Colin Williams
12.	Aayushman Mishra
13.	Muskan Rangrej
14.	Naitik popli

15.	Nishant Tomar
16.	Naveen Pareek
17.	Priyansh indoria
18.	Rajat Saini
19.	Ritik sharma
20.	Shreshth Singh
21.	adnan khan
22.	Akshay Verma
23.	Vikas Kumar tank

Course: Applied Thermodynamics

Course Code: noc21-me119

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Review of Basic Thermodynamics

Week 2: Steam Power System

Week 3: Steam Power System

Week 4: Steam Power System

Week 5: Internal Combustion (IC) Engines

Week 6: Internal Combustion (IC) Engines

Week 7: Internal Combustion (IC) Engines

Week 8: Gas Turbine Engines

Week 9: Gas Turbine Engines

Week 10: Refrigeration and Air-conditioning System

Week 11: Refrigeration and Air-conditioning System

Week 12: Reciprocating Air Compressor

List of students enrolled

S. No	Name of Student
1.	Aditya Bhatnagar
2.	AMAN DEEP SINGH SANDHU
3.	Abhishek Kumar kushwaha
4.	Bharat Kumar Sharma
5.	KASHISH NAWAL
6.	MADAN LAL PRAJAPAT
7.	Priyanka soni
8.	Sachin sharma
9.	Deepak Meena
10.	Akshat singh
11.	Akshay Verma

Course: Automation in Manufacturing

Course Code: noc21-me120

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction: Importance of automation in the manufacturing industry. Use of mechatronics.

Systems required.

Week 2: Design of an automated system: Building blocks of an automated system, working principle

and examples.

Week 3: Fabrication: Fabrication or selection of various components of an automated system.

Specifications of various elements. Use of design data books and catalogues.

Week 4: Sensors: study of various sensors required in a typical automated system for manufacturing.

Construction and principle of operation of sensors.

Week 5: Microprocessor Technology: signal conditioning and data acquisition, use of microprocessor or

micro controllers. Configurations. Working.

Week 6: Drives: electrical drives - types, selection criteria, construction and operating principle.

Week 7: Mechanisms: Ball screws, linear motion bearings, cams, systems controlled by camshafts.

Week 8: Mechanisms: Electronic cams, indexing mechanisms, tool magazines, and transfer systems.

Week 9: Hydraulic systems: hydraulic power pack, pumps, valves.

Week 10: Hydraulic systems: designing of hydraulic circuits.

Week 11: Pneumatic systems: configurations, compressors, valves, distribution and conditioning.

Week 12: CNC technology: basic elements, interpolators and programming.

List of students enrolled

S. No	Name of Student
1.	Abhishek Sharma
2.	Ajay Kumar buri
3.	Akshit Kumar Sain
4.	Amit Pareek
5.	Anirudh jangid
6.	Kshitiz Anurag
7.	Anurag dadhich
8.	Aryan Kumawat
9.	Aryan Soni
10.	Avinash Mittal
11.	TUSHAR BANSAL
12.	Chaitanya Bhushan Mudgal
13.	Chinmay jain
14.	Jalaj gupta
15.	Jancy C Joshwa
16.	Priyanshu Jangid
17.	KASHISH NAWAL
18.	Aman Sharma
19.	Pradeep Jangid
20.	RAJAT GAUTAM
21.	Rajat Saini
22.	Rajkumar gangwar
23.	Akshit sharma
24.	Sachin sharma
25.	Yogendra Singh
26.	Shubham Soni
27.	Tushar sharma

Course: Engineering Drawing and Computer Graphics

Course Code: noc21-me125

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to engineering drawings

Week 2:Conic sections

Week 3:Orthographic projections-I

Week 4:Orthographic projections-II

Week 5:Sections and sectional views

Week 6:Isometric projections

Week 7:Overview of computer graphics-I

Week 8:Overview of computer graphics-II

Week 9:Overview of computer graphics-III

Week 10:Overview of computer graphics-IV

Week 11:Design project-I

Week 12:Design project-II

List of students enrolled

S. No	Name of Student
1.	Aman Sharma
2.	Aryan Ojha
3.	Avinash Mittal
4.	TUSHAR BANSAL
5.	Prateek Kumawat
6.	Luckey Sharma
7.	Mansi Pareek
8.	JATIN MEHRA
9.	MOHIT PAREEK
10.	RAJAT GAUTAM
11.	Rishabh Shrivastava
12.	Manasvini Sharma
13.	Vikas Kumar tank
14.	Vishal prajapat

Course: Engineering Graphics and Design

Course Code: noc21-me128

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction

Week 2: Graphical Representation

Week 3: Projection Basics

Week 4: Orthographics Projections

Week 5: Auxilary And Sectional Projections

Week 6: Isometric Projections

Week 7: Working Drawings

Week 8: Introduction To CAD

Week 9: Part Modelling 1

Week 10: Part Modelling 2

Week 11: Assembly

Week 12: Design Project

List of students enrolled

S. No	Name of Student
1	ABHISHEK MEDATWAL
2	Aman Sharma
3	Kshitiz Anurag
4	ARSHDEEP SINGH KALSI
5	Aryan Kumawat
6	Aryan Ojha
7	Aditya Soni
8	Ashwini singh
9	Avinash Mittal
10	jeeval choradia
11	ANKIT CHAUDHARY
12	Anurag Chaudhary
13	Chitransh Gupta

14	Chandra Prakash Saini
15	Deepak Kumar Sai
16	Deepak jaiman
17	Devank Jain
18	DEVESH SHRIMAL
19	divya arora
20	Divyansh Sharma
21	Harsh Tanwar
22	Hritik Maratha
23	Sandeep sharma
24	Kanak sharma
25	Vikas jat
26	Jatin Dhyawana
27	Prateek Kumawat
28	Dheeraj Sharma
29	abhishek pandey
30	Jitendra Kumar Meena
31	Aayushman Mishra
32	Prajwal Parihar
33	Ritik sharma
34	Rohit Verma
35	Sankit Sharma
36	DEVANSHU SHARMA
37	Shivam Sharma
38	shyam kumar
39	SATENDRA SINGH
40	Vikas Kumar tank
41	vinod
42	Yash Thakur
43	yogesh kumar singh

Course: Engineering Mechanics

Course Code: noc21-me70

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction and Force Systems

Week 2: Equilibrium of Rigid Bodies and Introduction to Trusses

Week 3: Analysis of Trusses and Introduction to Beams

Week 4: Analysis of Beams

Week 5: Virtual work and Energy relations

Week 6: Review so far and Friction

Week 7: Belt friction, Review of particle dynamics, Circular motion

Week 8: Plane kinematics of rigid bodies, absolute motion and relative motion

Week 9: Instantaneous center, Rotating frame of reference

Week 10: Choice of rotating frame and understanding Coriolis acceleration

Week 11: Plane kinetics

Week 12: 3D kinematics

List of students enrolled

S. No	Name of Student
1	Aayush Vaishnav
2	ARSHDEEP SINGH KALSI
3	Ashish verma
4	AKSHAY SINGH SHAKTAWAT
5	Anush Sharma
6	Hritik Gaur
7	abhishek pandey
8	Priyanka soni
9	Yogendra Singh
10	Akshay Verma
11	Vishal Kumawat

Course: Manufacturing Systems Technology I & II

Course Code: noc21-me72

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 to 3 : Manufacturing properties of materials, Computer aided designing

Week 4 to 5 : Principles and process planning of basic machining processes, Machine tools design.

Week 6 : Computer aided process planning

Week 7 : Introduction to CNC part programming, Product design

Week 8 : Just-in-time manufacturing

Week 9 : Quality systems engineering

Week 10 to 11 : Cost of quality and statistical quality control

Week 12 : Robotic systems planning and designing

List of students enrolled

S. No	Name of Student
1	Kshitiz Anurag
2	Arun kumar jharwal
3	Avinash Mittal
4	Govind Pandey
5	bhanu krishna chasta
6	Bhaskar
7	Samardeep Singh Chopra
8	Yogendra Singh
9	Tushar sharma
10	Aditya Jain
11	Vikas Kumar tank

Course: Concepts of Thermodynamics

Course Code: noc21-me73

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 : Fundamental denitions and concepts in thermodynamics
Week 02 : Properties of pure substances
Week 03 : Work and heat
Week 04 : First law of thermodynamics for closed systems
Week 05 : First law of thermodynamics for open systems – I
Week 06 : First law of thermodynamics for open systems – II
Week 07 : Second law of thermodynamics
Week 08 : Entropy transfer for closed systems
Week 09 : Entropy transfer for open systems
Week 10 : Irreversibility and exergy
Week 11 : Thermodynamic Cycles: Air Standard Cycles, Vapour Power Cycles
Week 12 : Thermodynamic Cycles: Vapour Power Cycles (contd), Refrigeration Cycles

List of students enrolled

S. No	Name of Student
1	Ajay Kumar buri
2	ajaychauhan
3	Akshit Kumar Sain
4	AMAN DEEP SINGH SANDHU
5	Amit Pareek
6	Ankit sharma
7	Abhay Raj
8	ARSHDEEP SINGH KALSI
9	Asad Ali
10	Avinash Mittal
11	Bhanu Pratap Singh Chouhan
12	NAVAL TRIPATHI
13	Brijesh choudhary
14	Deepanshu Rai
15	Deependra dhankhar
16	Ghanshyam nahar
17	Gaurav jain
18	Vikas jat
19	Bhaskar
20	Aman Sharma

21	MADAN LAL PRAJAPAT
22	Mannat Mehta
23	Priyanka Chauhan
24	Samardeep Singh Chopra
25	Sarthak Agarwal
26	DEVANSHU SHARMA
27	Somin Seth
28	ajay prtap singh chauhan
29	Harsh Tulsani
30	Harsh Tulsani
31	Vikas Kumar tank
32	Vishal Kumawat

Course: Robotics

Course Code: noc21-me76

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 : Introduction to Robots and Robotics
Week 02 : Introduction to Robots and Robotics (contd.); Robot Kinematics
Week 03 : Robot Kinematics (contd.);
Week 04 : Robot Kinematics; Trajectory Planning
Week 05 : Robot Dynamics
Week 06 : Control Scheme; Sensors; Robot Vision
Week 07 : Robot Vision; Robot Motion Planning
Week 08 : Intelligent Robot; Biped Walking; Summary

List of students enrolled

S. No	Name of Student
1	Aakarsh Mehta
2	Aman Kumar Gupta
3	Anirudh jangid
4	Anjali mukherji
5	Kshitiz Anurag
6	Aryan Soni
7	ayush Rathor
8	Harshit Kumawat
9	Neeraj Choudhary
10	Deependra dhankhar
11	divya arora
12	Manuraditya Singh Hada
13	Hritik Gaur
14	Jayesh Verma
15	Bhaskar
16	MANOJ KUMAR SAHU
17	Mohit Tolani
18	Navneet Sagar
19	pawan pareek
20	Priyanka Chauhan
21	Puneet Sankhala
22	Aman Saini
23	Yogendra Singh

24	shyam kumar
25	Shubham jain
26	Tushar sharma
27	Poorvaja Verma
28	Vaibhav Vyas
29	yogesh kumar singh

Course: Advances in welding and joining technologies

Course Code: noc21-me78

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Fundamentals of welding and joining

Week 2: Laser and electron beam welding

Week 3: Solid state welding processes

Week 4: Computational welding mechanics

Week 5: Microjoining and nanojoining

Week 6: Welding metallurgy

Week 7: Welding and joining of non-metals

Week 8: Metal transfer in welding and metal printing

List of students enrolled

S. No	Name of Student
1	Anurag dadhich
2	ayush singh rathore
3	Devendra sharma
4	DEVESH SHRIMAL
5	Divyansh Sharma
6	Dharma Ram jat
7	Kuldeep sharma
8	Lalit Sharma
9	Lovenesh
10	Rajat Saini
11	Shreshth Singh

Course: Fundamentals of manufacturing processes

Course Code: noc21-me81

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 : Understanding Manufacturing
Week 02 : Selection of manufacturing processes
Week 03 : Metal Casting: Steps of casting processes
Week 04 : Metal Casting: Sand Moulding II
Week 05 : Metal Casting: Cleaning of casting
Week 06 : Metal working processes: Rolling
Week 07 : Metal working processing: Sheet metal operations (Shearing)
Week 08 : Material removal processes: Mechanism of the metal cutting
Week 09 : Material removal processes: Tool materials
Week 10 : Material removal processes: Grinding operations
Week 11 : Joining of metals: Weldability and welding defects
Week 12 : Heat treatment: Tempering

List of students enrolled

S. No	Name of Student
1	Arun kumar jharwal
2	choudhary sanjay rataram
3	Chetan Gurjar
4	Chinmay jain
5	Chitransh Gupta
6	Christy Dipu
7	Deependra dhankhar
8	Gaurav jain
9	Harshika Kumari
10	Bhaskar
11	DEEPAK KUMAR YADAV
12	KASHYAP
13	Parth Sharma
14	Raunak Advani
15	Shubham Soni
16	vikas gaur

Course: Work System Design

Course Code: noc21-me84

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 :	Work System Design: Introduction, and Concept of Productivity, Measurement of Productivity, Productivity Measures, Productivity Measurement Models
Week 02 :	Factors Influencing Productivity, Causes of Low Productivity, Productivity Measurement Models, Productivity Improvement Techniques, Numerical Problems on productivity, Case study on productivity.
Week 03 :	Work Study: Basic Concept, Steps Involved in Work Study, Concept of Work Content, , Techniques of Work Study, Human Aspects of Work Study
Week 04 :	Method Study: Basic Concept, Steps Involved in Method Study, Recording Techniques, Operation Process Charts, Operation Process Charts: Examples.
Week 05 :	Flow Process Charts, Flow Process Charts: Examples, Two-Handed-Process Charts, Multiple Activity Charts, Flow Diagrams.
Week 06 :	String Diagrams, Principles of Motion Economy, Micro-Motion Study, Therbligs, SIMO Charts.
Week 07 :	Memo-Motion Study, Cycle graph and Chrono-Cycle Graph, Critical Examination Techniques, Development and Selection of New Method, Installation and Maintenance of Improved Methods.
Week 08 :	Work Measurement: Basic Concept, Techniques of Work Measurement, Steps Involved in Time Study, Time Study Equipment, Performance Rating.
Week 09 :	Performance Rating: Examples, Allowances, Computation of Standard Time, Numerical on Computation of Standard Time, Case Study
Week 10 :	Work Sampling: Basics, Procedure of Work Sampling Study, Numerical Problems on work sampling, Introduction to Synthetic Data and PMTS, Introduction to MTM and MOST
Week 11 :	Ergonomics: Basic Concept, Industrial Ergonomics, Ergonomics: Anthropometry, Man-Machine System-1, Man-Machine System-2
Week 12 :	Case Study of Office Chair, Case Study of Tower Crane Cabin, Case Study of Car Seat, Case Study of Computer System, Case Study of Assembly Line.

List of students enrolled

S. No	Name of Student
1	Deepak Meena

Course: Power Plant Engineering

Course Code: noc21-me86

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: The energy scenario, steam power plants, fuel handling, ash handling, chimney draught

Week 2: Fossil fuel steam generators, high pressure boilers, performance of boilers, fuels and combustion, steam turbines

Week 3: Impulse turbines, reaction turbines, feed water treatment, steam condensers, problem solving

Week 4: Condensate feed water system, circulating water system, gas turbine cycles, combined cycles,hydro-electric, power plants

Week 5: Classification of hydro-plants , hydraulic turbines, hydro plant controls, problem solving

Week 6: Principles of nuclear energy, thermal fission reactors and Power Plants, Fast breeder reactors, solar energy, solar thermal energy

Week 7: Solar thermal energy, direct energy conversion, wind energy, geothermal energy, energy from oceans

Week 8: Energy storage, economics of power generation, environmental aspect of power generation, problem solving

List of students enrolled

S. No	Name of Student
1	Anshul Sharma
2	ARSHDEEP SINGH KALSI
3	Avinash Mittal
4	Mohd Mateen joad
5	Muskan Rangrej
6	Rajat Saini
7	Shivam
8	Yash Goyal

Course: Theory of Production Processes

Course Code: noc21-me88

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Theory of casting and solidification, Fluidity of liquid metals

Week 2: Technology of patternmaking and mouldmaking, Pattern allowances, Testing of molding sand, cores

Week 3: Gating system design, Risering Design, different methods of calculating riser volume, Feeding distance calculations

Week 4: Theory of melting and production of ferrous and non-ferrous materials, Casting design, Casting defects

Week 5: Mechanical fundamentals of metalworking: Concept of stress and strain, stress and strain

tensors, Hydrostatic and deviatoric stresses, Flow curve

Week 6: Yield criteria for ductile materials, plastic stress strain relationships, classification of

metalworking, mechanics of metalworking

Week 7: Analysis and classification of rolling and forging processes, Force calculations in rolling and

forging processes

Week 8: Analysis and classification of Extrusion process, Analysis of wire, rod and tube drawing

processes, Forming defects

Week 9: Classification of welding processes, Thermal effects in welding, Basic metallurgy of fusion

welds, Heat affected zone in welding

Week 10: Principles of welding processes: Arc welding, Gas metal arc welding, Solid state

welding, Resistance welding, Soldering, Brazing and adhesive bonding

Week 11: Residual stresses in welding, Methods of measurement of residual stresses in

welding, Welding distortion and its types, Methods of reducing residual stresses and distortion in

welding

Week 12: Weldability of materials: Introduction and assessment of weldability, Test for weldability,

Weldability of ferrous and non-ferrous materials

List of students enrolled

S. No	Name of Student
1	Sarthak Agarwal
2	Yogendra Singh

Course: Advanced Machining Processes

Course Code: noc21-me89

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to advanced machining processes and their classification Ultrasonic machining and its modelling and analysis

Week 2: Abrasive jet machining (AJM), Water jet cutting (WJC) and Abrasive water jet machining (AWJM) Magnetic abrasive finishing (MAF) and its modelling

Week 3: Abrasive flow finishing (AFF) and its modelling Magnetorheological finishing (MRF)

Week 4 : Magnetorheological abrasive flow finishing (MRAFF) and its modelling and analysis

Week 5 : Electric discharge machining (EDM): Principle, applications, process parameters, and modelling Electric Discharge Grinding (EDG), Electric Discharge Diamond Grinding (EDDG), and Wire Electric Discharge Machining (W-EDM)

Week 6: Laser beam machining (LBM) Plasma arc machining (PAM) Electron Beam Machining (EBM)

Week 7: Electro chemical machining (ECM): Principle, applications, and process parameters and modelling

Week 8: Electrochemical Grinding (ECG), Electrostream Drilling (ESD), Shaped Tube Electrolytic Machining (STEM),Chemical machining (ChM)

List of students enrolled

S. No	Name of Student
1	HARSH VARDHAN SINGH CHUNDAWAT
2	Harsh maheshwari
3	Hemant Yogi
4	Jayesh Verma
5	DEEPAK KUMAR YADAV
6	Kunal Maniwal
7	Rajat Saini

Course: Welding Application Technology

Course Code: noc21-me99

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Basics of welding residual stresses & distortions and its mitigation

Week 2: Measurement & analysis of welding residual stresses and distortions

Week 3: Measurement of welding residual stresses and distortions

Week 4: Different type of welding methods and its details (PAW,FCAW, RSW)

Week 5: Different type of welding methods and its details (RW, Thermit, FSW)

Week 6: Different type of welding methods & its details (Brazing, Soldering)

Week 7: Design & analysis of butt and fillet welds joints

Week 8: Design & analysis of weld joints for different static loading conditions

List of students enrolled

S. No	Name of Student
1	Shekhar Sharma
2	Hemant Yogi
3	Keshav Singh
4	Muskan Rangrej
5	Shreshth Singh

Course: Computer Integrated Manufacturing

Course Code: noc22-me10

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Computer Integrated Manufacturing (CIM)

Week 2: Computer Aided Design

Week 3: Computer Aided Manufacturing

Week 4: Computer Numerical Control

Week 5: Computer Aided Process Planning (CAPP)

Week 6: CIM interfaces: CAD vs CAM

Week 7: Data and information in CIM

Week 8: Manufacturing Systems and their design

Week 9: Simulation of Manufacturing Systems

Week10: Computer Aided Maintenance

Week11: Computer Integrated Additive Manufacturing

Week 12: Advanced CIM techniques

List of students enrolled

S. No	Name of Student
1	Shashi Ranjan
2	Kunal Colin Williams
3	Suleman ahmed

Course: Product Design and Manufacturing

Course Code: noc22-me11

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to product design and manufacturing

Week 2: Product design morphology

Week 3: Visual Design, and Quality Function Deployment (QFD)

Week 4: Value Engineering

Week 5: Material, and Manufacturing process selection

Week 6: Design for Manufacturing, Assembly, and Maintenance

Week 7: Design for Environment, and Quality Control

Week 8: Patenting, and Creativity

Week 9: Rapid Prototyping

Week 10: Plant Layout Design

Week 11: Computer Integrated Manufacturing

Week 12: Reverse Engineering, and Managing Competitiveness

List of students enrolled

S. No	Name of Student
1	Ankit sharma
2	Chetan Gurjar
3	Gaurav Dubey
4	Gaurav Mishra
5	Kuldeep sharma

Course: Nature and Properties of Materials

Course Code: noc22-me16

Session: 2021-22

Duration: 08 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Engineering materials & Mechanical properties

Week 2: Atomic bonding and crystal structure

Week 3: Metals and Ceramics

Week 4: Polymers

Week 5: Composite Materials

Week 6: Smart Materials

Week 7: Materials selection in Engineering design

Week 8: Non-mechanical properties and Laboratory demonstration

List of students enrolled

S. No	Name of Student
1	ABHISHEK MEDATWAL
2	Akshit Kumar Sain
3	Amit Pareek
4	Kshitiz Anurag
5	Anurag dadhich
6	ARSHDEEP SINGH KALSI
7	Aditya Soni
8	Asad Ali
9	ASHUTOSH KUMAWAT
10	Harsh Gupta
11	Chaitanya Bhushan Mudgal
12	Chitransh Gupta
13	Deepak Kumar Sai
14	Harshika Kumari
15	Harsh maheshwari
16	Harsh Tanwar
17	Hemant Yogi
18	Bhaskar
19	Aman Sharma
20	Kuldeep sharma

21	Pradeep Kumar Prajapati
22	Jitendra Kumar Meena
23	Naveen Choudhary
24	Ojasvee Sharma
25	Pawas Bansal
26	Ajay saroch
27	Raghav
28	Harsh Tulsani
29	adnan khan
30	Anshul Sharma
31	Harsh Tulsani
32	Kapil
33	yogesh kumar singh

Course: Manufacturing Process Technology I & II

Course Code: noc22-me28

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Manufacturing properties of materials

Week 2: Casting processes

Week 3 and 4: Machining processes

Week 5: Joining processes

Week 6 and 7 : Non-traditional machining processes

Week8: Introduction micromanufacturing

Week 9 and 10: Advanced machining processes (AJM, USM, ECM and EDM)

Week 11: Metal Forming Processes

Week 12: Micro-fabrication processes, Additive manufacturing.

List of students enrolled

S. No	Name of Student
1	Akshit Kumar Sain
2	Amit Pareek
3	Chitransh Gupta
4	Devaksh Narwara
5	Devi Pratap Singh Rajawat
6	Gaurav jain
7	Harshika Kumari
8	Harsh maheshwari
9	Harsh Tanwar
10	Vikas jat
11	Bhaskar
12	KASHYAP
13	Aman Sharma
14	pawan pareek
15	Akash Sharma
16	Shivani Bhagat
17	Shubham jain

Course: Design Practice

Course Code: noc22-me29

Session: 2021-22

Duration: 08 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to Design/Product design

Week 2 : Stanford model of Design thinking/ Stages of engineering design of products/ Introduction to Concurrent engineering

Week 3 : Concurrent engineering in Practice

Week 4 : Concurrent engineering in Practice

Week 5 : Product embodiment design(robustness of design/FMEA techniques).

Week 6 :House of quality, Specifications (Fits and Tolerances), Axiomatic Design, Introduction to Group Technology, Creating forms and shapes.

Week 7 : Geometric transformation models, Introduction to electronics

Week 8 : Material selection process in design, Applied Ergonomics (work systems design, Introduction to bio-mechanics)

List of students enrolled

S. No	Name of Student
1	ARSHDEEP SINGH KALSI
2	Devashish Mundra
3	KUNAL MITTAL
4	Kunal Maniwal
5	Rahul Kumar Jangid
6	Vikas Kumar tank

Course: Introduction To Fluid Mechanics

Course Code: noc22-me31

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction and Basic Principles

Week 2: Properties of Fluids

Week 3: Properties of Fluids and Fluid Statics

Week 4: Fluid Statics

Week 5: Fluid Kinematics (Part I)

Week 6: Fluid Kinematics (Part II)

Week 7: Dynamics of Inviscid Flows (Part I)

Week 8: Dynamics of Inviscid Flows (Part II)

Week 9: Integral Forms of Control Volume Conservation Equations (Part I)

Week 10: Integral Forms of Control Volume Conservation Equations (Part II)

Week 11: Integral Forms of Control Volume Conservation Equations (Part III); Dynamics of Viscous Flows (Part I)

Week 12: Dynamics of Viscous Flows (Part II)

List of students enrolled

S. No	Name of Student
1	Aditya Bhatnagar
2	AMAN DEEP SINGH SANDHU
3	Ashwini singh
4	Avinash Mittal
5	bhanu krishna chasta
6	Bhanu Pratap Singh Chouhan
7	pawan bora
8	Rahul Singh Gurjar
9	DEVESH SHRIMAL
10	divya arora
11	Gaurav jain
12	Hemant Yogi

13	Rahul patra
14	Saurav Kumar jha
15	Karan soni
16	Lav kumar
17	Kunal Colin Williams
18	MADAN LAL PRAJAPAT
19	Navneet Sagar
20	Niraj Kumar
21	Nishant Tomar
22	Nitish S. Chauhan
23	pawan pareek
24	Punit Kejriwal
25	Pururaj Singh
26	Rajvardhan gupta
27	Samyak jain
28	Choudhary Sanjay rataram
29	Shivam
30	Suraj jaimini
31	adnan khan
32	Yash Goyal

Course: Mechatronics

Course Code: noc22-me54

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to mechatronics

Week 2: Electric Circuits and Semiconductor Electronics

Week 3: Sensors and transducers

Week 4: Actuators and mechanisms

Week 5: Signal conditioning

Week 6: Microprocessors and microcontrollers

Week 7: Modeling and system response

Week 8: Design and mechatronics

List of students enrolled

S. No	Name of Student
1	Abhishek Tiwari
2	AMAN ADITYA
3	Annirudh singh shekhawat
4	Kshitiz Anurag
5	Ashvin Singh
6	Bhanu Pratap Singh Chouhan
7	DIVYANSH CHATURVEDI
8	Raghav Bhardwaj
9	rahul kushwaha
10	DEVESH SHRIMAL
11	divya arora
12	Harsh singh gahlot
13	ADITYA Z GUPTA
14	Harshika Kumari
15	Harsh maheshwari
16	Hemant Yogi
17	Jalaj gupta
18	Jancy C Joshwa
19	Vikas jat

20	Saurav Kumar jha
21	Bhaskar
22	Karan soni
23	Vaibhav Sharma
24	Kuldeep sharma
25	MADAN LAL PRAJAPAT
26	MOHIT PAREEK
27	Navneet Sagar
28	pawan pareek
29	Priyanka Chauhan
30	Rajvardhan gupta
31	Raunak Advani
32	Rahul Kumar Jangid
33	DEVANSHU SHARMA
34	Yogendra Singh
35	Shashi Ranjan
36	Shubham Soni
37	Shubham jain
38	Suleman ahmed
39	Tehsin Khan
40	Yashvardhan Singh
41	yogesh kumar singh

Course: IC Engines and Gas Turbines

Course Code: noc22-me65

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Engine

Week 2: IC Engines

Week 3: Air-standard cycles

Week 4: Carburation

Week 5: Fuel injection systems

Week 6: Combustion in S.I. and C.I.engines

Week 7: Introduction to GasTurbines

Week 8: Performance analysis of Bryton Cycle

Week 9: Aircraft propulsion

Week 10: Compressors

Week 11: Compressors and Turbines

Week 12: Nozzles and Diffusers

List of students enrolled

S. No	Name of Student
1	Akshit Kumar Sain
2	Amit Pareek
3	Asad Ali
4	Harshit Kumawat
5	Devaksh Narwara
6	Gaurav jain
7	Aman Sharma
8	kiran kumar
9	Lav kumar

10	Kuldeep sharma
11	MADAN LAL PRAJAPAT
12	Tehsin Khan

Course: Machining Science

Course Code: noc22-me64

Session: 2021-22

Duration: 4 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Machining; Plastic Deformation, Tensile Test, Stress and Strain; Mechanism of Plastic Deformation: Slips, defects, plastic deformation on atomic scale; Types of machining processes; Chip formation; Orthogonal and Oblique Cutting; Types of Chips; Built-up edge formation; Tool specification; Tool angle relationships in ORS and ASA and NRS; Selection of Tool Angles; Multiple-point cutting tools: twist drill, helical milling cutter.

Week 2: Merchant's Circle Diagram; Co-efficient of Friction: Determination of stress, strain and strain rate; Measurement of shear angle; Thin Zone model: Lee and Shaffer's Relationship; Thick Zone model: Okushima and Hitomi Analysis; Nature of sliding friction; Friction in Metal Cutting: Sticking and Sliding Zones, Determination of mean angle of friction

Week 3: Mechanism of Oblique Cutting: Normal Rake angle, velocity rake angle and effective rake angle; shear angles; velocity relationship; Force relationships in oblique cutting; Practical Marching Processes: Turning, shaping and planning, Slab milling, Drilling: Machining Parameters, force magnitudes, power consumption, material removal rate, time per pass.

Week 4: Measurement of Cutting Forces: Basic methods of measurement: Axially Loaded members, Cantilever Beam, Rings and Octagon, dynamometer requirements; machine tool dynamometers; Types of tool wear; Mechanisms of wear: Abrasion, Adhesion and Diffusion. Progressive tool wear: flank and crater wear. Tool Life: variables affecting tool life – cutting conditions, tool geometry, Types of tool materials, fabrication of cutting inserts, coating Work material and cutting fluid; Machinability and their criteria.

List of students enrolled

S. No	Name of Student
1	Muskan Rangrej

Course: Physics of Renewable Energy Systems

Course Code: noc21-ph33

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Basics of semiconductor, nanomaterials and nanotechnology

Week 2: Renewable energy sources and classifications

Week 3: Solar Power

Week 4: Wind power

Week 5: Hydro, Tidal and Geothermal Systems

Week 6: Energy storage Technology: Classification and principle

Week 7: Fuel cells: Principles, Classifications and Operations

Week 8: Super apacitors and Battery

Week 9: Energy storage mechanism

Week 10: Effect of double layer in energy storage: Chemical approach

Week 11: Characterization techniques: I

Week 12: Characterization techniques II

List of students enrolled

S. No	Name of Student
1	Abhishek Bansal
2	AKSHAT JAIN
3	Ashok Jat
4	ANKIT CHAUDHARY
5	Abhishek Kumar kushwaha
6	Brijesh choudhary
7	Ankit Gardhwal
8	Lav kumar
9	Chandan Kumar

10	Puneet Kumawat
11	Rishabh Shrivastava
12	Kunal singh solanki

Course: Fundamentals of Automotive Systems

Course Code: noc22-de02

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Course Overview, Classification of Internal Combustion Engines, Engine Components, Operation of Four Stroke Engines

Week 2 : Two Stroke Engines, Engine Cycles

Week 3 : Engine Performance, Supercharging, Combustion in Spark Ignition Engines

Week 4 : Combustion in Compression Ignition Engines, Carburetion, Fuel Introduction Systems

Week 5 : Engine Emissions, Emission Control Systems, Automotive Powertrain

Week 6 : Automotive Clutch, Transmission, Powertrain Analysis

Week 7 : Transmission Matching and Introduction to Brake System

Week 8 : Components of Brake System, Hydraulic Brake

Week 9 : Air Brake, Antilock Brake System

Week 10 : Braking Analysis, Introduction to Steering System, Manual Steering System

Week 11 : Power Steering System, Wheel Alignment, Introduction to Suspension System

Week 12 : Components of Suspension System, Dependent and Independent Suspension, Introduction to Electric and Hybrid Powertrain, Tyres.

List of students enrolled

S. No	Name of Student
1	AMAN DEEP SINGH SANDHU
2	Kshitiz Anurag
3	Harshit Kumawat
4	NAVAL TRIPATHI
5	NIKHIL PANDEY
6	Darshan Jain
7	Devaksh Narwara
8	DEVESH SHRIMAL
9	Gaurav jain
10	Harshika Kumari

11	Harsh maheshwari
12	Hemant Yogi
13	Jancy C Joshwa
14	Ravi Raj
15	Kuldeep sharma
16	Kunal Colin Williams
17	Lalit Sharma
18	Lovenesh
19	Mukul garg
20	Rajat Swami
21	Anshul Sharma

Course: Experimental Physics I

Course Code: noc21-ph19

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Basic tools in a laboratory

Week 2 : Basic apparatus in a laboratory

Week 3 : Basic analysis of data in a laboratory

Week 4 : Experiments on Mechanics

Week 5 : Experiments on General properties of matters

Week 6 : Experiments on Thermal properties of matter

Week 7 : Experiments on Thermoelectricity and Sound

Week 8 : Experiments on Electricity

Week 9 : Experiments on Electricity

Week 10 : Experiments on Electricity

Week 11 : Experiments on electromagnetism

Week 12 : Experiments on electromagnetism

List of students enrolled

S. No	Name of Student
1	Kiran kumar

Course: Security Analysis & Portfolio Management

Course Code: noc21-mg99

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Concept of Investment, Investment Objectives and Constraints, Investment Classification. Financial Markets & Instruments, their role & classification. Regulation of Securities Markets, Primary & Secondary Markets, Trading, Clearing and Settlement procedures, Market Indices.

Week 2: Concept & Measures of Risk and Return, Portfolio Risk & Return, Reduction of Risk through Diversification.

Week 3: Concept of Intrinsic Valuation, Cash Flow based Equity Stock Valuation Models. Value Added & Asset based valuation. Use of Multiples & Relative Value.

Week 4: Fundamental Analysis for Determination of Inputs to Equity Valuation, Cash Flow & Profitability Forecasting, EIC Framework, Economic Forecasting Methods, Industry Analysis, Industry Life Cycle, Structural Analysis.

Week 5: Company Analysis, Publicly accessible Corporate Information, Tools of Financial Statement Analysis.

Week 6: Financial Statement Analysis including Impact of Changes in Accounting Policies, Depreciation Methods, Revaluation of Fixed Assets, Foreign Exchange Transactions, Amortization of Preliminary and Preoperative Expenses, R&D Expenditure, Valuation of Inventory, Treatment of Leases etc.

Week 7: Measures of Bond Returns, YTM & Holding Period Yields, Bond Valuation, Spot & Forward Interest Rates, Term Structure & Yield Curves, Interest Rate Sensitivities, Duration & Elasticities. Key Rates & Bucket Rates.

Week 8: Efficient Market Hypothesis, Technical Analysis: Dow Theory, Types of Charts, Price Patterns, Trend Lines, Trend Channels, Support and Resistance Levels, Relative Strength Analysis, Moving Averages, Breadth of the Market, Volume, Momentum.

Week 9: Portfolio optimization in the mean variance framework: two security case, various combinations of risky & risk-free assets, implications of the results, concept of efficient frontier. Concept of Utility & Indifference Curves, Optimal Portfolio Selection.

Week 10: The multi-security case of portfolio optimization, Tracing of the full efficient frontier with/without the existence of risk-free asset.

Week 11: Single Index & Capital Asset Pricing Model, Systematic and Unsystematic Risk, Beta of a Portfolio, CML & SML, Arbitrage Pricing Theory, Comparison of CAPM and APT, Applications of APT.

Week 12: Active & Passive Portfolio Management, Portfolio Revision of Equity Portfolios, Measuring and Evaluating Portfolio Performance, Measures of Return on Active Portfolios, Buying the Index Approach. Fixed Income Portfolio Management. Active vs Passive Strategies, Portfolio Management Using Derivatives.

List of students enrolled

S. No	Name of Student
1	SHIVAM THAKKAR
2	Vansh Pradeep Singh Rathore

Course: Integrated Waste Management for a Smart City

Course Code: noc21-ce46

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01: Introduction to Solid Waste Management

Week 02: Municipal Solid Waste Characteristics and Quantities

Week 03: MSW Rules 2016, Swachh Bharat Mission and Smart Cities Program

Week 04: Municipal Solid Waste Collection, Transportation, Segregation and Processing

Week 05: Disposal of Municipal Solid Waste

Week 06: Biochemical Processes and Composting

Week 07: Energy Recovery from Municipal Solid Waste

Week 08: Current Issues in Solid Waste Management and Review of MSW Management Status in First List of 20 Smart Cities in the Country

Week 09: Construction and Demolition (C&D) Waste Management - Overview

Week 10: C&D Waste – Regulation, Bene-cial Reuse of C&D Waste Materials

Week 11: Electronic Waste (E-Waste) Management – Issues and Status in India and Globally

Week 12: E-Waste Management Rules 2016 and Management Challenges

List of students enrolled

S. No	Name of Student
1	Gunjan Khandelwal
2	Naman Joshi
3	Puneet Kumawat
4	Rishabh Shrivastava

Course: Soil Mechanics/Geotechnical Engineering I

Course Code: noc21-ce41

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

- Week 1: Origin of soil and its Classification
- Week 2: Three-phase diagram & Weight volume relationship
- Week 3: Soil Compaction, seepage and permeability
- Week 4: Effective stress concept and applications
- Week 5: Bouusinesq's theory and vertical stress distribution
- Week 6: Shear Strength I
- Week 7: Shear strength II
- Week 8: Compressibility of soils
- Week 9: Consolidation and time rate of settlement
- Week 10: Earth pressure theory I
- Week 11: Earth pressure theory II
- Week 12: Introduction to Stability of slopes

List of students enrolled

S. No	Name of Student
1	ANKIT VERMA
2	Jatin Vedwal
3	Kartik
4	Pooja Kumari Meena
5	Priyanka Sharma
6	Sandeep Verma

Course: Strength of material

Course Code: noc21-ce38

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

- Week 1: Analysis of stresses
- Week 2: Analysis of strain
- Week 3: Stress-strain relations
- Week 4: Uniaxial loading
- Week 5: Torsion
- Week 6: Bending of Beams - 1
- Week 7: Bending of Beams - 2
- Week 8: Deflection of Beams - 1
- Week 9: Deflection of Beams - 2
- Week 10: Combined stresses
- Week 11: Stability of columns
- Week 12: Spring

List of students enrolled

S. No	Name of Student
1	Kavya Kulshrestha
2	ANKIT VERMA
3	Hridesh kumar
4	Deepak meena
5	Chandra Prakash Saini
6	Jatin Vedwal
7	Kartik
8	Prajwal Parihar
9	Sankit Sharma
10	Shruti Chauhan
11	Sandeep Verma
12	Akshay Verma
13	Vishal Kumawat

Course: Design of Reinforced Concrete Structures

Course Code: noc21-ce42

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01: Introduction, Different methods of design of reinforced concrete structures

Week 02: Working stress method

Week 03: Limit state of collapse - Flexure

Week 04: Design of singly reinforced beam

Week 05: Design of doubly reinforced beam

Week 06: Limit state of collapse - shear

Week 07: Design for shear

Week 08: Design of slab

Week 09: Design of compression members

Week 10: Design of footing

Week 11: Design of staircase

Week 12: Limit state of serviceability

List of students enrolled

S. No	Name of Student
1	ANAND KUMAR
2	ANKIT VERMA
3	Ashish kumar meena
4	Mitali Saini
5	Hridesh kumar
6	ISHANT JOGANI
7	Jatin Vedwal
8	Manish Sattavan
9	Abhijeet Singh Nathawat
10	Raghvendra Singh Rathor
11	rahul singh shekhawat
12	Priyanka Sharma
13	Mitali Saini
14	Reddy Sai Praveen Reddy

15	Chitransh Srivastava
16	Shouryaraj Singh
17	Sandeep Verma
18	Vikas Aechara
19	Vinod kumar meena
20	Vishal Bansiwal
21	Yash sarswat

Course: Hydration, Porosity & Strength of Cementitious Materials

Course Code: noc21-ce66

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: General

Week 2: Introduction

Week 3: Portland Cement Based Paste System

Week 4: Portland Cement Based Paste System (Contd.)

Week 5: Mineral Admixtures

Week 6: Mineral Admixtures (Contd.)

Week 7: Paste & Concrete

Week 8: Paste & Concrete (Contd.)

List of students enrolled

S. No	Name of Student
1	Kavya Kulshrestha
2	DEVANSHU SHARMA
3	Vikas Aechara

Course: Project Planning & Control

Course Code: noc21-ce50

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01: Introduction, Course Context, Construction Project Management

Week 02: Time Management, Work Breakdown Structure (WBS), Gantt Charts

Week 03: Duration Estimation, Network Representation & Analysis -1

Week 04: Network Representation & Analysis -2; Two-Span Bridge: Scheduling, Network Analysis and Application

Week 05: Time-Cost Trade-o (Crashing)

Week 06: Resource Scheduling

Week 07: Precedence Diagramming Method (PDM), Project Monitoring & Control

Week 08: Project Monitoring & Control (Earned Value Concepts), Uncertainty in Project Schedules (PERT), Course

Summary**List of students enrolled**

S. No	Name of Student
1	Shekhar Sharma
2	Aarif Majeed
3	Abhishek Moond
4	Akanksha Foujdar
5	Avinash sharma
6	Nishkarsh Goyal
7	Piyush Pashupati Pandey

Course: Remote Sensing and GIS

Course Code: noc21-ce61

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Remote Sensing Data and Corrections

Week 2: Satellite Image Corrections

Week 3: Digital Image Processing-I

Week 4: Digital Image Processing-II

Week 5: Thermal and Microwave

Week 6: Imaging Spectroscopy-I

Week 7: Imaging Spectroscopy-II & GIS-I

Week 8: GIS-II and Application

List of students enrolled:

S. No	Name of Student
1	ANAND KUMAR
2	Ankit Mina
3	JENISHA DEVNANI
4	Jatin Vedwal
5	DEVANSHU SHARMA
6	Kartik
7	Kumkum Maurya
8	RITIK MATHUR
9	Saurabh Meena
10	sumit dangda
11	Sandeep Verma
12	Tushar sharma

Course: Glass Processing Technology

Course Code: noc21-ce51

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Industrial & Glass handling safety

Week 2: Warehouse Management

Week 3: Production Planning & Control

Week 4: Pre-Processing – Cutting/ Grinding/ Drilling/ Washing

Week 5: Tempering

Week 6: Insulated Glass Unit

Week 7: Lamination

Week 8: Processing standards and Checks

Week 9: Quality Testing

Week 10: Heat Soak

Week 11: Ceramic fritting- Roller/Screen/Digital, Processing Standards, Quality Test, Non Conformity, Root Cause Analysis for Troubles, Testing & Certification

Week 12: Post Manufacturing Expenses, Housekeeping Practices, Quality Management Systems (QMS), Cost Saving Programs, Glazing Systems , Hardware & Fabrications, Sustainability (Eco-packaging & Naked Dispatch), People Development

List of students enrolled

S. No	Name of Student
1	Kavya Kulshrestha

Course: Principles and Applications of Building Science

Course Code: noc21-ar15

Session: 2021-22

Duration: 4 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Solar geometry, climate responsive building design, thermal comfort

Week 2: Bio climatic design, building envelop, glazing systems, energy efficiency

Week 3: Fundamentals of building acoustics, Quality indicators, Acoustic materials, Noise control

Week 4: Visual quality in built environment, Effective day lighting design, Integrated design

List of students enrolled

S. No	Name of Student
1	Harshvardhan Rawat
2	Mitali Saini
3	Shivani Bhagat
4	sumit dangda

Course: Conservation Geography

Course Code: noc21-bt44

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Conservation Geography

Week 2: The Earth

Week 3: Lithosphere and landforms

Week 4: Atmosphere

Week 5: Hydrosphere

Week 6: Physical Geography in the Indian context

Week 7: Biosphere

Week 8: Conservation of biodiversity

Week 9: Human population and conservation

Week 10: Resources and conservation

Week 11: Economic Geography and conservation

Week 12: Special topics in Geography and conservation

List of students enrolled

S. No	Name of Student
1	Anshul Sharma
2	Neha Kumawat
3	Shivam Sharma
4	Siddarth
5	Tejasva Sharma

Course: Building Materials and Composites

Course Code: noc21-ar11

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Clay products and alternatives like Fly-ash, CEB, CSEB

Week 2: Stone, stone tiles and stone dust blocks Wood and engineered wood

Week 3: Glass and glazing systems, ceramic tiles, vitrified tiles, insulation

Week 4: Fine aggregate, Coarse aggregate, Cement, Concrete

Week 5: Precast items – flooring, roofing, walling system, HBC, AAB

Week 6: Ferrous and non-ferrous metals

Week 7: Bitumen as damp proofing materials, Paints

Week 8: Plastics, Composites, nanotechnology applications

List of students enrolled

S. No	Name of Student
1	Anush Sharma
2	Nishkarsh Goyal
3	DEVANSHU SHARMA
4	Prajwal Parihar
5	Prakhar Pareek
6	Manmath Narain Tiwari
7	Vansh Choudhary
8	Yash sarswat

Course: Farm Machinery

Course Code: noc21-ag06

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01: Importance of farm machines in the contest of enhance production, multiple cropping, labour scarcity etc.

Week 02: Ploughing and rst opening of the soil, the design and component details.

Week 03: Machinery of seedbed preparation operation.

Week 04: Equipment for sowing and planting and inter cultivation.

Week 05: Variable Rate Fertilizer Applicator, Microprocessor Based Herbicide Applicator, Spraying etc.

Week 06: Equipment for irrigation

Week 07: Machinery for crop harvesting design and operation

Week 08: Root crop harvesting machinery

Week 09: Machinery for horticultural crops

Week 10: Equipment for crop protection and disease control

Week 11: Machinery for transport and material handling

Week 12: Machinery for land drainage, reclamation and estate maintenance

List of students enrolled

S. No	Name of Student
1	RISHABH DHAYAL
2	kiran kumar
3	Puneet Kumawat
4	Rishabh Shrivastava

Course: Introduction to Aerospace Engineering

Course Code: noc21-ae11

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Atmosphere and its properties

Week 2: Nomenclature of aircraft components

Week 3: Fluid Mechanics – I: Incompressible flow, Bernoulli's Equation, Coanda Effect, and Mach No.

Week 4: Fluid Mechanics –II: Viscous Flow, Boundary Layer, Pressure Measurement

Week 5: Aerodynamics – I: Airfoils, and Lift Generation Theories

Week 6: Aerodynamics – II: Critical Mach no., Types of Drag

Week 7: Propulsion: Types of Aircraft Engines

Week 8: Aircraft Performance - I: Steady Level Flight and Altitude effects

Week 9: Aircraft Performance- II: Glide, Climb, Ceilings, Turn, and Pull up

Week 10: Aircraft Longitudinal Stability, and V-n Diagram

Week 11: Aircraft Performance- III: Takeoff and Landing, Range and Endurance, Range-Payload Diagram

Week 12: Flapping Wing Aerodynamics

List of students enrolled

S. No	Name of Student
1	ASHUTOSH TIWARI
2	Atul Jangid
3	Himanshu Meena
4	NAVAL TRIPATHI
5	Himanshu Meena
6	DEVESH SHRIMAL
7	divya arora
8	Ansh Mishra
9	Jatin Vedwal
10	Lav kumar
11	Lakshit jain
12	Priyanka Chauhan
13	Puneet Kumawat

14	Rishabh Shrivastava
15	Yogendra Singh
16	Shivam Sharma
17	AYUH SINGHAL
18	Vikas Kumar tank

Course: Role of Craft and Technology in Interior - Architecture

Course Code: noc21-ar09

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

- Week 1: Interior- Architecture: Definition and Understanding, Craft: Definition and Understanding (Varied Perspectives on Art and Craft), Interior- Architecture and Craft & Technology: Establishing Inter- Relationships and Exploring Applications. Discourse
- Week 2: Interior- Architecture: Documenting Knowledge and Skills, Traditional Knowledge Systems and the Ingenious skills of the communities, Interior-Architecture: Documenting Materials; Tools and Techniques, Traditional Knowledge Systems and the Indigenous materials; tools and techniques, Discourse.
- Week 3: Creative and Cultural Industries: Understanding Definition; Significance and Scope, Building Crafts: Definitions; perspectives and frameworks, Building Crafts: Craft and Technology and its Role in creating/enhancing Interior- Architecture, Discourse.
- Week 4: Best Studies related to the Craft Sector, Case Studies from Gujarat, Rajasthan, Uttarakhand, Miscellaneous Case Studies.
- Week 5: Craft and Technology in Interior Architecture: Decoding Systems and Transformation through Time, Discourse.
- Week 6: Overview of the Craft Sector Today, Issues and Challenges, Policies and Reforms, Gaps, Summary & Discourse
- Week 7: Continuity and Revival: Research and Documentation Perspective, Education and Training Perspective, Innovation and Development Perspective, Resource Building and Dissemination Perspective, Summary & Discourse
- Week 8: Interventions: Process Based, Product/Design Based, Technology Based, Marketing/Management Based, and Spatial, Summary & Discourse.

List of students enrolled

S. No	Name of Student
1	Prajwal Parihar
2	Rohit banjara

Course: Fundamentals of Electrical Engineering

Course Code: noc21-ee68

Session: noc21-ee73

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01: Basic Concepts and Basic Laws

Week 02: Methods of Analysis

Week 03: DC Network Theorems

Week 04: Capacitors and Inductors and First Order Circuits

Week 05: Sinusoidal and Phasors

Week 06: Sinusoidal Steady-State Analysis

Week 07: AC Circuit Analysis and Network Theorems

Week 08: Series and Parallel Resonance and Magnetically Coupled Circuits.

Week 09: Three Phase Circuits and Power Measurements

Week 10: Single Phase Transformers

Week 11: Three Phase Induction Machines

Week 12: DC Machines

List of students enrolled

S. No	Name of Student
1	VISHNU GUPTA
2	Abhishek Sharma
3	Abhishek Sharma
4	Aditya Meghwal
5	Aditya Meghwal
6	Akash Rawat
7	Akshit Tiwari
8	Amit Mehra
9	Nikita Choudhary
10	Ankita
11	Ankit kasana
12	ANURAG KUMAR
13	Shyanu kumar sharma
14	CHETAN SHARMA

15	Pulkit Yadav
16	Akshit Tiwari
17	Neha sharma
18	piyush kumar rathi
19	Anshit kumar
20	Riaz Ahmed
21	Rahul Kumawat
22	Mayank jangir
23	Harsh Singh Narooka
24	Shreyansh
25	Akshay
26	Deependra Singh Sisodiya
27	Deepti Arela
28	DILKHUSH MEENA
29	DIVAM PAREEK
30	DIVYANSH GUPTA
31	Divyansh jaitlia
32	Dolly Malik
33	Gaurav kumbhkar
34	Guru Sharan Kumawat
35	Harikishan jangid
36	Harsh Brahmbhatt
37	Himanshu Patni
38	jatin singh
39	Jasmine Bhatti
40	Kanika Paliwal
41	Kanishk Pratap Singh Rathore
42	Vishal katariya
43	kavita jain
44	Anshit Kumar
45	LALIT MEENA
46	MANALI SHARMA
47	Ashok Meena
48	Monika Dudi
49	JAYANT YADAV
50	GAURAV NAMDEV
51	Navneet kumar
52	Parth chahar
53	PIYUSH BALDWA
54	Prabuddh saini
55	Prakhar Pareek
56	PRASHU JAIN
57	Pulkit tiwari
58	Rahul

59	Riaz Ahmed
60	Rajesh Kumar
61	Rajkumar Sain
62	RANJAN KUMAR TIWARI
63	rohitkumarchourasiya
64	Rimjhim Beniwal
65	Rintam Singh
66	Rishi bhargav
67	Ritik khandelwal
68	Ruchika Jain
69	Sarla Karwasra
70	AVADHESH KUMAR SHARMA
71	shubhnesh sharma
72	Siddharth Darji
73	Sakshi jain
74	Sourbh Saharan
75	Suryansh Arya
76	Tanu gautam
77	Sarla karwasra
78	Shreya Pandey
79	Lavish sharma
80	Ankita meena
81	Natasha kaushik
82	Tushar Soni
83	Tushar Soni
84	Poorvaja Verma
85	Utkarsh Maheshwari
86	Vaidehi Mudgal
87	VANSHIKA NIRWAN
88	Tushar Kumar Verma
89	VISHAL VERMA
90	Vivek Sharma
91	Shivam sharma
92	Yash Saini

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Digital Circuits

Course Code: noc21-ee75

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01: Introduction, Number System

Week 02: Boolean Algebra

Week 03: Combinational function minimization – K Map, Boolean identities

Week 04: Logic Gates

Week 05: Arithmetic circuits, Code converters

Week 06: Multiplexers, Decoders, PLA

Week 07: Sequential Circuits – Latches and Flip-flops

Week 08: Counters, Shift Registers, Finite State Machines

Week 09: Data Converters – Sample and hold circuits, ADCs, DACs

Week 10: Semiconductor Memories – ROM, SRAM, DRAM

Week 11: Microprocessor 8085 – Part I

Week 12: Microprocessor 8085 – Part II

List of students enrolled

S. No	Name of Student
1	Mohit Agarwal
2	VISHNU GUPTA
3	Abhishek Kumawat
4	Rakshita Agarwal
5	Paritosh Ajmera
6	Akshita Sharma
7	ANJALI PARIK
8	Ankita
9	Anushka Porwal

10	Lahar
11	Asheesh verma
12	ASHUTOSH TIWARI
13	ashvin
14	Astha Gupta
15	Ayush Sen
16	bharat singh
17	Anchal Bhardwaj
18	BHAVESH SAXENA
19	Bhavyanshu shrimali
20	Bhavya deep Sharma
21	Bhunesh Kumar
22	Bhuvan Sharma
23	V Vighnesh Rajan
24	Deeksha choudhary
25	Darshan Ranka
26	Deepti Arela
27	Deekshant tak
28	DIVYANSH GUPTA
29	Tanu Gambhir
30	Garvit Mathur
31	GAURAV KUMAR
32	Geetika Mathur
33	Guru Sharan Kumawat
34	Drishti gupta
35	Gyanendra Jyoti
36	Hari dutt vyas
37	Siddharth Harshit
38	Hemant Gurjar
39	hemlata prajapat

40	Divyanshu
41	Sharad Sourabh jha
42	Archana jha
43	Dhiraj Kumar
44	Sanskruti Khandelwal
45	Khushboo meena
46	Rashi Kinra
47	Kavya Jain
48	Prashansha Khandelwal
49	MAMTA JAIN
50	MANALI SHARMA
51	manisha balani
52	Mishu Jain
53	Naisha gupta
54	naman gupta
55	Neeraj Jain
56	nilesh dadheech
57	Nishi Chouhan
58	Piyushi agarwal
59	Prafull Bhargava
60	Purva Agarwal
61	Rahul Kumar Chapola
62	Rammurti Meena
63	Ratan Soni
64	Rohit kumar meerwal
65	Roshan Kumar Jha
66	Sakshi Agarwal
67	Chinmay Sharma
68	Vidhi Sukhnani
69	Shanu Tripathi

70	Harshita Sharma
71	Shivam Garg
72	Shivansh Dosi
73	Aarsh raghav
74	Soumya Agarwal
75	Suraj sharma
76	Tanisha Jain
77	Vaibhav Bairathi
78	Vikas Pathak

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Control engineering

Course Code: noc21-ee67

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Mathematical Modelling of Systems

Week 2: Laplace Transforms, transfer functions, block diagram representation.

Week 3: Block diagram reduction, Time response characteristics.

Week 4: Introduction to stability, Routh Hurwitz stability criterion.

Week 5: Root locus plots, stability margins.

Week 6: Frequency response analysis: Nyquist stability criterion, Bode plots and stability margins in frequency domain.

Week 7: Basics of control design, the proportional, derivative and integral actions.

Week 8: Design using Root Locus

Week 9: Design using Bode plots

Week 10: Effects of zeros, minimum and non-minimum phase systems.

Week 11: State space analysis

Week 12: Design using State space

List of students enrolled

S. No	Name of Student
1	Saurabh_choudhary
2	VISHNU GUPTA
3	Harsh kumar
4	Abhinav Singh
5	Rakshita Agarwal
6	ANJALI PARIK
7	Archit Bajpai
8	Avadhesh Chasta
9	bharat singh
10	Bhunesh Kumar
11	Deepanshu Maheshwari
12	Pulkit Gupta
13	Rashi Kinra

14	Lokesh Patidar
15	Manju Choudhary
16	mohd imran
17	Moin Ali
18	Neha Maheshwari
19	Nitesh sharma
20	Pallav Rawal
21	Prakhar jain
22	PRASHU JAIN
23	Prateek tholiya
24	Priyanshu Lohar
25	Raghav Agarwal
26	Rahul
27	Rahul Kumar Chapola
28	Rashi Sharma
29	Roshan Kumar Jha
30	Arpit Jain
31	Shanu Tripathi
32	Shivansh Dosi
33	Suraj sharma
34	Poorvaja Verma
35	Vansh agrawal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Electrical Measurement and Electronic Instruments

Course Code: noc21-ee107

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Measurement Error, Accuracy and Instrument grades , Electromechanical Instruments
Week 2: Electromechanical instruments, (contd) Electromechanical Ammeters,oltmeters and Ohmmeters
Week 3: Electromechanical Wattmeter and Energy Meter
Week 4: Resistance Measurement, Impedance Measurement: AC Bridges
Week 5: Potentiometers: DC and AC
Week 6: Instrument Transformers: CT & PT, Magnetic Measurement
Week 7: Analog Instrumentation Basics
Week 8: Analog Instrumentation
Week 9: Digital Instrumentation Basics
Week 10: Digital Instrumentation
Week 11: Signal and Function Generators
Week 12: Oscilloscope and Electronic probes

List of students enrolled

S. No	Name of Student
1	Bhanu Pratap Singh
2	Mohit Agarwal
3	VISHNU GUPTA
4	Rakshita Agarwal
5	Akshita Sharma
6	Ankita
7	Ansh gupta
8	Lahar
9	Guru Sharan Kumawat
10	Hemant Gurjar
11	hemlata prajapat
12	Rashi Kinra
13	Kavya Jain
14	MANALI SHARMA

15	manisha balani
16	Nishi Chouhan
17	HARSHIT SHARMA
18	Harshita Sharma
19	Shivam Garg
20	Shivansh Dosi
21	Suraj sharma
22	vishal singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Design of photovoltaic systems

Course Code: noc21-ee62

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

WEEK-01 - THE PV CELL

WEEK-02 - SERIES AND PARALLEL INTERCONNECTION

WEEK-03 - ENERGY FROM SUN

WEEK-04 - INCIDENT ENERGY ESTIMATION

WEEK-05 - SIZING PV

WEEK-06 - MAXIMUM POWER POINT TRACKING

WEEK-07 - MPPT ALGORITHMS

WEEK-08 - PV-BATTERY INTERFACES

WEEK-09 - PELTIER COOLING

WEEK-10 - PV AND WATER PUMPING

WEEK-11 - PV-GRID INTERFACE-I

WEEK-12 - PV-GRID INTERFACE-II and LIFE CYCLE COSTING

List of students enrolled

S. No	Name of Student
1	Amit soni
2	ayush singh rathore
3	Devendra sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Network Analysis

Course Code: noc22-ee07

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Network, circuit elements & sources. KVL & KCL

Week 2: Solution of linear differential equation with different excitation.

Week 3: Deeper look into energy storing elements :inductor and capacitor.

Week 4: Ideal and practical voltage & current sources.

Week 5: Mesh and nodal analysis of networks.

Week 6: Transforming voltage to current source and vice-versa. Thevenin / Norton's equivalent circuit.

Week 7: Tellegen Theorem and its implication. Theory of reciprocity. Network function.

Week 8: Two-port network: Z-parameters, Y-parameters, h-parameters & ABCD parameters.

Week 9: Definition of graph & tree of a network. Cut-set matrix.

Week 10: [A],[B] & [Q] matrices : Relationship among them

Week 11: Tutorial -1

Week 12: Tutorial-2

List of students enrolled

S. No	Name of Student
1	mohit soni
2	Akshat Jinakar
3	Akshit Tiwari
4	Amit Mehra
5	ANURAG KUMAR
6	Arun Singh
7	CHETAN SHARMA
8	Neha sharma
9	Anshit kumar
10	Ashish Sharma
11	Ankit Kasana
12	Yatin parmar

13	Mukul gupta
14	Guru Sharan Kumawat
15	Kanhaiya Lal Parsoya
16	Kanishk Pratap Singh Rathore
17	Krati Lakhani
18	Lakshya
19	Aditya Sharma
20	Monika Dudi
21	NAVDEEP CHOUDHARY
22	Neha Maheshwari
23	Rajkumar Sain
24	Ratan Soni
25	samridhi
26	SATYANAND KANDELA
27	Vidhi Sukhnani
28	Shubham Naryani
29	Mumal Bhati
30	Tanisha Jain
31	Tanish Khandal
32	Akash Kumar
33	Natasha kaushik
34	Mohammad sahil
35	Poorvaja Verma
36	vishal singh
37	vikas ranveer singh mahala
38	Yathartha solanki

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Electrical Machines - II

Course Code: noc22-ee06

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Brief review of transformer. Rotating machine: general constructional features. Conditions for steady production of electromagnetic torque.

Week 2: MMF and flux density distribution along the air-gap of a rotating machine by a single coil and by multiple coils.

Week 3: Production of rotating field by a 3-phase winding

Week 4: The expression of induced voltage in a coil when it moves relative to a field distribution

Week 5: Types and constructional features of 3-phase induction motor. Slip and its importance.

Week 6: Typical torque slip characteristic. Fixing operating point when load torque is present.

Week 7: Estimation of equivalent circuit parameters from no load and locked(blocked) rotor tests.

Problem solving.

Week 8: Single phase induction motor: double revolving field theory and development of equivalent circuit and expression for torque.

Week 9: Synchronous machine: Types and constructional features. EMF equation and concept of synchronous reactance.

Week 10: Synchronous machine connected to bus and operating as motor .Phasor diagram under various operating conditions.

Week 11: Salient pole synchronous machine: concept of direct axis and quadrature axis reactance.

Week 12: Swing equation under dynamic condition. Equal area criteria. Steady state and transient stability limits.

List of students enrolled

S. No	Name of Student
1	NAVYA SHARMA

2	mohit soni
3	Yash Soni
4	Akshat Jinakar
5	Akshit Tiwari
6	Amit Mehra
7	Anjali thakur
8	Shyanu kumar sharma
9	Priyanshu Rawat
10	Mrityunjay kumar
11	Pulkit Yadav
12	Neha sharma
13	Anshit kumar
14	Ashish Sharma
15	Ankit Kasana
16	Rajat Chaudhary
17	Harikishan jangid
18	Krati Lakhani
19	Hitesh nath
20	Lalit Soni
21	Monika Dudi
22	GAURAV NAMDEV
23	Navneet kumar
24	Nikita Choudhary
25	Parth chahar
26	Parth singh deval
27	PIYUSH BALDWA
28	Riaz Ahmed
29	Rajkumar Sain
30	RANJAN KUMAR TIWARI
31	Rishi Sharma

32	Rintam Singh
33	SATYANAND KANDELA
34	Shubham Naryani
35	Vansh Pradeep Singh Rathore
36	AKHIL UPADHYAY
37	Mumal Bhati
38	Tanu gautam
39	pulkit Gupta
40	Vaidehi Mudgal
41	vishal singh
42	Yash Saini
43	Yash jindal
44	Yathartha solanki

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Smart Grid

Course Code: noc21-ee68

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction to Smart Grid-II
- Architecture of Smart Grid System
- Standards for Smart Grid System
- Elements and Technologies of Smart Grid System

Week 2:

- Elements and Technologies of Smart Grid System-II
- Distributed Generation Resources-I
- Distributed Generation Resources-II
- Distributed Generation Resources-III
- Distributed Generation Resources-IV

Week 3:

- Wide Area Monitoring Systems-I
- Wide Area Monitoring Systems-II
- Phasor Estimation-I
- Phasor Estimation-II
- Digital relays for Smart Grid Protection

Week 4:

- Islanding Detection Techniques-I
- Islanding Detection Techniques-II
- Islanding Detection Techniques-III
- Islanding Detection Techniques-IV
- Smart Grid Protection-I

Week 5:

- Smart Grid Protection-II
- Smart Grid Protection-III
- Modelling of Storage Devices
- Modelling of DC Smart Grid components
- Operation and control of AC Microgrid-I

Week 6:

- Operation and control of AC Microgrid-II
- Operation and control of DC Microgrid-I
- Operation and control of DC Microgrid-II
- Operation and control of AC-DC hybrid Microgrid-I
- Operation and control of AC-DC hybrid Microgrid-II

Week 7:

- Simulation and Case study of AC Microgrid
- Simulation and Case study of DC Microgrid
- Simulation and Case Study of AC-DC Hybrid Microgrid
- Demand side management. of Smart Grid
- Demand response analysis of Smart Grid

Week 8:

- Energy Management
- Design of Smart grid and Practical Smart Grid case study-I
- Design of Smart grid and Practical Smart Grid case study-II
- System Analysis of AC/DC Smart Grid
- Conclusions

List of students enrolled

S. No	Name of Student
1	Amit soni
2	ayush singh rathore
3	Devendra sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Japanese Language and Culture

Course Code: noc21-hs90

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Japanese scripts and particles; Introducing oneself
Week 2: Interrogative words; Demonstrative pronouns and adjectives; Time; Hobbies
Week 3: Conversation with time expressions and simple verbs
Week 4: Negative form of verb; Locational nouns
Week 5: Simple conversation on phone; Conjunctions; Volitional form of verb
Week 6: Types of Adjectives – 'i' and 'na' adjectives
Week 7: Negative form of adjectives; Plain form of verbs
Week 8: Negative forms of verbs; Expressions for giving or receiving things, gifts, etc.
Week 9: Potential form of verbs; Some proverbs and expressions
Week 10: Expressing intent or purpose; Examples from Japanese way of life
Week 11: Permission and seeking approval; Basic Kanji
Week 12: Filling out simple forms; Conditional form of verbs; Kanji(*Contd..*)

List of students enrolled

S. No	Name of Student
1	Aditya Gupta
2	Ankit Saini
3	Arun kumar jharwal
4	ASHUTOSH TIWARI
5	Harshit Agarwal
6	Nikhil Singh
7	Pranav Parashar

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Environment and Development

Course Code: noc21-hs83

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week-1: Introduction: Development, economic growth and sustainable development, Basic ecosystem ecology
Week-2: Environmentalism, Environmental Movement, Environmentalism in the global south
Week-3: Approaches to environment: Ecofeminism, Feminist political ecology, Marxism and ecology
Week-4: Debates on environmental ethics: Deep ecology, Gandhi and ecology, Social ecology
Week-5: Religion, environment and conservation: Religion, environment and historical roots of ecological crisis, Biodiversity conservation ethics in Buddhism and Hinduism, Christian religion in the age of ecological crisis
Week-6: Natural resource management, Common property vs. private property,Livelihoods, forests, and conservation
Week-7: Displacement, dispossession and development: Conservation-induced displacement, Environment impact assessment and national rehabilitation & resettlement policy, Dispossession and land acquisition
Week-8: Mainstream development trajectory: Strengthening or weakening of indigenous peoples: Mining, development, and indigenous people, Competing visions of development along the Narmada, Dams, development, and resistance: case studies
Week-9: Gender and development: Development theory and gendered approach to development, Gender, environment & sustainable development
Week-10: Environment and climate change: Climate change interventions and policy framework, Eastern Himalayas and climate change
Week-11: Belief and knowledge systems, biodiversity conservation and sustainability: Ecological knowledge, biodiversity conservation and sustainability,Traditional religion and conservation of nature in Northeast India: Case study
Week-12: Local knowledge in the environment-development discourse: Indigenous knowledge, environment and development, Relevance of indigenous knowledge: case study

List of students enrolled

S. No	Name of Student
1	Gulshan sharma
2	Harsh kumar
3	Abhinav Goyal
4	Abhishek Bansal
5	ABHISHEK MEDATWAL
6	Aditi Sharma
7	Aditi Agarwal
8	Aditi Pareelk

9	Aditya Sharma
10	Ayushi Agarwal
11	Sumit khandal
12	AKASH SHARMA
13	AKSHAT JAIN
14	Akshat Parakh
15	Akshat Sharma
16	Akshita Sharma
17	Akshi Jain
18	Akul Saxena
19	Aman Bhargava
20	Amartia Anand
21	Angelina Freda Smith
22	Ankit Saini
23	Anshul kumar jain
24	Archit Bajpai
25	Arnav Godara
26	arnav pareek
27	Piyush Arora
28	ARPIT GOTHWAL
29	ARSHDEEP SINGH KALSI
30	Arun kumar jharwal
31	arvind gupta
32	Aryan Mishra
33	Aryan Ojha
34	Aditya Soni
35	Asad Ali
36	Ashok Jat
37	Ashtami Tak
38	Ashu Agarwal

39	Ashwini singh
40	Avadhesh Chasta
41	Aviral Goyal
42	Ayush jalan
43	ayush Rathor
44	Harsh Gupta
45	ANKIT CHAUDHARY
46	Harshit Kumawat
47	Bhanupriya Panwar
48	Bhavesh Singhal
49	choudhary sanjay rataram
50	akhilesh chaturvedi
51	Brijesh choudhary
52	Debopam
53	Deepak Kumar Sai
54	Deepak jaiman
55	Deepanshu Maheshwari
56	Deepanshu Rai
57	Devesh Sharma
58	Dhairya Gupta
59	Dhruv mittal
60	DIVAM PAREEK
61	Divik Mathur
62	Divyansh jaitlia
63	BHARAT DOODI
64	CHINMAY PAREEK
65	Dushyant Jakhar
66	ANIL SHARMA
67	Ankit Gardhwal
68	Garvit Jaiswal

69	Garvit Tambi
70	Ghanshyam nahar
71	Giritra Saraswat
72	Gunjan Khandelwal
73	ASHWIN GUPTA
74	Manuraditya Singh Hada
75	Happy Singh Charan
76	Bajrang singh shekhawat
77	Harshil Sodani
78	Harshit Jain
79	Harshit Sharma
80	Harshit Kumar Sevkani
81	Harsh Tanwar
82	Hemant Gurjar
83	Himanshu Patni
84	Arpit agrawal
85	Anshul Gora
86	Isha Tripathi
87	Manav jain
88	Sanidhya Bhardwaj
89	Priyanshu Jangid
90	Saurav Kumar jha
91	Jitendra Agrawal
92	Krishna Rathi
93	Jitesh Saini
94	DEVANSHU SHARMA
95	Tarun jain
96	Kanishk Sharma
97	Vishal katariya
98	Kavita sharma

99	Dhiraj Kumar
100	Shubhiksha Khandelwal
101	kunal KRISHNANI
102	Gaurav Sharma
103	KUNAL SHRINGI
104	Laxita Singh
105	MADAN LAL PRAJAPAT
106	Madhur Khandelwal
107	SHUBHAM MAHESHWARI
108	Manish Sattavan
109	Mansi Pareek
110	Avdesh Meena
111	Jitendra Kumar Meena
112	Mehul Nandwana
113	Aayushman Mishra
114	Mayank MIttal
115	mohit jain
116	Mohit kumar pamnani
117	MOHIT PAREEK
118	MOHIT SINGH
119	Monay Chhattani
120	Mitali Sharma
121	Navneet Sagar
122	Navneet tanwar
123	Neha Kumawat
124	Aaditya Trivedi
125	Nishant Tomar
126	Nishita Tolani
127	Aditya Rawat
128	pawan pareek

129	Prafull Bhargava
130	Pratiksha Sharma
131	Prisha Kasat
132	Priyadarshini Singh Shekhawat
133	Priyanka soni
134	Priyanshu Suhalka
135	Ajay saroch
136	Pururaj Singh
137	Purvi Harpalani
138	Nagendra Singh
139	Rajvardhan gupta
140	Rishang Tiwari
141	Ritesh Lavti
142	Arpit Jain
143	Samyak jain
144	Sarthak Maheshwari
145	Satyam Sharma
146	Saurabh Meena
147	Chitransh Srivastava
148	DEVANSHU SHARMA
149	Shivam
150	SHIVAM SINGHAL
151	Shouryaraj Singh
152	Shray Mathur
153	Shubham Nagar
154	shubhnesh sharma
155	Sanjana saxena
156	SURABHI SOMAI
157	SOURAV MAJEE
158	Suraj jaimini

159	Tanisha Mudgal
160	divyansh pradhan
161	Pururaj Singh gaur
162	Harsh Tulsani
163	adnan khan
164	Anshul Sharma
165	Tushar Sanadhya
166	Tushar sharma
167	Poorvaja Verma
168	hitesh mishra
169	Vaibhav Vyas
170	varun kumar meena
171	pranaya vashistha
172	Tanya Verma
173	Vikas Aechara
174	Vinay vyas
175	vishal kumawat
176	vishnu kumar
177	Yaffee Gulzar
178	Kapil
179	Yash Goyal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction To R Software

Course Code: noc21-ma75

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Basic fundamentals, installation and use of software, data editing, use of R as a calculator, functions and assignments.
Week 2: Use of R as a calculator, functions and matrix operations, missing data and logical operators.
Week 3: conditional executions and loops, data management with sequences.
Week 4: Data management with repeats, sorting, ordering, and lists.
Week 5: Vector indexing, factors, Data management with strings, display and formatting.
Week 6: Data management with display paste, split, find and replacement, manipulations with alphabets, evaluation of strings, data frames.
Week 7: Data frames, import of external data in various file formats, statistical functions, compilation of data.
Week 8: Graphics and plots, statistical functions for central tendency, variation, skewness and kurtosis, handling of bivarite data through graphics, correlations, programming and illustration with examples.

List of students enrolled

S. No	Name of Student
1	Akshat Gadodia
2	Sushil Kumar Sadhnani

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Engineering Mathematics - I

Course Code: noc21-ma58

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Differential Calculus - Functions of One Variable
Week 2 : Partial Derivatives
Week 3 : Total Differential and Differentiability
Week 4 : Taylor's Expansion of Functions. Maxima and Minima
Week 5 : Improper Integrals
Week 6 : Double Integrals
Week 7 : Multiple Integrals & their Applications
Week 8 : System of Linear Equations - Gauss Elimination. Vector Spaces
Week 9 : Linear Transformations
Week 10 : Eigenvalues and Eigenvectors, Diagonalization
Week 11 : First Order Differential Equations
Week 12 : Higher Order Differential Equations with Constant Coefficientss

List of students enrolled

S. No	Name of Student
1	NAVYA SHARMA
2	Yash Soni
3	Aditya Agarwal
4	Aditya Bhatnagar
5	Sumit khandal
6	Akshat Jaiman
7	AKSHAT JAIN
8	Amey Vijaywargiya
9	Nikita Choudhary
10	Ankit Sharma
11	ARSHDEEP SINGH KALSI
12	Ayushi Agrawal
13	Ashok Jat
14	ASHUTOSH TIWARI

15	Ashwini singh
16	Shyanu kumar sharma
17	Govind Pandey
18	ANKIT CHAUDHARY
19	manan sharma
20	Manisha kukna
21	Badal Singh rathore
22	Bharat Kumar Sharma
23	BHANU PRAKASH YADAV
24	Brijesh choudhary
25	Neetu Choudhary
26	Deepak Kumar Sai
27	Deepanshu Mehta
28	Dheeraj Kumar garg
29	DIVYANSH GUPTA
30	EKLAVYA JOSHI
31	Ghanshyam nahar
32	Gaurav jain
33	Preeti Gurjar
34	Harsh Modi
35	HARSHITA PALIWAL
36	Harshit Agarwal
37	Harsh Tanwar
38	Anshul Gora
39	Manav jain
40	Jayesh Gupta
41	JAYESH SINGH SAGAR
42	Jyoti agrawal
43	Kalpana Modi
44	Brijesh Sharma Jangid

45	Karan soni
46	KIRTI JAISWAL
47	Kuldeep sharma
48	Lalit Sharma
49	Lovenesh
50	MANALI SHARMA
51	Manan Sharma
52	Aayushman Mishra
53	Mishu Jain
54	Yashi
55	Chirag moud
56	KULDEEP NAGAR
57	Navneet tanwar
58	Nilesh Suthar
59	PIYUSH BALDWA
60	Ajay saroch
61	Rahul Choudhary
62	RANJAN KUMAR TIWARI
63	Rahul Choudhary
64	Sakshi Anil Barge
65	Samardeep Singh Chopra
66	DEVANSHU SHARMA
67	Shreshth Singh
68	Shubham singh
69	Somik choudhary
70	SOURAV MAJEE
71	Suraj jaimini
72	Tanish Khandal
73	Suryansh meena
74	Vansh Choudhary

75	Aditya Jain
76	Vansh Choudhary
77	Vishal Bansiwal
78	Kapil
79	Yash jangid

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Abstract and Linear Algebra

Course Code: noc21-ma44

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Basic set theory
Week 2 : Group Theory
Week 3 : Rings and Polynomial rings
Week 4 : Field and finite fields
Week 5 : Matrices and determinants
Week 6 : Vector spaces over fields
Week 7 : Linear transformations and their matrices
Week 8 : Linear equations

List of students enrolled

S. No	Name of Student
1	Aditya Agarwal
2	Shekhar Sharma
3	Aditya shri shri mal
4	Akshat Jaiman
5	Ashvani khandelwal
6	Badal Singh rathore
7	Neetu Choudhary
8	Dishank Agrawal
9	Gungun wadhwa
10	Himanshi Sharma
11	Isha sharma
12	KIRTI JAISWAL
13	Kuldeep sharma
14	Kushal sharma
15	Rahul Choudhary
16	Shubham Soni
17	Divyansh soni

18	Vansh Choudhary
19	Vikas Kumar tank
20	Vishal Bansiwal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Body language: Key to professional Success

Course Code: noc21-hs93

Session: 2021-22

Duration: 4 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Defining Body Language, Scope and Relevance, Changing Contours, Classification, Defining Proxemics, Four Zones, Behavioral Connotations, Space and Designs, Haptics and its Role, Behavioral Significance

Week 2: Shaking Hands and other tactile behavior. Cultural Variations, Occulesics, Right and Left Brain Associations, Different Types of Eye Contact, Individual and Group situations, Facial Expressions, Smiles and Nods, Head Tilts and Inclines

Week 3: Facial Expressions, Cultural Interface, Kinesics: Types and Contexts, Negative and Positive Gestures, Hand Movements and Steepling, Understanding Finger Movements, Fidgeting and Ticks

Week 4: Paralanguage and Voice Modulations, Chronemics, Chromàtics, Cultural and Gender Based aspects, Stereotypes, Body Language: Online Presence and Video Interviews

List of students enrolled

S. No	Name of Student
1	Ayushi Agarwal
2	Akshi Jain
3	Aman Bhargava
4	Angelina Freda Smith
5	Aniket Sharma
6	ASHUTOSH TIWARI
7	Aman Khan
8	akhilesh chaturvedi
9	Chinmay jain
10	CHINMAY PAREEK
11	Garima dixit
12	Gourav pooniya
13	HARSH JAIN
14	Kavya Singhal Gupta

15	Jayesh Khatri
16	khushi khandelwal
17	Kushal Rawat
18	Aaditya Trivedi
19	Nishi Chouhan
20	Nishita Mathur
21	Pratiksha Sharma
22	Rajkumar gangwar
23	Sakshi Gurbani
24	Shivam
25	Garvit Tamra
26	Vaidehi Mudgal
27	Vinay vyas
28	Anurag yadav
29	Yash Goyal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Automation in Production Systems and Management

Course Code: noc21-mg92

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to Manufacturing and Production Systems
Week 2 : Automation in Manufacturing and Production Systems
Week 3 : Product Development Process and Automation
Week 4 : Fundamentals of NC Technology: Part-I
Week 5 : Fundamentals of NC Technology: Part-II
Week 6 : Flexible and Programmable Automation
Week 7 : Cellular Manufacturing Systems
Week 8 : Flexible Manufacturing Systems: Part-I
Week 9 : Flexible Manufacturing Systems: Part-II
Week 10 : Fundamentals of Robotic Systems
Week 11 : Automated CAPP (Part-I)
Week 12 : Automated CAPP (Part-II)

List of students enrolled

S. No	Name of Student
1	Mohammed Danish
2	Kunal Maniwal
3	Puneet Kumawat
4	Rishabh Shrivastava

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Managerial Economics

Course Code: noc21-mg90

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Managerial Economics
Week 2: Theory of Demand
Week 3: Theory of Consumer Behaviour
Week 4: Elasticity and Demand Forecasting
Week 5: Production Analysis
Week 6: Cost Analysis
Week 7: Theory of Market – Perfect Competition
Week 8: Theory of Market – Monopoly and Monopolistic Competition
Week 9: Theory of Market – Oligopoly
Week 10: Theory of Market – Oligopoly and Game theory
Week 11: Theory of Market – Oligopoly and Game theory
Week 12: Product Pricing and Course Summary

List of students enrolled

S. No	Name of Student
1	Abhay Raj
2	Aman Khan
3	choudhary sanjay rataram
4	Christy Dipu
5	Deependra dhankhar
6	Karan Sabnani
7	Prateek Kumawat
8	Mukul Palol
9	Raunak Advani
10	Raghav
11	Deepak Meena
12	Sourabh vyas

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Principles of Management

Course Code: noc21-mg88

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Management: Definition, nature, purpose and scope of management, Skills and roles of a Manager, functions, principles; Evolution of Management Thought, Scientific Management.
Week 2: Planning: Types of plans, planning process, Characteristics of planning, Traditional objective setting, Strategic Management, premising and forecasting
Week 3: Decision-Making: Process, Simon's model of decision making, creative problem solving, group decision making.
Week 4: Management by Objectives: Management by exception; Styles of management: (American, Japanese and Indian), McKinsey's 7-S Approach, Self Management
Week 5: Organizing: Organizational design and structure, Coordination, differentiation and integration.
Week 6: Span of management, centralization and de-centralization Delegation, Authority & power - concept & distinction, Line and staff organizations
Week 7: Staffing: Human Resource Management and Selection, Performance appraisal and Career strategy, Coordination- Concepts, issues and techniques
Week 8: Organizational Change: Introduction, Resistance to Change, Behavioural Reactions to Change, Approaches Or Models to Managing Organisational Change.
Week 9: Organizational Change: Introduction, Resistance to Change, Behavioural Reactions to Change, Approaches Or Models to Managing Organisational Change.
Week 10: Leading: Human Factors and Motivation, Leadership, Communication, Teams and Team Work
Week 11: Leading: Human Factors and Motivation, Leadership, Communication, Teams and Team Work
Week 12: Controlling: Concept, planning-control relationship, process of control, Types of Control, Control Techniques Characteristics of team

List of students enrolled

S. No	Name of Student
1	Apoorva
2	Ayush Choudhary
3	RAKESH CHOUDHARY
4	Komal jha
5	Kumari Ridhi
6	Kumari Sidhi
7	Kunal Maniwal
8	Nishita Tolani
9	Parul jain
10	Puneet Sankhala

11	Suraj Meena

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Financial Derivatives & Risk Management

Course Code: noc21-mg84

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Overview of Derivatives; Forwards: Introduction & Pricing, Arbitrage, Forwards Pricing on Consumption Assets; Futures: Introduction & Salient Features.
Week 2: Futures: Margining & MTM, Forwards & Futures Prices, Exposure & Risk, Basics of Futures Hedging, Nuances in Futures Hedging.
Week 3: Further Aspects of Futures Hedging; Basics of Mean-Variance Portfolio Theory & CAPM; Systematic & Unsystematic Risk.
Week 4: Index Futures: Features, Hedging & Arbitrage; Basics of Interest Rates, YTM & Other Yield Measures.
Week 5: Interest Rate Risk & Its Measurement; Interest Rate Futures: Features of IRFs, Hedging of Interest Rate Risk.
Week 6: T-Bill & Eurodollar Futures, T-Bond Futures; Tailing the Hedge; Basic Theory of Options.
Week 7: Options: Price Bounds, Put-Call Parity; American Options; Trading Strategies.
Week 8: Option Spread Strategies; Stochastic Processes: Basic Theory, Brownian Motion, Diffusion Equation, Central Limit Theorem.
Week 9: Ito's Equation; Stock Price Distribution, Fokker Planck Equation; Option Pricing: Binomial Model.
Week 10: Girsanov Theorem; Black Scholes Model; Option Greeks.
Week 11: Option Greeks: Further Properties, Role in Trading; FRAs & Swaps.
Week 12: Valuation of Swaps; Value at Risk.

List of students enrolled

S. No	Name of Student
1	Jayesh Soni
2	Vansh Pradeep Singh Rathore

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Organizational Behaviour

Course Code: noc21-mg82

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

- **Week 1:**Introduction – a) defining organization, behavior and organizational behavior, b) assumptions of OB, c) principles of OB, d) levels of OB, e) scope of OB, f) OB and Human Resource Management, g) Applications of OB, h) Historical developments of OB, i) emerging concerns
- **Week 2:**Perception and Learning – a) understanding perception, b)Basic elements of perception, c) Principles of perceptual selection, d) Perceptual grouping, e) Social Perception, f) Self-perception and identity, g) attribution of causality, h) Perceptual biases in social perception, i) Implications for human resource management, j) defining learning, k) classical and operant conditioning l) learning in organizations
- **Week 3:** Personality – a) Defining Personality, b)History of the concept, c) Key assumptions, d) biological and social determinants, e)Theories – Intrapsychic theory, social learning theory, self-theory, Trait and type theories f) Related concepts (locus of control, dogmatism, authoritarianism, Machiavellianism), g) measuring personality.
- **Week 4:**Attitudes – a) Definition, b)Key elements of attitudes, c)Attitudes and related concepts (Values, opinion, belief and ideology), e) Characteristics of attitudes, f) Attitude formation, g) Attitude measurement, h) Changing attitudes, i) Attitudes at workplace (job satisfaction, work attitude and organizational commitment), j) Prejudice and discrimination at workspace.
- **Week 5:**Emotions in workplace - a) Definition, b) Types of emotions, c) Related concepts (mood, temperament), d) Stress in workplace, e) General Adaptation Syndrome, f) Managing Stress, g) Psychosomatic disorders and stress h) emotional labor and emotional contagion.
- **Week 6:**Motivation – a) Definition, b) Process of motivation, c) Types of motives, d) Motivators at workplace, e) Motivation theories (Process and Content theories)
- **Week 7:** Interpersonal Dynamics – a) Definition, b)Psychological Contract, c) Trust and trust building, d) Prosocial behavior, e) Cooperation Vs Competition f) Conflict management, g) Levels and types of conflict at workplace, h) Conflict management Styles, i) Managing Negotiations
- **Week 8:**Power and Leadership - a) Defining Power, b) Sources of Power, c) Organizational politics, d) Leadership e) Managers Vs Leaders, f) Trait and Type approach to leadership g) Leadership style, h) Leadership Grid, i) Contingency Theories j) Contemporary issues
- **Week 9:**Team Dynamics – a) Groups and Teams, b) Types of Teams, c) Stages in group development, d) problems in team work (Free riding, social loafing, group think), e) Cross-cultural virtual teams.
- **Week 10:**Organizational culture – a) Defining culture, b) levels of culture, c) cultural dimensions, d) high and low context cultures, e) Strong and weak organizational cultures, f) Expressions of organizational culture, g) Impact of culture on individuals, h) Organizational cultural change
- **Week 11:** Organization Change – a) Change in Organizations, b)Nature of the chance process, c) Types of chance, d) Impact of change, e) Managing resistance to change, f) Organizational Development interventions
- **Week 12:**Organizational Structure and Design – a) Basic dimensions of structure, b) Departmentalization, c) Organizational life cycle, d) Organizations as socio-technical systems, e) Organizational design and its impact on employees, f) Organizational boundary spanning

List of students enrolled

S. No	Name of Student

1	Jayesh Soni
2	Khushi Jain
3	khushi khandelwal
4	Mohit jain
5	Mukul jangid
6	JAYESH SONI
7	Komal soni
8	Vinit Kumar Shah

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Financial Accounting

Course Code: noc21-mg75

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction and Scope of Accounting
Financial Statements
Balance Sheet 1
Balance Sheet 2
Balance Sheet 3

Week 2: Balance Sheet 4
Balance Sheet 5
Profit and Loss Account 1
Profit and Loss Account 2
Profit and Loss Account 3

Week 3: Depreciation 1
Depreciation 2
Inventory Valuation
Cash Flow Statement 1
Cash Flow Statement 2

Week4: Cash Flow Statement 3
Cash Flow Statement 4
Cash Flow Statement 5
Corporate Governance
Corporate Governance: Global Models

Week 5: Corporate Governance: Enron Case
Accounting Standards and Principles
Evolution of Accounting
Recording of Financial Transactions
Zee Case: Profit & Loss and Balance Sheet

Week 6: Zee Case: Balance Sheet
Hindalco Case: Profit & Loss and Balance Sheet
Hindalco Case: Balance Sheet and Cash Flow Statement
Interpretation and Analysis of Financial Statements
Ratio Analysis and Interpretation 1

Week 7: Ratio Analysis and Interpretation 2
Interpretation and Analysis of Financial Statements: Shipping Corp. of India 1
Interpretation and Analysis of Financial Statements: Shipping Corp. of India 2
Interpretation and Analysis of Financial Statements: Shipping Corp. of India 3
Interpretation and Analysis of Financial Statements: Shipping Corp. of India 4

Week 8: Financial Statement Analysis: TCS Case 1
Financial Statement Analysis: TCS Case 2
Financial Statement Analysis: RIL Case 1

Financial Statement Analysis: RIL Case 2
Revision of Course

List of students enrolled

S. No	Name of Student
1	Shikhar Gupta
2	Yogendra Singh
3	Vansh Pradeep Singh Rathore
4	Garvit Tamra

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Summary of Entrepreneurship

Course

Entrepreneurship is the ability and readiness to develop, organize and run a business enterprise, along with any of its uncertainties in order to make a profit. The most prominent example of entrepreneurship is the starting of new businesses.

In economics, entrepreneurship connected with land, labour, natural resources and capital can generate a profit. The entrepreneurial vision is defined by discovery and risk-taking and is an indispensable part of a nation's capacity to succeed in an ever-changing and more competitive global marketplace.

Student Enrolled: 30 Students

Certified: 7Students

Outcomes of the Course:

This course provides a detailed overview of entrepreneurship as the foundation of business growth and value creation in the national economy. It provides multiple constructs for entrepreneurs to be successful, and pathways for their companies to achieve sustainable growth. Each week/module of the course will cover one specific theme/topic with conceptual perspectives as well as practical examples.

Upon successful completion of the course, the student will gain an expansive and deep appreciation of entrepreneurship, and its pivotal role in the economy. The student or aspiring entrepreneur will be able to approach entrepreneurship with clarity and focus, and an enhanced understanding of the key success factors as well as possible risks and potential mitigation strategies. A practising entrepreneur is likely to be able to navigate the opportunities and challenges of entrepreneurship more effectively with the additional insights available.

Course: Entrepreneurship

Course Code: noc21-mg70

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:	**Introduction**
	Dhirubhai Ambani & Sofia
	Myths & Realities about entrepreneurship
	entrepreneurial qualities
	Why start-ups fail?
Week 2:	**Mission, vision, entrepreneurial qualities – I**
	Mission, vision, entrepreneurial qualities – II
	Value proposition
	Business Model canvas
	Business model generation
Week 3:	**Competitive advantage**
	Lean start-up – 1
	Lean start-up – 2
	Team and early recruit
	Legal forms of business
Week 4:	**Marketing management 1**
	Marketing management 2
	Market research –I
	Market research –II
	Market research –Example
Week 5:	**Introduction to financial statements**
	Profit & Loss statement
	Balance sheet
	Cash flow

Example – 1

Example – 2

Cost-volume-profit & Bread-Even analysis

Capital budgeting

Week 6: Business plan-I

Business plan-II

Pitching

Go-to-market strategies

Does & Don'ts

Week 7: How to innovate

Design Thinking

Design-Driven Innovation, Systems thinking

Open innovation, TRIZ

How to start a start-up?

Week 8: Government incentives for entrepreneurship (1 lecture)

Incubation, acceleration

Funding new ventures – bootstrapping, crowd sourcing,

angel investors, VCs, debt financing (3), due diligence

Legal aspects of business (IPR, GST, Labour law)

Week 9: Cost, volume, profit and break-even analysis
Margin of safety and degree of operating leverage
Capital budgeting for comparing projects or opportunities
Product costing
Product pricing

Week 10: Funding new ventures – bootstrapping, crowd sourcing,
Angel investors, VCs, debt financing (3), and due diligence
Incubation and acceleration
Government incentives for entrepreneurship
Project cost and Financial Closure

Week 11: Dos & Donts in entrepreneurship
Growth Hacking
Growth Strategy
Legal aspects of business (IPR, GST, Labor law)
Negotiation skill

Week 12: Human Resource management in startups
Pivoting
Entrepreneurial cases

Risk assessment and analysis
Strategy management for entrepreneurial ventures
Factors driving success and failure of ventures
Concluding remarks

List of students enrolled

S. No	Name of Student
1	Arun Singh
2	Bhomesh Razdan
3	Harshvardhan Rawat
4	Hitesh Thadani
5	Saurav Kumar jha
6	Karan Sabnani
7	Prashansha Khandelwal
8	LALIT MEENA
9	Mansi Pareek
10	Nishant Tomar
11	PRASHU JAIN
12	Prerit Goyal
13	Priyanshu Suhalka
14	Priya gupta
15	Rajvardhan gupta
16	Rishabh Shrivastava
17	Rishang Tiwari
18	Ritesh Lavti
19	Lakshit Sharma
20	Sagar Alwani
21	Sakshi Agarwal
22	Sarthak Maheshwari
23	Yogendra Singh
24	Komal soni

25	Nitin Sharma
26	Suraj jaimini
27	Tanishk Jharwal
28	Vatsal Agarwal
29	Vinayak Bhati
30	Vinit Kumar Shah

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Toyota Production System

Course Code: noc21-mg69

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
(1) Manufacturing Excellence
(2) Global Environment
(3) Production System
(4) Operations Strategy
(5) The Heart of the TPS: Eliminating Waste

Week 2:
(1) Principles of Toyota Way
(2) Culture Behind Toyota Way
(3) Toyota Way in Action
(4) Long Term Philosophy
(5) Create Continuous Flow

Week 3:
(1) Pull System
(2) Leveling Workload
(3) Get Quality Right the first time
(4) Standardization of Task
(5) Use of Visual Control

Week 4:
(1) Use of Reliable Technology
(2) Role of Leaders in Manufacturing Philosophy
(3) Developing Exceptional Teams
(4) Challenge & Respect Extended Networks
(5) See yourself to understand the situation

Week 5:
(1) Developing decisions with Consensus
(2) Becoming Learning Organization
(3) Becoming a Learning Organization: Continuous Improvement
(4) Using Toyota Way for other Organization(Service & Technical)
(5) Lean Manufacturing

Week 6:
(1) Lean Vs Agile Manufacturing
(2) Sustainable Manufacturing-I
(3) Sustainable Manufacturing-II
(4) Flexible Manufacturing System
(5) Benchmarking

Week 7:
(1) Cultural Issues in Lean
(2) Overview of Lean implementation
(3) Significance of Lead time
(4) Techniques to reduce LT
(5) Value Stream Mapping

Week 8:
(1) KANBAN Approach
(2) KANBAN Calculation-I
(3) KANBAN Calculation-II
(4) Theory of Constraints

(5) Different Business Excellence Models

List of students enrolled

S. No	Name of Student
1	Shekhar Sharma
2	Puneet Kumawat
3	Rishabh Shrivastava
4	Yogendra Singh
5	Nitin Sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Manufacturing Strategy

Course Code: noc21-mg68

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 :
(1) Manufacturing output
(2) Operations Systems
(3) Operations Strategy
(4) Functional strategy within context of a firm
(5) Functional dominance within corporate strategy

Week 2 :
(1) Concept of world class manufacturing organization
(2) 6 Ps of Manufacturing
(3) Skinners' view and Hayes and Wheelwright framework of Manufacturing Strategy
(4) Alternative paradigm of manufacturing strategy
(5) Some generic manufacturing strategies I

Week 3 :
(1) Developing a manufacturing strategy
(2) Understanding markets
(3) The concept of order winners and qualifiers
(4) Basic Characteristics and Specific Dimensions of Order Winners and Qualifiers
(5) Some specific order winners and qualifiers I

Week 4 :
(1) Some specific order winners and qualifiers II
(2) Some specific order winners and qualifiers III
(3) Some specific order winners and qualifiers (Non operation related criteria)
(4) Developing an Operations Strategy: Methodology
(5) Developing an Operations Strategy

Week 5 :
(1) Developing an Operations Strategy: Roth and Miller Classification
(2) Enlightened View of Manufacturing
(3) Manufacturing Strategy Taxonomy: Some evidences from China
(4) Quality Management and Manufacturing Excellence
(5) Total Quality Management and Manufacturing Excellence

Week 6 :
(1) Deming's approach to Quality
(2) Business Excellence Awards
(3) Process Choice
(4) Process Choice: 3 Dimensional View
(5) Product Profiling

Week 7 :
(1) Critical success factors for World Class Manufacturing
(2) Value Added Engineering
(3) Total Employee Involvement
(4) HR theories for Operations Strategy
(5) Flexible Manufacturing system

Week 8 :

(1) Concept of Focus wrt Manufacturing Strategy
(2) Toyota production System I
(3) Toyota production System II
(4) World Class Manufacturing and India
(5) Achieving World Class Status

List of students enrolled

S. No	Name of Student
1	Luckey Sharma
2	Puneet Kumawat
3	Rishabh Shrivastava

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Innovation, Business Models and Entrepreneurship

Course Code: noc21-mg63

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Analyzing the Current Business Scenario, Innovation and Creativity- An Introduction, Innovation in Current Environment, Types of Innovation , School of Innovation.
Week 2 : Challenges of Innovation,Steps of Innovation Management,Idea Management System,Divergent V/s Convergent Thinking,Design Thinking and Entrepreneurship
Week 3 : Experimentation in Innovation Management, Idea Championship,Participation for Innovation, Co-creation for Innovation, Proto typing to Incubation.
Week 4 : What is a Business Model,Who is an Entrepreneur,Social Entrepreneurship,Blue Ocean Strategy-I,Blue Ocean Strategy-II
Week 5 : Marketing of Innovation, Technology Innovation Process, Technological Innovation Management Planning, Technological Innovation Management Strategies, Technology Forecasting.
Week 6 : Sustainability Innovation and Entrepreneurship,Innovation Sustainable Conditions,Innovation: Context and Pattern,SME'S strategic involvement in sustainable development,Exploration of business models for material efficiency services
Week 7 : Management of Innovation, creation of IPR ,Management of Innovation, creation of IPR,Types of IPR,Patents and Copyrights, Patents in India
Week 8 : Business Models and value proposition, Business Model Failure: Reasons and Remedies, Incubators : Business Vs Technology, Managing Investor for Innovation , Future markets and Innovation needs for India.

List of students enrolled

S. No	Name of Student
1	Chinmay jain
2	Jatin Dhyawana
3	Adarsh Sain
4	Sarthak Agarwal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Ethics in Engineering Practice

Course Code: noc21-mg60

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to Ethical Reasoning and Engineer Ethics
Week 2 : Professional Practice in Engineering
Week 3 : Ethics as Design - Doing Justice to Moral Problems
Week 4 : Central Professional Responsibilities of Engineers
Week 5 : Computers, Software, and Digital Information
Week 6 : Rights and Responsibilities Regarding Intellectual Property
Week 7 : Workplace Rights and Responsibilities
Week 8 : Responsibility for the Environment

List of students enrolled

S. No	Name of Student
1	ABHISHEK MEDATWAL
2	Aditya Bhatnagar
3	Sumit khandal
4	ARSHDEEP SINGH KALSI
5	Aryan Ojha
6	Asad Ali
7	Ashok Jat
8	DEVESH KASERA
9	Govind Pandey
10	Brijesh choudhary
11	Devesh Sharma
12	DIVAM PAREEK
13	Ankit Gardhwal
14	Gaurav Dubey
15	Ghanshyam nahar
16	Gaurav Mishra

17	Jahanvi Rathi
18	Jalaj gupta
19	kiran kumar
20	Lav kumar
21	kunal KRISHNANI
22	Keshav Singh
23	Lavesh Jain
24	Mansi Pareek
25	Jitendra Kumar Meena
26	Mayank MIttal
27	Mukul Palol
28	Navneet Sagar
29	Priyadarshini Singh Shekhawat
30	Pururaj Singh
31	Sachin sharma
32	Samyak jain
33	DEVANSHU SHARMA
34	Shailendra Chauhan
35	SOURAV MAJEE
36	Nitin Sharma
37	Tanishq Rathore
38	Tehsin Khan
39	adnan khan
40	Anshul Sharma
41	Aditya Jain
42	Vaibhav Vyas
43	vishnu kumar
44	Yaffee Gulzar

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Python for Data Science

Course Code: noc22-cs32

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
BASICS OF PYTHON SPYDER (TOOL)

- Introduction Spyder
- Setting working Directory
- Creating and saving a script file
- File execution, clearing console, removing variables from environment, clearing environment
- Commenting script files
- Variable creation
- Arithmetic and logical operators
- Data types and associated operations

Week 2:
Sequence data types and associated operations

- Strings
- Lists
- Arrays
- Tuples
- Dictionary
- Sets
- Range

NumPy

- ndArray

Week 3:
Pandas dataframe and dataframe related operations on Toyota Corolla dataset

1. Reading files
2. Exploratory data analysis
3. Data preparation and preprocessing

•Data visualization on Toyoto Corolla dataset using matplotlib and seaborn libraries

1. Scatter plot
2. Line plot
3. Bar plot
4. Histogram
5. Box plot
6. Pair plot

•Control structures using Toyota Corolla dataset

1. if-else family
2. for loop

3. for loop with if break
4. while loop

•Functions

Week 4 :
CASE STUDY

•Regression

1. Predicting price of pre-owned cars

•Classification

1. Classifying personal income

List of students enrolled

1	Arpita sharma
2	Aayush Vaishnav
3	Abdul Rahman
4	Aditya Gupta
5	Aditya Bhatnagar
6	Akshat Jain
7	Anshu Verma
8	ASHUTOSH TIWARI
9	Ashvin Singh
10	Arun Singh
11	Pranshul Singh
12	NAITIK VIJAYVARGIYA
13	RISHI SONI
14	yuvraj lamba
15	Tejpal Choudhary
16	AKSHAY SINGH SHAKTAWAT
17	DEEPAK KUMAR YADAV
18	NAVAL TRIPATHI
19	NIKHIL PANDEY
20	Rahul saini
21	Christy Dipu
22	Devaksh Narwara
23	Divya Bharadwaj
24	Dharma Ram jat
25	Drishti Gupta
26	Harsh Tanwar
27	Ritin yadav
28	Harsh Sharma
29	Virendra singh rathore
30	Atul jain
31	Sanskruti Khandelwal

32	Khushi Jain
33	Nikhil Kumar Lamba
34	Mukul garg
35	Mehul Sharma
36	Mohit Kumar Singh
37	Nishita Mathur
38	Prasoon Khandelwal
39	PRINCE SINGHAL
40	Purva Agarwal
41	Rahul Suthar
42	Raj goyal
43	Rajveer Chopra
44	Ranveer singh
45	Rashi raja bundela
46	Richhpal Mehariya
47	Ritik sharma
48	Ritik Verma
49	RIYA PARAKH
50	Sagar Jha
51	Aman Saini
52	Shantanu
53	Simran Udhani
54	Madhav somani
55	Raghav
56	Rohit banjara
57	Rohit soni
58	suhani wadhwa
59	Yash Dubey
60	adnan khan
61	Vedeesh Sharma
62	Vipul Gupta

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Programming In Java

Course Code: noc22-cs47

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Overview of Object-Oriented Programming and Java

Week 2:

Java Programming Elements

Week 3:

Input-Output Handling in Java

Week 4:

Encapsulation

Week 5:

Inheritance

Week 6:

Exception Handling

Week 7:

Multithreaded Programming

Week 8:

Java Applets and Servlets

Week 9:

Java Swing and Abstract Windowing Toolkit (AWT)

Week 10:

Networking with Java

Week 11:

Java Object Database Connectivity (ODBC)

Week 12:

Interface and Packages for Software Development

List of students enrolled

1	Aaditya Trivedi
2	Aakash Dadhich
3	Aanchal yadav
4	Aastha Jain
5	Aayush Sharma
6	Abdul Rahman
7	Abheet yadav
8	Abhishek gupta
9	Abhishek jain
10	abhishek pandey
11	Aditi Agarwal
12	Aditi Jain
13	Aditi Pareelk
14	Aditi Sharma
15	Aditya Agarwal
16	Aditya Parashar
17	ADITYA SHARMA
18	Aditya Vijayvargiya
19	Akash Agarwal
20	Akash Kumar
21	AKASH KUMAR PANDEY
22	akhilesh chaturvedi
23	Akshat Gupta
24	Akshat Jaiman
25	AKSHAT JAIN
26	Akshat Jain
27	Akshat kumar lakhara
28	AKSHAT PAREEK
29	Akshat Sharma
30	Akshat Sharma
31	Akshat Surana
32	Akshay Verma
33	Akshi Jain
34	akshita singhvi
35	Akul Saxena
36	Alpesh Gupta
37	Aman Bhargava
38	Aman Kumar Gupta
39	Aman Sharma
40	Amit Kumar
41	Ananya Mathur
42	Angelina Freda Smith
43	Anish Choudhary
44	Anish Choudhary

45	anjali gupta
46	Anjali Sharma
47	Anjesh jain
48	Ankit Sharma
49	ANKUR YADAV
50	ANKUR YADAV
51	Anshika Goyal
52	Anshu Verma
53	Anshul Gora
54	Anshul Sharma
55	anshuman singh
56	Anshuman Singh Naruka
57	Anu Kumari
58	Anurag Agrawal
59	Anurag yadav
60	Arihant pokharna
61	Arnav Godara
62	Arpita sharma
63	Arun Sharma
64	Aryan Mishra
65	Aryan Soni
66	Ashtami Tak
67	Ashu Agarwal
68	ASHUTOSH TIWARI
69	Ashvani khandelwal
70	ASHWIN GUPTA
71	Atishayee Singh
72	Atul Pancharia
73	Ayush Agarwal
74	Ayush jalan
75	Ayush Kumar
76	Ayush Kumar Jajodia
77	Ayush Maheshwari
78	AYUSH SINGHAL
79	Ayush Singhal
80	Ayush Soni
81	Ayushi Agarwal
82	Ayushi Agrawal
83	Badal Singh rathore
84	Bhanu Pratap Singh Chouhan
85	Bhavesh Singhal
86	Bhavya Sharma
87	Bhavya sharma
88	Charu Tiwari
89	CHINMAY PAREEK
90	Chirag arora

91	chirag kumar sharma
92	Chirag moud
93	Cmaune Sharma
94	Darshika Maheshwari
95	DEEPAK KUMAR YADAV
96	Deepak Sharma
97	Deepanshu Jain
98	Deepanshu Mehta
99	Devansh Choudhary
100	Dharmi Kapadiya
101	Dheeraj Kumar garg
102	Dheeraj Shukla
103	Dipesh Kumar Karesia
104	Disha Tyagi
105	Dishank Agrawal
106	Divyam Agarwal
107	DIVYANSH GUPTA
108	Divyansh Sharma
109	Divyanshi paliwal
110	Drishti Gupta
111	Gaurav jangid
112	Gaurav kumar Khandelwal
113	Gautam kumar jain
114	Geetam
115	Geetanshikha Gautam
116	Giritra Saraswat
117	Gulshan sharma
118	Gungun wadhwa
119	Gunjan Gupta
120	Hari kumar addania
121	Harsh jain
122	Harsh soni
123	Harshil Sharma
124	Harshit Agarwal
125	harshit gupta
126	Harshit sen
127	Harshit Sharma
128	Harshit totuka
129	Harshita Gupta
130	Himanshi Sharma
131	Himanshu chaudhary
132	Himanshu Choudhary
133	Himanshu kalal
134	Himanshu Kumawat
135	Himanshu Patni
136	Himanshu sharma

137	Isha Agarwal
138	Isha sharma
139	Ishaan Khandelwal
140	Ishika agarwal
141	Ishita Vyas
142	Jayesh Gupta
143	Jayesh sharma
144	Jitendra Choudhary
145	Jyoti agrawal
146	kanishk agarwal
147	Kapish nandwana
148	Karan Sharma
149	KIRTI JAISWAL
150	Krishna Murari
151	Kushagra Mundra
152	Kushal sharma
153	Lakshita Natani
154	lavanya sharma
155	Madhav kankani
156	Manan khandelwal
157	MANAN PUROHIT
158	Manan Sharma
159	Manav jain
160	Manav Modi
161	mayank gupta
162	Mehul Sharma
163	Mishu Jain
164	mohit
165	Monay Chhattani
166	Mudit Choudhary
167	Mukul Palol
168	NAMAN BANSAL
169	Naveen Yadav
170	Neetu Choudhary
171	Nicky Lakhisarani
172	NIHARIKA RATHORE
173	Nikita Gupta
174	Nikunj sahu
175	NIKUNJ SINGH GEHLOT
176	Nilesh Suthar
177	Nishant Bharwani
178	Nishtha Sainani
179	Nitin Jain
180	NITIN NAGAR
181	Nitin verma
182	Nitish kumar mishra

183	Parineeta bagra
184	Payal Singh
185	Piyush Choudhary
186	Piyush Jain
187	Piyush sharma
188	Prafull Bhargava
189	Prajwal Soni
190	Prakhar Kataria
191	Prateek Somani
192	Pratham Kothari
193	Pratiksha Sharma
194	Pratyush Chhipa
195	Praveen Sukhwal
196	Prerit Goyal
197	PRIYAL KHANDELWAL
198	Priyansh Singh
199	Priyanshu Suhalka
200	Pulkit Baid
201	PUNEET GARG
202	Purvi Goyal
203	Purvi Harpalani
204	Rachi Khandelwal
205	Radhika ojha
206	Rahul dubey
207	Rahul Goyal
208	Rahul Jain
209	Rahul Kumar
210	Rahul Suthar
211	Rajat Khandelwal
212	Rajdev Dhakar
213	Ria Agarwal
214	Ritesh Lavti
215	Ritik Verma
216	Ritika Singh
217	Ritin Agarwal
218	Riya Mehta
219	Ronak kumawat
220	Ruchi singh
221	Ruchit Sharma
222	Rudraksh Agarwal
223	Sabhyata Agarwal
224	saksham jain
225	Sakshi Agarwal
226	Sakshi Anil Barge
227	Sakshi Gurbani
228	sakshi khandelwal

229	sakshi nagpal
230	Samridhi arya
231	Samyak Jain
232	Sandeep Kapoor
233	Sanjana saxena
234	Sanjay kumar Jangid
235	Sanskar Rana
236	Sanskriti Kaushal
237	Sanskruti Khandelwal
238	Sanyam jain
239	Sarthak Maheshwari
240	Shagun Agarwal
241	shahsank purohit
242	Sheetal Jhanwar
243	Shray Mathur
244	Shubham Gupta
245	Shubham jain
246	Shubham singh
247	Shubham Soni
248	Shyam Agarwal
249	Simmi Jain
250	sohail gull
251	Somil jain
252	Sonia Devi
253	SONU KUMAR
254	sonu saini
255	Sunil Sharma
256	Suryansh Johari
257	Sushant Choudhary
258	Tamanna Sharma
259	TUSHAR CHOUBEY
260	Tushar Kumar Verma
261	Tushar Sanadhya
262	Ujjwal Mantri
263	Uma agarwal
264	Umesh Kumar Jangir
265	Vaibhav Bhardwaj
266	Vanshika Gupta
267	Vatsal Singh Rao
268	Vidhesh Khanna
269	Vikas Kumar tank
270	Vipul Gupta
271	Virendra Sharma
272	Virendra singh rathore
273	vishal gupta
274	Vishal katariya

275	Vishal kunwar
276	VISHNU KUMAR SHARMA
277	Vivek Kumar
278	Yash gupta
279	Yash Saxena
280	Yatharth Varshney
281	Yogendra Singh
282	Yogesh Dabodiya
283	Yukti Yadav

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction To Internet of Things

Course Code: noc22-cs53

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Introduction to IoT: Part I, Part II, Sensing, Actuation, Basics of Networking: Part-I

Week 2:

Basics of Networking: Part-II, Part III, Part IV, Communication Protocols: Part I, Part II

Week 3:

Communication Protocols: Part III, Part IV, Part V, Sensor Networks: Part I, Part II

Week 4:

Sensor Networks: Part III, Part IV, Part V, Part VI, Machine-to-Machine Communications

Week 5:

Interoperability in IoT, Introduction to Arduino Programming: Part I, Part II, Integration of Sensors and Actuators with Arduino: Part I, Part II

Week 6:

Introduction to Python programming, Introduction to Raspberry Pi, Implementation of IoT with Raspberry Pi

Week 7:

Implementation of IoT with Raspberry Pi (contd), Introduction to SDN, SDN for IoT

Week 8:

SDN for IoT (contd), Data Handling and Analytics, Cloud Computing

Week 9:

Cloud Computing(contd), Sensor-Cloud

Week 10:

Fog Computing, Smart Cities and Smart Homes

Week 11:

Connected Vehicles, Smart Grid, Industrial IoT

Week 12:

Industrial IoT (contd), Case Study: Agriculture, Healthcare, Activity Monitoring

List of students enrolled

1	Abhishek khandelwal
2	Adarsh Dixit
3	Aditya Chaturvedi
4	aditya manu sharma
5	Ajay gupta
6	AJAY KUMAR SHARMA
7	Akshat Jain
8	Aman Kuntal
9	Amit kumar
10	Ashutosh Maheshwari
11	ASHUTOSH TIWARI
12	AYUSHI SHARMA
13	Chirag Bhayana
14	Chirag Gurnani
15	Dev sharma
16	Dinesh Soni
17	Disha Nagori
18	drishti jain
19	Durvish Paliwal
20	Gaurav Mehta
21	Hardik tyagi
22	Harsh garg
23	Harsh Khandelwal
24	Harshita Shekhawat
25	Himanshu Sharma
26	ishita mathur
27	jatin kumar singhal
28	JAYANT JAIN
29	Jayesh Vashishtha
30	Kajol Jain
31	Kartikey Agrawal
32	KARTIKEYA BAJPAI
33	Kashish Sharma
34	KESHAV KUMAR SHARMA
35	Keshav Nama

36	Khushal Sharma
37	Krity jain
38	Kshitij agarwal
39	Kunal Mamodiya
40	lakshya dewani
41	LALIT MEENA
42	Mayank Saxena
43	mishal gupta
44	Mohan nainani
45	Muskan Khandelwal
46	Naman Kumar Jain
47	NILESH RAWAT
48	Nilesh Suthar
49	Nisha jain
50	Nishant
51	Nishant Kumar
52	Nishita Mathur
53	nitesh goyal
54	Pankaj Sharma
55	poonam vijay
56	Prachi Behl
57	Prafull bhadauria
58	Pragya Gaggar
59	Pranav Parashar
60	prateek baheti
61	Priyanshu Suhalka
62	Rahul Suthar
63	Ritik Garg
64	Ritik Verma
65	Ritika Jalewa
66	Ronit Gupta
67	Sachin Sharma
68	Sarim Ur Rehman
69	Saurabh_choudhary
70	Shreshtha Suri
71	Shruti Dubey
72	Shruti Gupta
73	Shubham jain
74	Siddhi Saxena
75	Somil jain
76	Tanmay Bhargava
77	tanu mehra
78	Tarun Kumar
79	Tarun Sharma
80	Tushar Saxena
81	Uma agarwal

82	Umang Panchal
83	Vaibhav Sharma
84	VIBHOR JAIN
85	vinay bansal
86	Vinay vyas
87	Vishesh
88	Yogendra Singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: An Introduction to Programming Through C++

Course Code: noc22-cs42

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Introduction to computers using graphics. Notions of program organization, control flow. Introduction to a repeat macro statement and its use for drawing interesting pictures.Basics of computer hardware and how numbers and other information are represented and processed on computers.

Week 2:

Basic data types. Variables. Assignment statement. Introduction to program design using examples such as summing infinite series. Introduction to coordinate based graphics and elementary animation. The repeat macro is used for looping.

Week 3-4:

Statements of C++ for conditional execution and looping. Applications such as computing mathematical functions, root finding.

Week 5:

Functions. Parameter passing. Pointers and references. Recursion basics.

Week 6:

Recursive algorithms and recursive drawings. Breaking larger programs into functions. Passing functions as arguments to other functions.

Week 7:

Arrays. Basic array processing strategies including passing arrays to functions. Pointers. Applications illustrating use of arrays to store sets and sequences. Iterating over pairs of objects from an array. Selection sort.

Week 8:

Use of arrays to represent textual data. Multidimensional arrays. Command line arguments. Binary search. Merge sort.

Week 9:

Structures. Pointers with structures. Structure examples. Basics of classes: member functions, constructors, operator overloading and access control.

Week 10:

Dynamic memory allocation. Basic mechanisms and pitfalls. Design of a "String" class that has automated memory management. Copy constructors and destructors. Introduction to the standard library.

Week 11-12:

Use of the standard library in designing programs. Design of medium size programs. A miniature program for marks and ranks display. A program for gravitational simulation. A program for designing and solving resistive circuits with a graphical user interface.

List of students enrolled

1	Arpita sharma
2	Deepesh choudhary
3	Nagendra singh
4	Dhruv sharma
5	Aaditya Shah
6	Aanchal yadav
7	Abhijeet Giri
8	Abhishek Gupta
9	Abhishek saini
10	Adarsh Dixit
11	Aditi Pathak
12	Aditya Agarwal
13	Aditya Misra
14	Aditya raj Sharma
15	Ayushi Agarwal
16	Sumit khandal
17	Akshat Gupta
18	Aman Bhargava
19	Ankit Kumar Choudhary
20	Anuj Sharma
21	Archika Dixit
22	Arihant pokharna
23	Ayush Soni
24	ASHUTOSH TIWARI
25	Abhay bhardwaj
26	Manav Manna
27	AYUSH SINGHAL
28	Moksh Avasthi
29	jeeval choradia
30	Kartik soni
31	KASHISH JAGWANI
32	Dolly Malik
33	HARSH BHARGAVA
34	Tarun Kumar
35	Chirag Gurnani
36	gaurav sharma

37	Shreyash Sharma
38	Rajveer Singh
39	Shivam tiwari
40	Kunal Gupta
41	Himanshu Jain
42	Vatsal Singh Rao
43	Vishnu kumar bangdwa
44	vivek shekhawat
45	Arushi Hinger
46	Jitendra Choudhary
47	Devang Joshi
48	Jai Kumar Bisaria
49	Khushi Rajawat
50	Tarun Saini
51	Ruchi singh
52	Shreya Jha
53	Hridayansh Sharma
54	Diya Sharma
55	Anjali Gupta
56	Karishma kumawat
57	Anupam jain
58	Jashan
59	Deepanshu Khandelwal
60	Rohit Jangid
61	RAHUL KUMAR
62	Bhanupriya Panwar
63	Bhanu Mudgal
64	Jai Kumar Bisaria
65	Tejpal Choudhary
66	akhilesh chaturvedi
67	Chhavi Sharma
68	Tanishq Goyal
69	Daksh Gupta
70	Deepesh Gupta
71	Somu Dey
72	Dharmi Kapadiya
73	DHRUV MITTAL
74	Deepak Sharma
75	EKTA GUPTA
76	FAIZAN KHAN
77	Harsh singh gahlot
78	Jaiyansh Gambhir
79	Garvit mathodia
80	Gaurav Swami
81	Geetam
82	Govind Pandey

83	Hari kumar addania
84	Harsh soni
85	HARSHITA PALIWAL
86	Prateek sharma
87	Himanshu Patni
88	Himanshu Sharma
89	Ritin yadav
90	Harshit Kumar Jain
91	Kartik Jain
92	Megha Jangid
93	Jitendra Singh
94	Rishi jain
95	Jitendra Choudhary
96	Jyoti agrawal
97	Ayush garg
98	Kanika Paliwal
99	Vishal katariya
100	Khushi Jain
101	Kuldeep joshi
102	KUL PRATAP SINGH
103	Kushagra Mundra
104	Tushar singhal
105	Shailesh Mali
106	Lalit Soni
107	Madhav kankani
108	SHUBHAM MAHESHWARI
109	MANALI SHARMA
110	Manan Sharma
111	Manav rathore
112	MANUJ GANERIWALA
113	Mayank lalwani
114	Mehak Jain
115	Riya Mehta
116	Anurag Agrawal
117	Mohit Parashar
118	Mriduraj Singh Rathore
119	SAURABH MISHRA
120	Naina Madan
121	Aaditya Trivedi
122	NIKUNJ SINGH GEHLOT
123	Nilesh Suthar
124	Nishita Mathur
125	NITIN NAGAR
126	Nitin verma
127	NITYA SINGH
128	Aman ojha

129	AKSHAT PAREEK
130	Parth Jain
131	Prafull Bhargava
132	Prajwal Soni
133	Agrawal Pranjal Pankaj
134	Pratiksha Sharma
135	Pratyush Chhipa
136	Rahul Jain
137	Prerit Goyal
138	Priyanshu Suhalka
139	Priya Gupta
140	PUNEET GARG
141	Purvi Harpalani
142	Rachi Khandelwal
143	Radhika soni
144	Rahul dubey
145	Rahul saini
146	Rahul Meemrot
147	Rajkumar gangwar
148	Rajkumar Sain
149	Kunal singh rathore
150	NIHARIKA RATHORE
151	Rajat choudhary
152	Mihir pandiya
153	Ronak Kumar
154	Ronak kumawat
155	Ruchit Sharma
156	saksham jain
157	Sakshi Gurbani
158	Sanskar Rana
159	Sanskriti Kaushal
160	Yogendra Singh
161	Shagun Agarwal
162	Shantanu
163	KARTIKEY SHARMA
164	Shruti Dubey
165	Shubham Gundaliya
166	Shubham Kumar
167	Shreshtha Suri
168	Simmi Jain
169	AYUH SINGHAL
170	Somik choudhary
171	Sonia Devi
172	sudeep shukla
173	Krishan Kumar swami
174	Tanisha Mudgal

175	Tanishk Gupta
176	Tanmay Mudgal
177	Tarun Kumar
178	Tejasva Sharma
179	Kriishnanshu Bhargava
180	Natasha kaushik
181	Aditya narayan
182	Trivi Jain
183	tushar gupta
184	Tushar Sanadhya
185	Ujjwal Mantri
186	Utkarsh Bhati
187	Vaibhav sahu
188	Vandit khandelwal
189	Vanshika Gupta
190	Akshay Verma
191	VISHWAS VIJAY VARGIYA
192	VIPUL JAIN
193	Vishal Sharma
194	Vishal Singh Rajpurohit
195	Vishesh Singh
196	VISHNU KUMAR SHARMA
197	Vishnu kumar bangdwq
198	Vishnu banjara
199	Vishal singh chouhan
200	Vivek garg
201	vivek kumar gupta
202	Tushar vijayvargia
203	Rohit kumar soni
204	Yash Bairwa
205	Yashpal siyag
206	Yash Saini
207	yash raj mishra

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction To Programming In C

Course Code: noc22-cs40

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
Introduction. Straight-Line Code. Variables, Operators, Expressions and Conditionals.

Week 2:
Loops

Week 3:
Functions

Week 4:
One-Dimensional Arrays and Pointers

Week 5:
Recursion

Week 6:
Multi-dimensional Arrays, Linked Lists.

Week 7:
Operating on Files

Week 8:
Organizing C projects, working with multiple source directories, makefiles.

List of students enrolled

1	Arun Sharma
2	Dhruv sharma
3	Daksh Gupta
4	Abhay mangal
5	Abhinav Sharma
6	Abhishek gupta
7	Aditya Agarwal
8	Aman jain
9	Akash Rawat
10	Ankit Sarawata
11	Anshita Yadav
12	Apeksha pitaliya
13	Archi Patidar
14	ASHUTOSH TIWARI
15	sakshi singh

16	Kartik soni
17	KASHISH JAGWANI
18	Dolly Malik
19	Chirag Gurnani
20	Sandeep Singh
21	Mihir Khinchi
22	Mansi nigam
23	Danish Khan
24	Anshuman Singh Sikarwar
25	Mayank sharma
26	EKTA GUPTA
27	Aditya Pratap Singh
28	Aryan sharma
29	ANUSHKA SHARMA
30	Ayush Soni
31	Harshit Kumawat
32	Bhavya Gupta
33	Aditya Soni
34	Paras Boriwal
35	Asha sharma
36	Vanshika jindal
37	vivek shekhawat
38	Jayesh Darwani
39	Akshita Agarwal
40	Jai Kumar Bisaria
41	Devarshi Sharma
42	Naman Jain
43	ABHIJEET MATHUR
44	Anurag Sharma
45	Akshat Tanwar
46	Vishal Agarwal
47	Ansh Tyagi
48	Deepanshu Khandelwal
49	Ayushi Katyayan
50	Anubhuti sharma
51	Arushi
52	Priyanshu batra
53	Chirag Bhayana
54	Deepansh Sharma
55	Devanshu soni
56	Devarshi Sharma
57	Dharmanshu Kumar
58	EKTA GUPTA
59	GARIMA GUPTA
60	Gaurav jain
61	Gaurav Swami

62	Ayush Gurjar
63	Hardik Singh
64	Harshit Sukhwal
65	Harsh Bindal
66	Himesh kumar
67	Isha sharma
68	ishita jain
69	Rishika Jain
70	Jalaj gupta
71	Megha Jangid
72	anushka jain
73	Jatin Bhagtani
74	Jatin Yadav
75	Jitendra Choudhary
76	Ayush garg
77	Kanika Paliwal
78	Karan Choudhary
79	Kartik sarda
80	Kartik Sharma
81	Krishna Murari
82	Kuldeep joshi
83	Kunal Soni
84	KUNAL MITTAL
85	Kushal sharma
86	Vishva Yash Pandey
87	Madhur Khandelwal
88	MANALI SHARMA
89	Manav Modi
90	Mansi Pareek
91	Arman Mathew
92	Megha agarwal
93	Meghanshi mathur
94	Mohit Agarwal
95	mohit jain
96	Vivek shekhawat
97	Mriduraj Singh Rathore
98	Mudit Choudhary
99	Naina Madan
100	Namesh Prakash Prajapat
101	Roshan Singh
102	Naveen Yadav
103	Navneet tanwar
104	Nilisha nagar
105	Niraj Kumar
106	Nishita Mathur
107	Nishita Tolani

108	Aman ojha
109	AKSHAT PAREEK
110	Parineeta bagra
111	Parth Nagdev
112	Praful Singh Sikarwar
113	Prashant Jethwani
114	praveen kumar dudi
115	Himanshu chaudhary
116	Prince Agrawal
117	Prajjawal
118	priyal ajmera
119	Priyal Jangid
120	Priyanshu Sharma
121	PUNEET GARG
122	AVISH RAGHAV
123	Rahul Ahuja
124	Nagendra Singh Tanwar
125	Raj tiwari
126	Rajni Attri
127	Ratan Soni
128	Kunal singh rathore
129	Ratik Arora
130	Ravi Kumar
131	Rohit Upadhyay
132	Rishabh Jain
133	Rajat choudhary
134	Ritik Verma
135	RIYA PARAKH
136	Rohit kumar
137	Sakshi Gurbani
138	Sarthak Maheshwari
139	Yogendra Singh
140	Shalin Devpura
141	Shantanu
142	Abhijay Sharma
143	Shivam Choudhary
144	Shiv Lal
145	Shrey Upadhyay
146	Shruti Dubey
147	Shubham jain
148	Shreshtha Suri
149	Siddharth Darji
150	Aditya Singh
151	Shubham jain
152	Nikunj sahu
153	Somya Jain

154	Sonia Devi
155	Sonu saini
156	Tanishk Gupta
157	Tarun agrawal
158	Vaibhav Singh
159	VISHWAS VIJAY VARGIYA
160	Vikas Sharma
161	Virendrq yadav
162	Vishal kunwar
163	Vivek garg
164	Vishal Rawat
165	Harsh Yadav
166	Yash Saini
167	Yash jindal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Machine Learning

Course Code: noc22-cs29

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 0:

- Probability Theory, Linear Algebra, Convex Optimization - (Recap)

Week 1:

- Introduction: Statistical Decision Theory - Regression, Classification, Bias Variance

Week 2:

- Linear Regression, Multivariate Regression, Subset Selection, Shrinkage Methods, Principal Component Regression, Partial Least squares

Week 3:

- Linear Classification, Logistic Regression, Linear Discriminant Analysis

Week 4:

- Perceptron, Support Vector Machines

Week 5:

- Neural Networks - Introduction, Early Models, Perceptron Learning, Backpropagation, Initialization, Training & Validation, Parameter Estimation - MLE, MAP, Bayesian Estimation

Week 6:

- Decision Trees, Regression Trees, Stopping Criterion & Pruning loss functions, Categorical Attributes, Multiway Splits, Missing Values, Decision Trees - Instability Evaluation Measures

Week 7:

- Bootstrapping & Cross Validation, Class Evaluation Measures, ROC curve, MDL, Ensemble Methods - Bagging, Committee Machines and Stacking, Boosting

Week 8:

- Gradient Boosting, Random Forests, Multi-class Classification, Naive Bayes, Bayesian Networks

Week 9:

- Undirected Graphical Models, HMM, Variable Elimination, Belief Propagation

Week 10:

- Partitional Clustering, Hierarchical Clustering, Birch Algorithm, CURE Algorithm, Density-based Clustering

Week 11:

- Gaussian Mixture Models, Expectation Maximization

Week 12:

- Learning Theory, Introduction to Reinforcement Learning, Optional videos (RL framework, TD learning, Solution Methods, Applications)

List of students enrolled

1	Abdul Rahman
2	Anjali jain
3	ANURAG KUMAR
4	Arpita Dubey
5	Arpita sharma
6	Arun Singh
7	ASHUTOSH TIWARI
8	Ashwani Malav
9	Ayushi Bansal
10	chirag kumar sharma
11	Deepanshu Jain
12	Gaurav Bhandari
13	HARSH JAIN
14	Harsh kanojia
15	Harsh kumar sahu
16	Ishika agarwal
17	Jagrati Sharma
18	JAYANT GUPTA
19	JAYESH SONI
20	Khushi Malasiya
21	Kirti Soni
22	Lakshya verma
23	Lalit kumawat
24	Lav kumar
25	Manasvini Sharma
26	Mansi kanwar
27	Manthan jain
28	Mohit singhal
29	Mukul jangid
30	Mukul Palol
31	Muskan Tailor
32	Nikunj sahu

33	Nishita Mathur
34	Pankaj Kumar
35	Prafull Bhargava
36	Prasoon Khandelwal
37	Priyanshu Lohar
38	Priyanshu Suhalka
39	Pulkit Bansal
40	Purva Agarwal
41	Rajat Malik
42	Rakshanda kucheria
43	Ritik Verma
44	Rohit-Verma
45	Sabhyata Agarwal
46	Sakshi Agarwal
47	Shivam Todwal
48	Shubham Nagar
49	Tanishk Gupta
50	Tushar Soni
51	Vansh Pradeep Singh Rathore
52	Vikas Kumar tank
53	Virendra singh rathore
54	Yash Gupta
55	Yogendra Singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: The Joy of Computing using Python

Course Code: noc22-cs31

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

- Motivation for Computing
- Welcome to Programming!!
- Variables and Expressions : Design your own calculator
- Loops and Conditionals : Hopscotch once again
- Lists, Tuples and Conditionals : Lets go on a trip
- Abstraction Everywhere : Apps in your phone
- Counting Candies : Crowd to the rescue
- Birthday Paradox : Find your twin
- Google Translate : Speak in any Language
- Currency Converter : Count your foreign trip expenses
- Monte Hall : 3 doors and a twist
- Sorting : Arrange the books
- Searching : Find in seconds
- Substitution Cipher : What's the secret !!
- Sentiment Analysis : Analyse your Facebook data
- 20 questions game : I can read your mind
- Permutations : Jumbled Words
- Spot the similarities : Dobble game
- Count the words : Hundreds, Thousands or Millions.

- Rock, Paper and Scissor : Cheating not allowed !!
- Lie detector : No lies, only TRUTH
- Calculation of the Area : Don't measure.
- Six degrees of separation : Meet your favourites
- Image Processing : Fun with images
- Tic tac toe : Let's play
- Snakes and Ladders : Down the memory lane.
- Recursion : Tower of Hanoi
- Page Rank : How Google Works !!

List of students enrolled

1	AAYUSHI SHARMA
2	Aayushman Mishra
3	Abhishek gupta
4	Aditi Jain
5	AKHIL UPADHYAY
6	Akshat Surana
7	Akshay Verma
8	akshita singhvi
9	Amey Vijaywargiya
10	Ananya Mathur
11	Annirudh singh shekhawat
12	Anshu Verma
13	Arun Sharma
14	Aryan Sharma
15	ASHUTOSH TIWARI
16	Ayush Kumar Jajodia
17	Bhanupriya Panwar
18	Bhaskar
19	Chirag Bhayana
20	Deepak Kumar Sai
21	Devasheesh Sharma
22	Dikshant Sharma
23	Divyanshi Bhardwaj
24	Divyanshu Acharya
25	Gaurav jain
26	Govind Pandey

27	Harsh Tanwar
28	Harshika Pradhan
29	Isha sharma
30	Jagrati Sharma
31	JAYESH SONI
32	KIRTI JAISWAL
33	Krishna Rathi
34	Kunal Kaushik
35	KUNAL MITTAL
36	KUNAL SHARMA
37	Kunika Khandelwal
38	Kushal sharma
39	Lalit Soni
40	Lavanya Talwar
41	Madhur Kala
42	Mohit ola
43	Mukul Palol
44	NAITIK VIJAYVARGIYA
45	Naman goyal
46	naman gupta
47	Nicky Lakhisarani
48	Nidhi Yadav
49	Nikita Gupta
50	NIKUNJ SINGH GEHLOT
51	nilesh dadheech
52	Nilesh Suthar
53	Nishi Chouhan
54	Nishita Mathur
55	NITIN NAGAR
56	Paritosh Ajmera
57	Pawan Kumar
58	PIYUSH AGRAWAL
59	Pradeep Kumar Prajapati
60	Prafull Bhargava
61	Priyanka Sharma
62	PUNEET GARG
63	Puneet Sankhala
64	Purva Agarwal
65	Rahul Jain
66	Rajkumar Sain
67	RAKSHA MODI
68	Ravi Raj
69	Ritik sharma

70	Ronak Gupta
71	Sabhyata Agarwal
72	Sakshi Agarwal
73	Sakshi Gurbani
74	Sakshi Sharma
75	Saloni chhaparwal
76	Sanidhya Bhardwaj
77	Satyam Sharma
78	SAURABH MISHRA
79	Shailendra Singh
80	Shantanu
81	shatrughan pandit
82	Shreshtha Suri
83	Shubham Soni
84	Somu Dey
85	SRISHTY AGARWAL
86	Tanish Khandal
87	Tanya Verma
88	Tarun jain
89	Tejpal Choudhary
90	tushar gupta
91	Ujjwal Mantri
92	V Vighnesh Rajan
93	Vaibhav Bairathi
94	Vaibhav Sharma
95	Vibhore Gupta
96	Vikas jat
97	Vinayak gupta
98	Vishal dandia
99	VISHWAS VIJAY VARGIYA
100	Yaman Kumar Malik
101	YASH SONI
102	Yashwardhan Gaur
103	Yatharth Varshney
104	yogesh kumar singh
105	Yogesh Sharma
106	yuvraj lamba

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Programming in Modern C++

Course Code: noc22-cs43

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Programming in C++ is Fun.

Week 2:

C++ as Better C.

Week 3:

OOP in C++.

Week 4:

OOP in C++.

Week 5:

Inheritance.

Week 6:

Polymorphism.

Week 7:

Type Casting.

Week 8:

Exceptions and Templates.

Week 9:

Streams and STL.

Week 10:

Modern C++.

Week 11:

Lambda and Concurrency.

Week 12:

Move, Rvalue and STL Containers.

List of students enrolled

1	Arpita sharma
2	Aakash Dadhich
3	Abhishek gupta
4	Adarsh Dixit
5	Akshat Surana
6	Ankit Sharma
7	ANKUR YADAV
8	Anuj Sharma
9	Aryan Mishra
10	Ayushi Agrawal
11	ASHUTOSH TIWARI
12	vivek shekhawat
13	Bhanu Pratap Singh Chouhan
14	CHINMAY PAREEK
15	GARIMA GUPTA
16	GAURAV KUMAR
17	Shreya Jindal
18	Ritin yadav
19	Anshul Gora
20	Gautam kumar jain
21	Harshit Kumar Jain
22	Jyoti agrawal
23	Keshav Gaur
24	Manan khandelwal
25	khushi
26	Kirti Sagar
27	Kushagra Mundra
28	Manan Sharma
29	Riya Mehta
30	Vivek shekhawat
31	Niraj Kumar
32	NITYA SINGH
33	Parineeta bagra
34	Keshav Pareek
35	Prafull Bhargava
36	Prashant Sharma
37	Purvi Harpalani
38	Raghav Agarwal
39	Rahul Kumar
40	NIHARIKA RATHORE
41	Ria Agarwal
42	Ritesh Lavti
43	Sakshi meena

44	Sapna
45	Shantanu
46	Simmi Jain
47	Manjeet Singh
48	Nikunj sahu
49	Somik choudhary
50	Sonia Devi
51	SRISHTY AGARWAL
52	Tamanna Sharma
53	Tanisha Mudgal
54	Umang Mathur
55	Unnati Sharma
56	Vaibhav Bairathi
57	Kush Vasaniya
58	Akshay Verma
59	Tanya Verma
60	Vinit Kumar Shah
61	Vishnu banjara
62	Yuvraj Kishan Sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Online Privacy

Course Code: noc22-cs37

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
Introduction; Various Privacy breaches, and its effects; Why Online privacy has become an important topic?; Privacy cases / litigations, and outcomes

Week 2:
Definition & forms of Privacy; Difference between data security & data privacy; Trade-off between privacy and freedom of speech; Trade-off between privacy and utility; Contextual integrity theory and applications

Week 3:

Privacy Attitudes & Awareness

Week 4:

Social Media Privacy

Week 5:

Social Media Privacy

Week 6:

Data anonymity: K-anonymity, L-diversity, T-closeness, Differential privacy

Week 7:

Image & Location privacy; Ethics about studying online privacy: Institutional Review Board / Ethics Committee; Conducting {User, Lab, and Online} Studies; Privacy from 3rd party trackers & advertisers

Week 8:

Image & Location privacy; Ethics about studying online privacy: Institutional Review Board / Ethics Committee; Conducting {User, Lab, and Online} Studies; Privacy from 3rd party trackers & advertisers

Week 9:

User behaviour & Usable privacy; Privacy in National projects like Aadhaar, NATGRID; Differential privacy in US census, Apple; PDP Bill / Sri Krishna commission report / GDPR:Implications

Week 10:

User behaviour & Usable privacy; Privacy in National projects like Aadhaar, NATGRID; Differential privacy in US census, Apple; PDP Bill / Srikrishna commission report / GDPR:Implications

Week 11:

Privacy policies: Length, readability, legality, cost of reading privacy polcies; Nutrition labels of Privacy policies: How to make the policies simple and user friendly

Week 12:

Privacy policies:Length, readability, legality, cost of reading privacy polcies; Nutrition labels of Privacy policies:How to make the policies simple and user friendly

List of students enrolled

1	Deepanshu Jain
2	EKTA GUPTA
3	Nishita Mathur
4	Pranav Parashar
5	Ritik Verma
6	Somik choudhary
7	Tisha Gupta

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Problem Solving Through Programming In C

Course Code: noc22-cs45

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Introduction to Problem Solving through programs, Flowcharts/Pseudo codes, the compilation process, Syntax and Semantic errors, Variables and Data Types

Week 2:

Arithmetic expressions, Relational Operations, Logical expressions; Introduction to Conditional Branching

Week 3:

Conditional Branching and Iterative Loops

Week 4:

Arranging things: Arrays

Week 5:

2-D arrays, Character Arrays and Strings

Week 6:

Basic Algorithms including Numerical Algorithms

Week 7:

Functions and Parameter Passing by Value

Week 8:

Passing Arrays to Functions, Call by Reference

Week 9:

Recursion

Week 10:

Structures and Pointers

Week 11:

Self-Referential Structures and Introduction to Lists

Week 12:

Advanced Topics

List of students enrolled

1	Labhansh Sharma
2	Aaditya Shah
3	AKASH GUPTA
4	Aarushi Sharma
5	Aashka jain
6	Aastha Panwar
7	abhishek gupta
8	Abhishek gupta
9	Abhishek Sharma
10	ADARSH KUMAR BHARDWAJ
11	Aditi Gothwal
12	Aditya Agarwal
13	Aditya Bhatnagar
14	Aditya Soni
15	Aditya Gupta
16	Doly bansal
17	Siddhi Agarwal
18	Shivam Agarwal
19	Himanshu Agarwal
20	Pulkit Ahuja
21	Abhishek choudhary
22	A man modi
23	Aman Chaumal
24	Shreya Ameta
25	Amit Verma
26	AMOL KUMARI
27	Ankit Saini
28	Ankit Kumar Choudhary
29	Ankit Sharma
30	Ankit shakdweepiya
31	Ansh Garg
32	Anushka Panicker
33	Anushka Tiwari
34	Anushka sonwal
35	Arshia Agarwal
36	Vagya Gupta
37	Ayushi Agrawal
38	SHREYANSH AGRAWAL
39	Dharmveer Singh shekhawat
40	ASHUTOSH TIWARI
41	Avneet Kaur
42	Manav Manna
43	Hariom kumar

44	Dolly Malik
45	Mayank jangir
46	Saurav singh
47	Mayank malav
48	HARSH BHARGAVA
49	Sachin Kumar
50	Sachin Singh Tanwar
51	Mayank Sharma
52	Sumit Sharma
53	Chirag Gurnani
54	Sandeep Singh
55	Sakshee Shalinee
56	Mahtvakanksha
57	AAKASH GUPTA
58	Leena verma
59	gaurav sharma
60	Ratik Arora
61	Mansi nigam
62	Palak Singh
63	Rinki Barman
64	Rajveer Singh
65	Hardik Vijay
66	Shivani yadav
67	Pulkit Baid
68	KHUSHI AGRAWAL
69	Pratham sharma
70	Mudit Singhal
71	Nikita Rao
72	Unique paliwal
73	Harsh Pathak
74	Suhani goyal
75	Aaditya Sharma
76	BHARG MAHAJAN
77	Kunal Jaiswal
78	NIRMAL PRAJAPATI
79	Vicky Soni
80	Ekta Manglani
81	Shivam Gautam
82	Sankalp suwalka
83	Sachin Sharma
84	Pradhuman Chaturvedi
85	Jayesh Purohit
86	Kunal Soni
87	Anshika Bhatt
88	Sushant Choudhary
89	Suyash ameta

90	kavya
91	Aryan Sharma
92	Simran
93	PIYUSH GUPTA
94	Anirudh kabra
95	Aditya Parashar
96	Aditi Tiwari
97	Rahul Singh Rautela
98	Anand Tiwari
99	Manish dudi
100	YASH GUPTA
101	Vishal saini
102	Khushi Bhatia
103	Kirti sharma
104	Jainam Jain
105	Aarish Quazi
106	RISHI SONI
107	Vidit khandelwal
108	Neha Dhaked
109	Palak garg
110	Anugrah Pathak
111	Divit Gautam
112	Vishal Sharma
113	VIBHANSH JAIN
114	Aman soni
115	Himanshu Agarwal
116	Ankit Gupta
117	Yash bansal
118	Shivin kasat
119	SHARAD BAGHLA
120	Parag pareek
121	DHRUV PARWANI
122	Naman Jain
123	ABHIJEET MATHUR
124	Sarthak Kothari
125	Vatsal Agarwal
126	Vikas sharma
127	Anushree Rathore
128	Anurag Sharma
129	Rohit rao
130	Ayush Gupta
131	payal gupta
132	Ansh Tyagi
133	Madhav soni
134	Harshit ajmera
135	Akshay raj singh rathore

136	Preeti verma
137	Khushi Kaur Anand
138	Balveer Saini
139	Priyanshu batra
140	Bhagya singh
141	Kartik Singh Bisht
142	Gaurav Singh Mangat
143	Chinkle
144	Darshan suwalka
145	Priyanshu goyal
146	Deepesh Gupta
147	Gagandeep Singh
148	Deveshwar Singh Rajawat
149	Dev mukhija
150	DHEERAJ KUMAWAT
151	DHRUV MITTAL
152	Dhruv Pathak
153	Digmber Singh
154	Dimple Menghani
155	Divya
156	Divya Nyati
157	Diwakar kothari
158	Dushyant Bansal
159	Jamuna Jangid
160	GARIMA GUPTA
161	GARV SHARMA
162	Gaurav Jangid
163	Abhay gautam
164	Suhani goyal
165	Vinita Garg
166	Hardik Singh
167	Harshita Jain
168	HARSHITA PALIWAL
169	Harsh Tambi
170	Himisha Tunwal
171	Ishita Jangir
172	JAGRATI MEENA
173	Harsh Jain
174	Rohan jain
175	Yashwant jangid
176	Jatin Yadav
177	Jigyashu Sharma
178	Joshita sharma
179	Rishi jain
180	Jitendra Choudhary
181	Ayush garg

182	Kanika Paliwal
183	KANIK SHARMA
184	Kartik sarda
185	Pragati khandelwal
186	Suzane Khan
187	Khechraay Arkaay
188	Khushi Agarwal
189	Khushi Jain
190	komal kumawat
191	Koopar Vijay
192	Kunal Soni
193	Lakshay Jain
194	Laveena goyal
195	MADHUR AGRAWAL
196	SHUBHAM MAHESHWARI
197	Mahi swami
198	Naitik Mangal
199	Manogya jain
200	MANUJ GANERIWALA
201	Mayank Pugalia
202	Mayank Sharma
203	Mehul Sharma
204	Mohit Trivedi
205	SAURABH MISHRA
206	Mudit Choudhary
207	Naina Madan
208	Nakul Narwani
209	Nighat Shakoor
210	Sahil karwani
211	Nikita Rao
212	Nilisha nagar
213	Nishita Mathur
214	Nitin verma
215	Omik parmani
216	Palak Gupta
217	Pallvi thakur
218	AKSHAT PAREEK
219	Paridhi Khandelwal
220	Parth Gautam
221	Payal Meena
222	Prashant Kala
223	Prashant Jethwani
224	Prashant Sharma
225	Prateek Meena
226	praveen kumar dudi
227	Prince kumar

228	Prithvee vasudev
229	priyal ajmera
230	Priyanshu goyal
231	PUNEET GARG
232	Radhika soni
233	Rahul dubey
234	Rahul Meemrot
235	Rajni Attri
236	Ratik Arora
237	Rohit Upadhyay
238	Rini Jain
239	Rishabh Jain
240	Rishabh Singh Shekhawat
241	Rajat choudhary
242	Rishi
243	Ritesh Agarwal
244	Ritik Verma
245	Mihir pandiya
246	PIYUSH GUPTA
247	Rohit Garg
248	Ronak kumawat
249	Rohit Rajoriya
250	Rucha Kukreti
251	Sagar Jha
252	Sahil Gupta
253	Mayenk Saini
254	SANYAM
255	Garvita Sakhrani
256	Saksham Sharma
257	Sakshi Gurbani
258	Sakshi meena
259	SAMAKSH MATHUR
260	Samiksha Sambyal
261	SAMYAK JAIN
262	Sankalp suwalka
263	Gaurav Sankhla
264	Sapna
265	Saransh Gupta
266	Pranjal soni
267	shailendra singh
268	Shalin Devpura
269	Shantanu
270	Abhinav Sharma
271	shruti sharma
272	Tanishtha sharma
273	Shashank Sharma

274	Shital
275	Shivam Choudhary
276	Shiv Lal
277	Shreya Bhargava
278	Shruti Dubey
279	Shubham jain
280	Shubham Nagar
281	Shreshtha Suri
282	shyam kumar
283	Simran Parwani
284	Simran Udhani
285	MUDIT SINGHAL
286	Muskan Singhal
287	Nitiraj Singh
288	Prashant Singh
289	Madhav somani
290	Somya Jain
291	Sonali jain
292	Sonia Devi
293	Rohit soni
294	RISHI SONI
295	Srashti soni
296	Vansh Pradeep Singh Rathore
297	Sumit Sharma
298	Krishan Kumar swami
299	Ujjwal Tak
300	Tamanna yadav
301	Tanisha Jawale
302	Tarun agrawal
303	TEJASVI
304	Aditi Tiwari
305	Tushar Kumar Sahu
306	Tushar Sharma
307	Udit Tiwari
308	Udeshya Dudi
309	Vaishnavi
310	Vanshika Namdev
311	vanshikatahalwani
312	Vansh rastogi
313	Vartika Garg
314	Vedeesh Sharma
315	Veeru Singh
316	Akshay Verma
317	Tushar Kumar Verma
318	Vikas singh
319	Vikas Sharma

320	Vikramaditya Sogani
321	VIPUL JAIN
322	Vishal kunwar
323	Vishal Rawat
324	Sandeep Kapoor
325	DHARMPAL YADAV

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Design and Analysis of Algorithms

Course Code: noc22-cs27

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1

- Module 1: Introduction
- Module 2: Examples and motivation
- Module 3: Examples and motivation
- Module 4: Asymptotic complexity: informal concepts
- Module 5: Asymptotic complexity: formal notation
- Module 6: Asymptotic complexity: examples
- Assignments MCQ/Fill in blanks (unique answer)

Week 2

- Module 1: Searching in list: binary search
- Module 2: Sorting: insertion sort
- Module 3: Sorting: selection sort
- Module 4: Sorting: merge sort
- Module 5: Sorting: quicksort
- Module 6: Sorting: stability and other issues
- Assignments MCQ/Fill in blanks, programming assignment

Week 3

- Module 1: Graphs: Motivation
- Module 2: Graph exploration: BFS
- Module 3: Graph exploration: DFS
- Module 4: DFS numbering and applications
- Module 5: Directed acyclic graphs
- Module 6: Directed acyclic graphs
- Assignments MCQ/Fill in blanks, programming assignment

Week 4

- Module 1: Shortest paths: unweighted and weighted
- Module 2: Single source shortest paths: Dijkstra
- Module 3: Single source shortest paths: Dijkstra
- Module 4: Minimum cost spanning trees: Prim's algorithm

- Module 5: Minimum cost spanning trees: Kruskal's Algorithm
- Module 6: Union-Find data structure
- Assignments MCQ/Fill in blanks, programming assignment

Week 5

- Module 1: Divide and conquer: counting inversions
- Module 2: Divide and conquer: nearest pair of points
- Module 3: Priority queues, heaps
- Module 4: Priority queues, heaps
- Module 5: Dijstra/Prims revisited using heaps
- Module 6: Search Trees: Introduction
- Assignments MCQ/Fill in blanks, programming assignment

Week 6

- Module 1: Search Trees: Traversals, insertions, deletions
- Module 2: Search Trees: Balancing
- Module 3: Greedy : Interval scheduling
- Module 4: Greedy : Proof strategies
- Module 5: Greedy : Huffman coding
- Module 6: Dynamic Programming: weighted interval scheduling
- Assignments MCQ/Fill in blanks, programming assignment

Week 7

- Module 1: Dynamic Programming: memoization
- Module 2: Dynamic Programming: edit distance
- Module 3: Dynamic Programming: longest ascending subsequence
- Module 4: Dynamic Programming: matrix multiplication
- Module 5: Dynamic Programming: shortest paths: Bellman Ford
- Module 6: Dynamic Programming: shortest paths: Floyd Warshall
- Assignments MCQ/Fill in blanks, programming assignment

Week 8

- Module 1: Intractability: NP completeness
- Module 2: Intractability: reductions
- Module 3: Intractability: examples
- Module 4: Intractability: more examples
- Module 5: Misc topics
- Module 6: Misc topics

List of students enrolled

1	Abdul Rahman
2	Anshita Yadav
3	Aryan Mishra
4	Atishayee Singh
5	CHINMAY PAREEK
6	Chirag Bhayana
7	JAYESH SONI
8	Mukul jangid
9	Ritesh Sharma
10	Shruti Dubey
11	Tanushree gupta
12	Vipul kaushik
13	Yogendra Singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Data Base Management System

Course Code: noc22-cs51

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Course Overview. Introduction to RDBMS

Week 2:

Structured Query Language (SQL)

Week 3:

Relational Algebra. Entity-Relationship Model

Week 4:

Relational Database Design

Week 5:

Application Development. Case Studies. Storage and File Structure

Week 6:

Indexing and Hashing. Query Processing

Week 7:

Query Optimization. Transactions (Serializability and Recoverability)

Week 8:

Concurrency Control. Recovery Systems. Course Summarization.

List of students enrolled

1	Arpita sharma
2	Aditya Agarwal
3	Arun Sharma
4	Aakash Dadhich
5	Abdul Rahman
6	Abheet yadav
7	Sakshi Agarwal
8	Akshat Jaiman
9	Akshat Surana
10	Aman Sharma
11	Ananya Mathur

12	ANKIT YADAV
13	Ankit Sharma
14	Anshika Goyal
15	Anshita Yadav
16	Anshul Sharma
17	Anshu Verma
18	Arihant pokharna
19	Ayushi Agrawal
20	ASHUTOSH TIWARI
21	Ashwani Malav
22	Ashvani khandelwal
23	Ayush Agarwal
24	Akshat Mathur
25	Aditya Vijayvargiya
26	Badal Singh rathore
27	Bhanupriya Panwar
28	Bhavya Anand
29	Bhomesh Razdan
30	Charu Tiwari
31	Chhavi Sharma
32	Chirag arora
33	Neetu Choudhary
34	Harshit sen
35	Tanishq Goyal
36	Ritik soni
37	Deepanshu Mehta
38	Somu Dey
39	Dimple Menghani
40	Dishank Agrawal
41	Divij Karwasara
42	CHINMAY PAREEK
43	Garvit Tambi
44	Gaurav jangid
45	Geetam
46	Giritra Saraswat
47	Shreya Jindal
48	Rahul Goyal
49	Gungun wadhwa
50	Harshit Sharma
51	HARSHITA PALIWAL
52	Himanshi Sharma
53	Ronak Gupta
54	Isha Agarwal
55	Isha sharma
56	Isha Tripathi
57	Ishita Vyas

58	Shubham jain
59	Gautam kumar jain
60	Manav jain
61	Piyush Jain
62	Tanisha jain
63	Sanidhya Bhardwaj
64	Jatin Bhagtani
65	Vikas jat
66	Jayesh Gupta
67	jitendra kumar prajapt
68	Krishna Rathi
69	Rishi jain
70	Jyoti agrawal
71	Brijesh Sharma Jangid
72	Karan Sharma
73	Ayush Kumar
74	Manan khandelwal
75	KIRTI JAISWAL
76	Krishna Murari
77	Kritika Surana
78	Kushal sharma
79	Manan Sharma
80	mayank gupta
81	Megha agarwal
82	Meghanshi mathur
83	Riya Mehta
84	Mehul Sharma
85	RAKSHA MODI
86	MOHIT SINGH
87	Chirag moud
88	Tanisha choudhary
89	sakshi nagpal
90	Sheetal Jhanwar
91	Nicky Lakhisarani
92	Nidhi Yadav
93	Nikita Gupta
94	Nilesh Suthar
95	Nishita Mathur
96	Divyanshi paliwal
97	Payal Singh
98	Prafull Bhargava
99	Prajwal Soni
100	Prakhar Kataria
101	Pratham Kothari
102	Pratiksha Sharma
103	Praveen Sukhwal

104	Rahul Jain
105	Prerit Goyal
106	Himanshu chaudhary
107	Prisha Kasat
108	PRIYAL KHANDELWAL
109	Priyanshu Suhalka
110	PUNEET GARG
111	Purvi Goyal
112	pushpendra singh shekhawat
113	Rahul Kumar Balai
114	Rahul Kumar
115	Rahul Suthar
116	Rajdev Dhakar
117	Richa
118	Ritesh Lavti
119	Ritik soni
120	Ritin Agarwal
121	Rajat Khandelwal
122	Ronak kumawat
123	Rudraksh Agarwal
124	Aman Saini
125	saksham jain
126	Sakshi Gurbani
127	Sakshi Agarwal
128	Sakshi Anil Barge
129	Sakshi Sharma
130	Sanskar Rana
131	Sanskriti Kaushal
132	Sanyam jain
133	Yogendra Singh
134	Shagun Agarwal
135	AAYUSHI SHARMA
136	shahsank purohit
137	Shaurya harsh
138	SHIVAM SINGHAL
139	Shruti Dubey
140	Shubham Gupta
141	Shubham singh
142	Shubham Soni
143	Shyam Agarwal
144	Siddharth Darji
145	Ayush Singhal
146	Saurabh Singh Parihar
147	Shailendra Singh
148	Sneha khandelwal
149	Nikunj sahu

150	SONU KUMAR
151	Vansh Pradeep Singh Rathore
152	SRISHTY AGARWAL
153	sohail gull
154	sudeep shukla
155	Tamanna Sharma
156	Tanisha Mudgal
157	Tanushree gupta
158	Tejasva Sharma
159	Umang Mathur
160	Umesh Kumar Jangir
161	Dhairya Upadhyay
162	Vanshika Gupta
163	Tanya Verma
164	Vinay Bansal
165	Virendra Sharma
166	Vivek Kumar
167	Yash gupta
168	Yash Bairwa
169	Yashvardhan Dukiya
170	yash maheshwari
171	Yashwardhan Gaur
172	Yuvraj Kishan Sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Programming, Data Structures And Algorithms Using Python

Course Code: noc22-cs26

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1

- Informal introduction to programmin, algorithms and data structures viagcd
- Downloading and installing Python
- gcd in Python: variables, operations, control flow - assignments, condition-als, loops, functions

Week 2

- Python: types, expressions, strings, lists, tuples
- Python memory model: names, mutable and immutable values
- List operations: slices etc
- Binary search
- Inductive function denitions: numerical and structural induction
- Elementary inductive sorting: selection and insertion sort
- In-place sorting

Week 3

- Basic algorithmic analysis: input size, asymptotic complexity, O() notation
- Arrays vs lists
- Merge sort
- Quicksort
- Stable sorting

Week 4

- Dictionaries
- More on Python functions: optional arguments, default values
- Passing functions as arguments
- Higher order functions on lists: map, lter, list comprehension

Week 5

- Exception handling
- Basic input/output
- Handling files

- String processing

Week 6

- Backtracking: N Queens, recording all solutions
- Scope in Python: local, global, nonlocal names
- Nested functions
- Data structures: stack, queue
- Heaps

Week 7

- Abstract datatypes
- Classes and objects in Python
- "Linked" lists: find, insert, delete
- Binary search trees: find, insert, delete
- Height-balanced binary search trees

Week 8

- Effcient evaluation of recursive definitions: memoization
- Dynamic programming: examples
- Other programming languages: C and manual memory management
- Other programming paradigms: functional programming

List of students enrolled

1	Abdul Rahman
2	Abhi Jain
3	Abhinav Srivastava
4	Abhishek Jangir
5	Abhishek Kumar kushwaha
6	Aditi Jain
7	Aditya Nehra
8	ADITYA SHARMA
9	Akshansh khandekar
10	Akshat Surana
11	akshita singhvi
12	Anirudh kabra
13	Anshu Verma
14	ANURAG NOGIYA
15	Arpita sharma
16	Arun Singh
17	Aryan Soni
18	ASHUTOSH TIWARI

19	Ashwani Malav
20	chirag kumar sharma
21	Cmaune Sharma
22	Deependra Singh Ranawat
23	Dheeraj Sharma
24	Divyam Agarwal
25	Gaurav jain
26	Gitesh khatri
27	Gulshan sharma
28	Hansika agarwal
29	Harsh kanojia
30	Hemant Kumar Atal
31	Jayesh Vashishtha
32	KANAK SINGHAL
33	khushi khandelwal
34	Khushi Malasiya
35	Komal jha
36	Kushal Gupta
37	Lalit kumawat
38	Manasvini Sharma
39	Mansi kanwar
40	Manthan jain
41	Mohit chahar
42	Mohit singhal
43	Mukul gupta
44	Mukul jangid
45	Mukul Palol
46	Muskan Tailor
47	Nikita Gupta
48	Nirjhara Sharma
49	Nishita Mathur
50	PIYUSH GUPTA
51	Prafull Bhargava
52	Prasoon Khandelwal
53	Prateek Kumawat
54	Prerna Mehta
55	Pulkit Bansal
56	Purva Agarwal
57	Rahul dubey
58	Rahul Suthar
59	Rakshanda kucheria
60	Rashi Sharma

61	ravi kant sahu
62	Ritik sharma
63	Ritik Verma
64	Ritu yadav
65	Ritu yadav
66	Rohan jain
67	Rohit Haridasan
68	Rohit kumar
69	Sabhyata Agarwal
70	Shorya pathak
71	Shubham jaiman
72	suhani wadhwa
73	Tanish Khandal
74	Tarun agrawal
75	Tejpal Choudhary
76	tushar gupta
77	Vinayak gupta
78	Virendra singh rathore
79	Vishal Rawat
80	Vishal Sharma
81	Yashvir Singh Nathawat
82	Yatharth jain
83	Yogendra Singh
84	Yogesh Dabodiya

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Cloud Computing

Course Code: noc22-cs20

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Cloud Computing

Week 2: Cloud Computing Architecture

Week 3: Service Management in Cloud Computing

Week 4: Data Management in Cloud Computing

Week 5: Resource Management in Cloud

Week 6: Cloud Security

Week 7: Open Source and Commercial Clouds, Cloud Simulator

Week 8: Research trend in Cloud Computing, Fog Computing

Week 9: VM Resource Allocation, Management and Monitoring

Week 10: Cloud-Fog-Edge enabled Analytics

Week 11: Serverless Computing and FaaS Model

Week 12: Case Studies and Recent Advancements

List of students enrolled

1	Aanchal yadav
2	Abhi Jain
3	Afrid Khan
4	Aman Saini
5	Ankit Sharma
6	Anshika Khandelwal
7	Apurv kumar
8	AYUH SINGHAL
9	Ayushi Agrawal
10	Bhavya Anand
11	chirag kumar sharma

12	Devashish Verma
13	Dhruv sharma
14	Garvit Tambi
15	Gulshan sharma
16	Ishika agarwal
17	JAYESH SONI
18	Kirti Soni
19	Kunal Colin Williams
20	Kunika Khandelwal
21	Kushal sharma
22	Lavanya jain
23	Megha Jangid
24	Nikunj sahu
25	Nishita Mathur
26	Purvi Harpalani
27	Rajdev Dhakar
28	Rajkumar gangwar
29	Rishi jain
30	Sakshi Agarwal
31	Sakshi Gurbani
32	Sakshi Sharma
33	Sanyam bhura
34	Shruti Dubey
35	Vanshika Gupta
36	vishal sen
37	Yash Saini
38	Yogendra Singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Database Systems

Course Code: noc22-cs57

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Introduction and part of E/R Model Module

Week 2:

ER Model Module

Week 3:

Relational Model Module

Week 4:

Relational Model Module

Week 5:

TRC Module and part of SQL Module

Week 6:

SQL Module

Week 7:

Indexes Module

Week 8:

Indexes Module + Query Processing Module

Week 9:

Normal Forms Module

Week 10:

Normal Forms Module

Week 11:

Transaction Processing Module

Week 12:

Transaction Processing Module

List of students enrolled

1	Aaditya Trivedi
2	Aakash Dadhich
3	Aastha Jain
4	AAYUSHI SHARMA
5	Abdul Rahman
6	Abhishek garg
7	Abhishek Pandey
8	Aditi Agarwal
9	Aditi Pareelk
10	Aditi Sharma
11	Aditya Agarwal
12	ADITYA SHARMA
13	Aditya Vijayvargiya
14	Akash Agarwal
15	akhilesh chaturvedi
16	Akshat Gupta
17	Akshat Jaiman
18	AKSHAT JAIN
19	Akshat Mathur
20	AKSHAT PAREEK
21	Akshat Sharma
22	Akshat Sharma
23	Akshat Surana
24	Akul Saxena
25	Aman Bhargava
26	Amit Kumar
27	Ananya Mathur
28	Angelina Freda Smith
29	Anish Choudhary
30	Anjesh jain
31	Ankit Sharma
32	ANKUR YADAV
33	Anshika Goyal
34	Anshul Gora
35	Anshul Sharma
36	Anshuman Singh Naruka
37	Anurag Agrawal
38	Arihant pokharna
39	Arnav Godara
40	Arpita sharma
41	Aryan Mishra
42	Ashtami Tak
43	Ashu Agarwal
44	ASHUTOSH TIWARI

45	ASHWIN GUPTA
46	Ayush Agarwal
47	Ayush jalan
48	Ayush Kumar
49	Ayush Maheshwari
50	Ayushi Agarwal
51	Ayushi Agrawal
52	Bhavesh Singhal
53	CHINMAY PAREEK
54	chirag kumar sharma
55	Deepanshu Jain
56	Dipesh Kumar Karesia
57	DIVYANSH GUPTA
58	Giritra Saraswat
59	Gulshan sharma
60	Gungun wadhwa
61	Harsh jain
62	Harshit Agarwal
63	Harshit sen
64	Harshit totuka
65	Harshita Gupta
66	Himanshu chaudhary
67	Himanshu Patni
68	Isha Tripathi
69	Ishaan Khandelwal
70	Jayesh sharma
71	Jyoti agrawal
72	KIRTI JAISWAL
73	Krishna Murari
74	Krishna Murari
75	Kunika Khandelwal
76	Kushagra Mundra
77	Lakshita Natani
78	MANOJ GARG
79	Meghanshi mathur
80	Mohit Parashar
81	MOHIT SINGH
82	Mudit Choudhary
83	Naveen Yadav
84	Navneet tanwar
85	Nicky Lakhisarani
86	Nidhi Yadav
87	NIHARIKA RATHORE
88	Nikita Gupta
89	Nikunj sahu
90	NIKUNJ SINGH GEHLOT

91	Nilesh kumar gupta
92	Nishita Mathur
93	Nishtha Sainani
94	Piyush Gupta
95	Prafull Bhargava
96	Prakhar Kataria
97	Prateek Somani
98	Pratyush Chhipa
99	Preeti Gurjar
100	Prerit Goyal
101	PRIYAL KHANDELWAL
102	Priyansh Singh
103	Purvi Harpalani
104	Richa
105	Ritesh Lavti
106	Ritin Agarwal
107	Ronak Gupta
108	Sanidhya Bhardwaj
109	Sanskriti Kaushal
110	Sanyam jain
111	Sarthak Maheshwari
112	Saurabh Singh Parihar
113	shahsank purohit
114	Shailendra Singh
115	Shubh Sharma
116	Shyam Agarwal
117	Somu Dey
118	Sourabh Singh
119	Sourabh Singh
120	sudeep shukla
121	Tamanna Sharma
122	Tanisha Mudgal
123	Tanishq Goyal
124	Tanya Verma
125	TARUN KANT SHARMA
126	Vipul kaushik
127	Vishal katariya
128	Vishnu banjara
129	vivek kumar gupta
130	Yuvraj Singh Naruka

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Embedded Systems Design

Course Code: noc22-cs46

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

Introduction to Embedded System, ASICs and ASIPs

Week 2:

Designing Single Purpose Processors and Optimization

Week 3:

Introduction to FPGAs and Synthesis

Week 4:

Verilog Hardware Description Language (Verilog HDL)

Week 5:

Microcontrollers and Power Aware Embedded System Design

Week 6:

Real Time Operating System

Week 7:

Real Time Scheduling Algorithms

Week 8:

Modelling and Specification

Week 9:

Design Synthesis

Week 10:

Digital Camera Design and Hardware Software Partitioning

Week 11:

Design Optimization

Week 12:

Simulation and Verification

List of students enrolled

1	Kusum Sharma
2	Neha Maheshwari
3	Prateek tholiya
4	Sharad Sourabh jha
5	Siddharth Harshit

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: System Design Through VERILOG

Course Code: noc21-ee97

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week-1:Introduction to Verilog
Week-2:Gate level modelling
Week-3:Behavioral modelling I
Week-4:Behavioral modelling II
Week-5:Data flow modelling
Week-6:Switch level modelling
Week-7:Synthesis of combinational logic using verilog
Week-8:Synthesis of sequential logic using verilog

List of students enrolled

S. No	Name of Student
1	Bhumika chhipa
2	Monalisa
3	Suraj sharma
4	Udyan Srivastava
5	Vipul Gupta
6	Vinayak gupta

Course: Training and Development

Course Code: noc22-hs63

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Employee Training and Development

Week 2: Strategic Training

Week 3: Training needs assessment

Week 4: Learning and Transfer of Training

Week 5: Program Design

Week 6: Training Evaluation

Week 7: Traditional Training Methods

Week 8: Technology Based Training Methods

Week 9: Employee Development and Career Management

Week 10: Social Responsibility: Legal issues, Managing diversity, and Career challenges

Week 11: Future of Training and Development

Week 12: Managing Disruption in organizations through Training

List of students enrolled

S.no	Name
1	Rakshita Agarwal
2	Devanshu soni
3	Garvit Jaiswal
4	Vaibhav Jain
5	jitendra kumar prajapt
6	Rashi Kinra
7	LALIT MEENA
8	Pranav Parashar
9	Ratan Soni
10	Sakshi Agarwal
11	Sneha khandelwal
12	Vansh Choudhary
13	Vinit Kumar Shah
14	Yashwardhan Gaur

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Twentieth Century Fiction

Course Code: noc22-hs53

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction; The Postmaster

Week 2: Heart of Darkness

Week 3: Prufrock and Other Observations

Week 4: The Waste Land

Week 5: Dubliners

Week 6: Mrs Dalloway

Week 7: Ulysses

Week 8: The Fly

Week 9: Solid Objects

Week 10: Toba Tek Singh

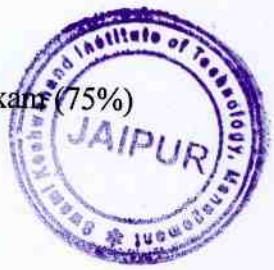
Week 11: The Chess Players

Week 12: Conclusion

List of students enrolled

S.no	Name
1	Vishva Yash Pandey
2	Robins Kumar

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)



Course: Principles of Management

Course Code: noc22-mg42

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Management

Week 2: Evolution of Management Thought

Week 3: Planning, Understanding environment of business. Analysis - Porter's Model of competitive advantage, analysis of organisational resources and capabilities

Week 4: Forecasting and Premising.

Week 5: Decision-making

Week 6: Management by Objectives and Styles of Management

Week 7: Organizing and Directing Factors Determining Span of Management, Centralization and Decentralization, Span of control, Understanding authority and responsibility, Principles of Delegation, Authority, Developing a culture of Innovation and performance

Week 8: Staffing and Coordination

Week 9: Career Development Strategy

Week 10: Leadership styles of Managers

Week 11: Organizational Communication

Week 12: Change management, Concept of learning organizations Challenges of Contemporary Business

List of students enrolled

S.no	Name
1	Ranjeet
2	Aryan Sharma
3	Bhavit jain
4	Mansi kanwar
5	Dolly Khatri
6	CHINMAY PAREEK
7	Lavanya jain
8	Kritika Surana
9	Kunal ojha

10	MAMTA SOLANKI
11	Mohit Agarwal
12	Priyal Jangid
13	Raunak Advani
14	RIYA PARAKH
15	Sonali kumawat

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Microwave Engineering

Course Code: noc21-ee88

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Microwave Engineering and Transmission line theory

Week 2: Rectangular and Circular waveguides

Week 3: Microwave Networks and Scattering Matrix

Week 4: Impedance Matching

Week 5: Microwave Resonators

Week 6: Power divider, directional couplers and filters

Week 7: Microwave Semiconductor Devices

Week 8: Microwave Amplifiers and Oscillators

Week 9: Microwave Tubes

Week 10: Ferrite devices

Week 11: Introduction to Microwave Integrated Circuits (MIC)

Week 12: Microwave Communication Systems and other application areas.

List of students enrolled

S. No	Name of Student
1	Adish Jain
2	Rakshita Agarwal
3	GUNJAN GUPTA
4	Divya Ramani
5	Faisal Khan
6	Gunjan Gupta
7	Himani devi
8	Ishita Vaid
9	Harsh kanojia
10	Rashi Kinra
11	Lokesh Patidar
12	Mahima Sharma
13	Ankur sharma
14	Manish saini
15	pranjal mathur
16	Neha Maheshwari

17	Cmaune Sharma
18	Shivansh Dosi
19	Hidanshu sikri
20	yash gaur
21	yash

Course: Microwave Theory and Techniques

Course Code: noc21-ee72

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

1. Introduction to Microwaves: History and Applications, Effect of Microwaves on human body
2. Microwave Transmission Modes, Waveguides, Transmission Lines
3. Smith Chart, Impedance Matching, ABCD and S-Parameters
4. Power dividers, Combiners, Couplers
5. Microwave Filters
6. Microwave Diodes and Attenuators, RF Switches, Phase Shifters
7. Microwave Transistors, Amplifiers and LNA
8. Power Amplifiers and Microwave Tubes
9. Microwave Oscillators and Mixers
10. Antennas – Fundamentals, Dipole, Monopole, Arrays, Microstrip, Horn, Helical, Yagi-Uda, Log-Periodic and Reflector Antennas
11. RF MEMS and Microwave Imaging, Microwave Systems, Microwave Measurements and Lab Demonstration
12. Software Session

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Paritosh Ajmera
3	Divyansha Jain
4	Faisal Khan
5	Shubham jain
6	Jay shrivastava
7	Sanskruti Khandelwal
8	Rashi Kinra
9	Kusum Sharma
10	Mahima Dariyani
11	Manish saini
12	naman gupta
13	Neha Maheshwari
14	nilesh dadheech
15	Priyanshu Lohar
16	Raghav Agarwal
17	Rahul Kumar Balai
18	Roshan Suthar

19	Shivansh Dosi
20	Harshit Verma
21	Vinayak gupta
22	vishal sen
23	Yaman Kumar Malik
24	yash

Course: Microprocessors And Microcontrollers

Course Code: noc22-ee12

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction: General processor architecture, Microprocessors, Microcontrollers

Week 2: 8085 – Part I

Week 3: 8085 – Part II

Week 4: 8085 – Part III

Week 5: 8085 – Part IV

Week 6: 8051 – Part I

Week 7: 8051 – Part II

Week 8: PIC, AVR

Week 9: ARM – Part I

Week 10:ARM – Part II

Week 11: Interfacing examples – Part I

Week 12: Interfacing examples – Part II

List of students enrolled

S. No	Name of Student
1	Aabhas Nama
2	AJAY KUMAR SHARMA
3	Amartia Anand
4	Archita Gocher
5	Ashutosh jangir
6	Avni Jain
7	Ayush Pandey
8	ayush singh rathore
9	Abhay bhardwaj
10	Prachi Dhiliwal
11	Ankush Gupta
12	sakshi singh

13	Moksh Avasthi
14	Dhruv jain
15	Param Agarwal
16	RISHABH DHAYAL
17	Utkarsh gautam
18	Utkarsh khandelwal
19	Ritu yadav
20	Kamal nayan
21	Arun Singh
22	Navneet Raj
23	Parshant Sharma
24	Om Jaiswal
25	Mohit Yadav
26	Bhoomika Bulchandani
27	Chirayu Jain
28	Chitaansh
29	Yatin parmar
30	Devendra sharma
31	Chitvan Tak
32	Dhruvtash gupta
33	Dikshant Sharma
34	Gaurav Kumar Gupta
35	Khushi Garg
36	Gaurav kumar saini
37	Vipasha goyal
38	Guru Sharan Kumawat
39	Preeti Gurjar
40	Hammir
41	Siddharth Harshit
42	Hemant Kumar Atal
43	Shubham jain
44	Megha Jangid
45	Amisha jha
46	Sharad Sourabh jha
47	Kashish karamchandani
48	Kashish Sharma
49	Dhiraj Kumar
50	Sanskruti Khandelwal
51	Prashansha Khandelwal
52	Kunika Khandelwal
53	Amisha jha
54	Lakshit jain

55	Lakshya verma
56	Lavina Lahoty
57	Malika khandelwal
58	manisha balani
59	Muskan Meena
60	Naisha gupta
61	NAVDEEP CHOUDHARY
62	Om Verma
63	Harshit parwani
64	Prafull Bhargava
65	Prajjawal
66	Priya Gupta
67	Ratan Soni
68	Vidhi Sukhnani
69	Mayank Sharma
70	Shriya sharma
71	Shubham Naryani
72	Somil jain
73	MOHAK SAINI
74	Somik choudhary
75	Sooraj Pachouri
76	SOURAV MAJEE
77	Vansh Pradeep Singh Rathore
78	swati aggarwal
79	Divyansh Gupta
80	Pradeep Bhat
81	chakshit gunidia
82	ABHISHEK SINGH
83	Naman Agarwal
84	UMANG SHARMA
85	Divyansh Sharma
86	Ritu yadav

Course: Sensors and Actuators

Course Code: noc22-ee50

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Basics of Energy Transformation: Transducers, Sensors and Actuators

Week 2: Understanding of thin film physics: Application in MOSFET and its variants

Week 3: Thin Film Deposition Techniques: Chemical Vapor Deposition (APCVD, LPCVD, UHVCVD, PECVD, ALCVD, HPCVD, MOCVD)

Week 4: Thin Film Deposition Techniques: Physical Vapor Deposition (Thermal Deposition, E-beam Evaporation, Sputtering, Pulsed Laser Deposition)

Week 5: Basic understanding of Photolithography for pattering layer. Detailed overview of Etching methods.

Week 6: Understanding various gas sensors: Optical gas sensor, Metal oxide semiconductor gas sensor, Field effect transistor gas sensor, Piezoelectric gas sensor, Polymer gas sensor, Nano-structured based gas sensors

Week 7: Design and fabrication process of Microsensors: Force Sensors, Pressure Sensors, Strain gauges and practical applications

Week 8: Explain working principles of Actuators. Piezoelectric and Piezoresistive actuators, micropumps and micro actuators with practical applications

Week 9: Understanding basics of microfluidics to assist Photomask design using Clewin Software, pattern transfer techniques, PDMS moulding and degassing, device bonding techniques.

Week 10: Simulation, Optimization and characterization of various sensors using COMSOL Multiphysics

Week 11: Understanding of Sensor Interfacing with Microprocessor to build electronic system

Week 12: Static and Dynamic Characteristic Parameters for Sensors and Actuators, Calibration of Sensor based electronics systems

List of students enrolled

S. No	Name of Student
1	Ansh Mehta
2	Ayush jangir
3	Lakshya bhatra
4	MANOJ GARG
5	MOHIT KUMAWAT

6	JAYANT YADAV
7	Raghav Agarwal
8	Ritik khandelwal
9	Yogendra Singh
10	Vibhu Mathur

Course: Psychology of Stress, Health and Well-being

Course Code: noc22-hs46

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Stress, health and well-being: Overview; Nature and physiology of stress

Week 2: Stress, trauma and health: Mind-body connections; Stress and non-infectious diseases; Stress and infectious diseases; Stress and psychological disorder

Week 3: Positive aspects of stress and trauma: Stress, trauma and posttraumatic growth; Factors influencing stress tolerance

Week 4: Coping processes and strategies 1 : Types of coping strategies; Coping strategies of limited value; Unconscious mind and defensive coping; Characteristics of constructive coping; physical ways of coping

Week 5: Coping processes and strategies 2: Mind-body strategies; Mental ways of coping; Coping with social support and meaning in life; Mindfulness and acceptance

Week 6: Beyond stress and recovery: Positive mental health and well-being

Week 7: Psychology of happiness: What is happiness? What makes us happy? Socio-economic factors and happiness; Positive emotions

Week 8: Can we become happier? Genetic set-point and hedonic adaptation; Sustainable happiness model and intentional activities

Week 9: Happiness Activities 1: Expressing gratitude and positive thinking; Love and kindness; Avoiding overthinking and social comparison

Week 10: Happiness Activities 2: Identifying signature strengths; Achieving happiness with "Flow".

Week 11: Is happiness sufficient? The concept of eudaimonic well-being; Self-determination and motivation

Week 12: Meaning and purpose in life: The concept of meaning in life and logo-therapy; Life goals

List of students enrolled

S.no	Name
1	Rakshita Agarwal
2	Aishwarya Kumari Sharma
3	ANJU KATARIYA
4	Anshita Yadav

5	Bhanupriya Panwar
6	Chhavi Sharma
7	Garvit Jaiswal
8	Gaurav Vijayvergiya
9	Isha Tripathi
10	hemant jangid
11	jitendra kumar prajapt
12	Krishna Rathi
13	Rakshit khandelwal
14	Rashi Kinra
15	MANUJ GANERIWALA
16	Nicky Lakhisarani
17	Nikita Gupta
18	Nishita Mathur
19	Prafull Bhargava
20	Sakshi Agarwal
21	AAYUSHI SHARMA
22	Nitu Singh
23	SRISHTY AGARWAL
24	Poorvaja Verma
25	Yashwardhan Gaur

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Microwave Integrated Circuits

Course Code: noc22-ee14

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1

Lecture 1: Introduction
Lecture 2: Reflection Coefficient, VSWR, Smith Chart
Lecture 3: Reflection Coefficient, VSWR
Lecture 4: Smith Chart
Lecture 5: Applications of the Smith Chart
Lecture 6: Microwave components

Week 2

Lecture 7: Broadband Impedance matching
Lecture 8: Multi-section transformer
Lecture 9: Maximally flat (binomial) transformer, Chebyshev transformer
Lecture 10: Non-uniform transmission line(Tapers)

Week 3

Lecture 11: Scattering Parameters
Lecture 12: Properties of Scattering Parameters
Lecture 13: Properties of Scattering Parameters (contd.)
Lecture 14: Signal flow graph, ABCD parameters

Week 4

Lecture 15: 1 and 2 port passive components
Lecture 16: 3-port microwave components
Lecture 17: Couplers
Lecture 18: Coupled line couplers

Week 5

Lecture 19:Resonators and narrow band filters
Lecture 20:Narrow-band filters
Lecture 21:Filter design: Image parameter method, Insertion loss method
Lecture 22:Filter synthesis, Kuroda's Identity

Week 6

Lecture 23: Impedance Matching Circuits for Amplifiers
Lecture 24: Micro strip matching(contd.), Mason's rule, Power gain equations
Lecture 25: Amplifier Gain Stability
Lecture 26: Amplifier Gain Stability(contd.)

Week 7

Lecture 27: Gain circles

Lecture 28: Gain circles(contd.)
Lecture 29: Noise
Lecture 30: Noise figure circles(contd.)

Week 8
Lecture 31: DC Biasing
Lecture 32: Amplifier Classes, Frequency compensation
Lecture 33: Linearity
Lecture 34: Oscillator Design

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Rashi Kinra
3	Ritik khandelwal

Course: Integrated Marketing Management

Course Code: noc22-mg29

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Marketing concept, Coordinated marketing, Meta marketing, Holistic marketing dimensions

Week 2: Case Analysis, Case Discussion; Marketing Environment

Week 3: Marketing decisions, Customer delivered value, Buyer Behaviour, Input - output map

Week 4: Case Discussion, Marketing Planning

Week 5: Marketing mix, Product policy, New products, PLC

Week 6: Price, Distribution, Advertising and Promotion, Case Discussion

Week 7: Marketing organization, Product Management

Week 8: Sales Management, Marketing Control, Case Discussion

List of students enrolled

S.no	Name
1	akshita singhvi
2	Aashita Sharma
3	Abhishek Nagar
4	Gaurav Chakraborty
5	Shruti jain
6	Rahul Kumawat
7	Atika Khandelwal
8	Prajwal Parihar
9	Saloni Agarwal
10	Yogendra Singh
11	Tushar Sharma

Course: Leadership

Course Code: noc22-mg56

Session: 2021-22

Duration: 4 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01:

Introduction to Leadership: Functions; Leadership Roles: Leaders Vs Managers: Theories

Week 02:

Leadership Styles: E-ective Vs Successful Managers; Leadership Styles: Adaptation - Studies / Case: "From Sindhi to Siddhi" (Part - I)Leadership Behaviour: Emergence: Leadership and Trust; Case: "From Sindhi to Siddhi (Part-II)"/ Transformation Leadership.

Week 03:

Leadership Skills: Leadership and Management; Case: The DVC story - A First Person Account Leadership in Action - (Part - I) Competencies and Skills of Leaders: Issues in Organizational Leadership; Case: The DVC Story - A First Person Account, Leadership in Action Part – II.

Week 04:

Self Regulating - The Key to Institution Building, Framework of institution Building; Case: "Rai Bahadur Mohan Singh Oberoi" (Part - I), Issues in Institution Building; Case: Rai Bahadur Mohan Singh Oberoi (Part-II)

List of students enrolled

S.no	Name
1	sakshi singh
2	Pratyush Solanki
3	Mohammed Danish
4	Kajal Naggar
5	Nishita Mathur

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Wireless and Cellular Communications

Course Code: noc21-ee66

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 : Overview of Cellular Systems and evolution 2g/3G/4G/5G

Week 02 : Cellular Concepts – Frequency reuse, Cochannel and Adjacent channel Interference, C/I, Handoff, Blocking, Erlang Capacity

Week 03 : Wireless propagation Part 1 - Link budget, Free-space path loss, Noise figure of receiver

Week 04 : Wireless propagation Part II - Multipath fading, Shadowing, Fading margin, Shadowing margin,

Week 05 : Antenna Diversity

Week 06 : Wireless Channel Capacity

Week 07 : MIMO

Week 08 : CDMA Part I

Week 09 : CDMA Part II

Week 10 : OFDM and LTE Part I

Week 11 : OFDM and LTE Part II

Week 12 : Large Scale Propagation effects and Channel Models

List of students enrolled

S. No	Name of Student
1	Shekhar Sharma
2	Rakshit khandelwal
3	Akshay Sharma
4	Sangeeta Sharma
5	Vibhu Mathur

Course: Global Marketing Management

Course Code: noc22-mg28

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Globalization,Global Economic Environment
Week 2 : Financial Environment,Cultural Issues Buying Behavior,Political/Legal Environment
Week 3 : Global Marketing Research, Global Segmentation and Positioning
Week 4 : Global Marketing Strategies, Global Market Entry Modes, Global Product Development
Week 5 : Marketing Products and Services, Global Pricing
Week 6 : Communicating with the World Consumer, Sales Management, Global Logistics and Distribution
Week 7 : Export/Import Management, Planning, Organization, and Control of Global Marketing Operations
Week 8 : Marketing in Emerging Markets, Global Marketing and the Internet

List of students enrolled

S. No	Name of Student
1	Diya Sharma
2	Shruti jain
3	Jitesh Meghwanshi
4	Kajal Naggar
5	Kuldeep
6	LALIT MEENA
7	Megha Sharma
8	Mohit Sharma
9	Atika Khandelwal
10	Saloni Sharma
11	Kartik thakral
12	Vipul kaushik

Course: Integrated Marketing Communication

Course Code: noc22-mg38

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: What is IMC?
Week 2: Objectives and Budgeting
Week 3: IMC and Brand Building
Week 4: Advertising Agencies
Week 5: IMC Planning and Programme
Week 6: Marketing Mix and Advertising
Week 7: Advertising.2
Week 8: Sales promotion and Personal Selling
Week 9: Direct Marketing, Public Relations and other promotional strategies
Week 10: The Internet: Digital Marketing and its content
Week 11: Print Media
Week 12: Measurement and evaluation of Promotional Strategies

List of students enrolled

S.no	Name
1	akshita singhvi
2	Shruti jain
3	Krishna Rathi
4	Robins Kumar
5	AAYUSHI SHARMA

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Operations Research

Course Code: noc22-mg30

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Linear Programming (LP): Terminology and formulations

Week 2 : Graphical and Algebraic solutions to LP

Week 3 : Simplex Algorithm: Algebraic form, Tabular form, Types of LPs, Matrix method

Week 4 : Duality: Writing the dual of an LP, Primal-Dual relationships

Week 5 : Dual: Basic understanding, significance, interpretation, Dual Simplex algorithm

Week 6 : Transportation Problem

Week 7 : Assignment Problem

Week 8 : Solving LPs using Solver, Sensitivity analysis

List of students enrolled

S.no	Name
1	Jyoti agrawal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Leadership and Team Effectiveness

Course Code: noc22-mg39

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Leadership & Team Management; Leadership Myths; Interactional Framework for analyzing

leadership

Week 2: LMX Theory and Normative Decision Model; Situational Leadership Model; Contingency Model and Path

Goal Theory

Week 3: Leadership Attributes; Personality Traits and Leadership; Personality Types and Leadership

Week 4: Power and Leadership; The art of influence in leadership; Leadership and "Doing the Right Things

Week 5: Leadership Behaviour; Leadership Pipeline; Assessing Leadership Behaviors: Multi-rater Feedback

Instruments; The Dark Side of; Leadership- Destructive Leadership; Managerial Incompetence and Derailment Conflict

Management

Week 6: Negotiation and Leadership; Leadership under a crisis situation; The Situation and the Environment; Culture

and Leadership

Week 7: Motivation and Leadership; Introduction to Groups and Teams; Characteristics of Leader

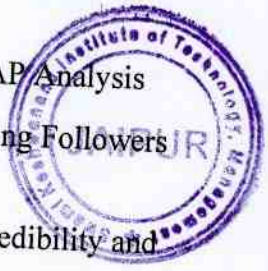
Week 8: Delegation and Empowerment; Leading teams: Enhancing teamwork within a group

Week 9: Understanding Team processes and Team Coaching; Team decision making and conflict management

Week 10: Experiential Learning; Action Learning; Development Planning: GAP Analysis

Week 11: Building Effective Relationship with subordinates and peers; Fostering Followers satisfaction

Week 12: Building High-Performance Teams: The Rocket Model; Building Credibility and Trust



List of students enrolled

S.no	Name
1	Aryan Sharma
2	Mansi kanwar
3	CHINMAY PAREEK
4	Gaurav Jangid
5	Lavanya jain
6	Harsh Sharma
7	khushi khandelwal
8	Kritika Surana
9	Vaibhav Sharma
10	Nishita Mathur
11	Sonali kumawat
12	Poorvaja Verma
13	Drishti Gupta

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Fundamentals of semiconductor devices

Course Code: noc22-ee13

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Importance of semiconductor devices and their diverse applications. Introduction to semiconductors, concept of energy bands and how bands form. Effective mass of electrons, E-k diagram. Concept of holes. Concept of Fermi level, Fermi-Dirac distribution. Doping (extrinsic & intrinsic semiconductor), density of states.
Week 2 : Equilibrium electron-hole concentration, temperature-dependence. Carrier scattering and mobility, velocity saturation, Drift-diffusion transport
Week 3 : Excess carrier decay & recombination, charge injection, continuity equation, quasi-Fermi level
Week 4 : p-n junction: static behaviour (depletion width, field profile), p-n junction under forward & reverse bias, current equations, generation-recombination current and reference to typical devices.
Week 5 : Zener and avalanche breakdown, Capacitance-voltage profiling, metal/semiconductor junction – Ohmic and Schottky contacts, reference to device applications.
Week 6 : MOS capacitor, charge/field/energy bands, accumulation, inversion, C-V (high and low frequencies), deep depletion, Real MOS cap: Flat-band & threshold voltage, Si/SiO2 system.
Week 7 : MOSFET: structure and operating principle, derivation of I-V, gradual channel approximation, substrate bias effects, sub-threshold current and gate oxide breakdown. Control of threshold voltage, short channel effects. Moore's Law and CMOS scaling
Week 8 : Introduction to compound semiconductors & alloys, commonly used compound semiconductors, heterostructure band diagrams and basics of MODFET & HEMT, introduction to quantum well, applications of heterostructure device technologies
Week 9 : BJT: working principle, DC parameters and current components, base transport factor, Early Effect, charge control equation & current gain, need for HBT. Applications of BJTs/HBTs in real-life.
Week 10 : (Basics of) - transistors for high-speed logic, transistors for high frequency (RF), transistors for high power switching, transistors for memories, transistors for low noise, transistors for the future.
Week 11 : Solar cells: principle, efficiency, Fill factor, Shockley-Quiesser limit, silicon solar cells, multi-junction solar cell, Photodetectors: operation, figures of merit (responsivity, QE, bandwidth, noise, Detectivity), examples from IR to UV detectors.
Week 12 : LEDs: working principle, radiative/non-radiative recombination, various types of efficiencies (EQE, WPE, IQE), light extraction and escape cone. Blue LED and the Nobel Prize, visible LEDs and chromaticity.

List of students enrolled

S. No	Name of Student
1	NAVYA SHARMA
2	Rakshita Agarwal
3	Hemant Ameta
4	Arun Singh
5	Guru Sharan Kumawat
6	Kartik somani
7	Rashi Kinra

8	Kusum Sharma
9	manisha balani
10	Mulkit sain
11	Sakshi Gupta
12	Shubham Naryani
13	ABHISHEK SINGH
14	Naman Agarwal
15	Poorvaja Verma

Course: Foundation Course in Managerial Economics

Course Code: noc22-mg43

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction, Demand and Supply

Week 2: Elasticity of demand and supply

Week 3: Government intervention and efficiency

Week 4: Producer theory and cost curves

Week 5: Market structures and perfect competition

Week 6: Monopoly

Week 7: Monopolistic competition

Week 8: Oligopoly

List of students enrolled

S.no	Name
1	Aakash Dadhich
2	Abhishek Nagar
3	AKSHAT JAIN
4	Akshat Gupta
5	Ankit Sharma
6	Ayushi Agrawal
7	ASHUTOSH TIWARI
8	Ekta modi
9	Harshit Agarwal
10	Harsh kumar sahu
11	Ishaan Khandelwal
12	Rahul Kumawat
13	MAMTA SOLANKI
14	Nishtha Sainani
15	Atika Khandelwal
16	Pratiksha Sharma
17	PIYUSH AGRAWAL
18	Priyadarshini Singh Shekhawat
19	Priyansh Lavadia

20	Saloni Agarwal
21	Akshita Sharma
22	SOURAV MAJEE
23	Vaishali Bansal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Design for internet of things

Course Code: noc21-ee85

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to IoT – Definition, Applications, Challenges – Unique ID, Power, Security, Location

Week 2: Addressing the Power challenge – RFID, Energy harvesting, Battery based systems, Power management systems

Week 3: System design for low power – LDO, DC-DC converters, low power software

Week 4: Sensors and actuators – Temperature sensor, Air quality, Solenoid valves

Week 5: Power management algorithms

Week 6: IoT protocols – MQTT, COAP, and Websockets with associated applications

Week 7: Low power wireless technologies – BLE, IEEE 802.15.4e, Wi-Fi

Week 8: Low Power Wire area technologies – NBIoT, CAT – LTE-M1, , LORA

List of students enrolled

S. No	Name of Student
1	Aadarsh Singh
2	Akshita Sharma
3	Ananya Tiwari
4	ANKIT YADAV
5	Ashima Mehta
6	Ashwani Malav
7	Avadhesh Chasta
8	Shubham jain
9	Jatin Dhyawana
10	Kashish Sharma
11	Mahima Sharma
12	Naisha gupta
13	Naman Joshi
14	Rahul Kumar Balai
15	Rishabh Shrivastava
16	Ritik khandelwal
17	Roshan Suthar
18	Ruchi kumari

19	Aman Saini
20	Sangeeta Sharma
21	Shubhi samaria
22	chatrapal singh shaktawat
23	Suraj sharma
24	Antima
25	Poorvaja Verma
26	Vinayak gupta
27	Yash Gupta

Course: Education for Sustainable Development

Course Code: noc22-hs61

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : 1: Introduction to ESD;a) Introduction to UNESCO 17 Sustainable Development Goals (SDG)

Week 2 : b) SD Goal-4- Quality Education for all; c) Education for Sustainable Development (ESD)

Week 3 : 2: ESD & SDGs ESD for achieving SDG- 4.7; a)Sustainable lifestyle; b) Human rights

Week 4 : c) Gender equality; d) Promotion of peace & non-violence; e) Global citizenship

Week 5 : f) Leveraging cultural diversity for SDGs; 3. ESD & Sustainability ESD for achieving SDG-4.4; a) Technical & vocational skills for employability

Week 6 : b) 21st Century competencies for global & decent jobs ; c) Sustainable entrepreneurship

Week 7 : d) Promoting good mental health & wellbeing; e) Inclusive education & social transformation

Week 8 : 4: ESD & Social Transformation ESD for promotion of; a) Responsible consumption & production ; b) Peace & justice in the society

Week 9 : c) Sustainable cities & communities; d) Sustainable health practices & social wellbeing

Week 10 : 5: ESD & Sustainable education Sustainable education & global partnership a) Educational policy & curriculum; b) Pedagogical practices & ICT

Week 11 : c) Educational research & social benefits; d) Educational ecosystem & management

Week 12 : Guest Lecture by International Faculty

List of students enrolled

S.no	Name
1	Devanshu soni
2	RAKESH CHOUDHARY
3	Harsh Sharma
4	khushi khandelwal

5	Kirti Soni
6	LALIT MEENA
7	mohit jain
8	Mohit kumar pamnani
9	PRETESH KAKHANI
10	Nagendra Singh Tanwar
11	Shruti Chauhan
12	Suraj Meena

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Analog communication

Course Code: noc21-ee74

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

1. Introduction to Fourier Series and Fourier Transform
2. Energy and Energy and Power Spectral Densities
3. Modulation Theory
4. Amplitude Modulation – AM and DSB-SC
5. SSB-SC and VSB
6. Angle Modulation – FM, PM
7. Sampling Theorem
8. Pulse Modulation and PCM
9. Introduction to Random Process
10. Spectral Analysis of Random Process
11. Characteristics of Band-pass noise
12. Performance Analysis of AM, DSB-SC with Noise

List of students enrolled

S. No	Name of Student
1	Bhanu Pratap Singh
2	Mohit Agarwal
3	VISHNU GUPTA
4	Rakshita Agarwal
5	Ananya Tiwari
6	anju choudhary
7	Pulkit Gupta
8	Hemant Gurjar
9	Rashi Kinra
10	Kunal verma
11	Kusum Sharma
12	manisha balani
13	Mishu Jain
14	Mulkit sain
15	Neha Maheshwari
16	Parul jain
17	Priyanka Jain
18	Prateek tholiya

19	Jagrati Sharma
20	Shivam Garg
21	Shivansh Dosi
22	Vaibhav Bairathi

Course: Basic Calculus – 1

Course Code: noc22-mg29

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Employee Training and Development

Week 2: Strategic Training

Week 3: Training needs assessment

Week 4: Learning and Transfer of Training

Week 5: Program Design

Week 6: Training Evaluation

Week 7: Traditional Training Methods

Week 8: Technology Based Training Methods

Week 9: Employee Development and Career Management

Week 10: Social Responsibility: Legal issues, Managing diversity, and Career challenges

Week 11: Future of Training and Development

Week 12: Managing Disruption in organizations through Training

List of students enrolled

S.no	Name
1	Akash
2	Dharmveer Singh shekhawat
3	Shivansh Agarwal
4	KANISHK BHARDWAJ
5	KULDEEP SINGH MEENA
6	anupam jain
7	MANALI SHARMA
8	Nikhil sharma
9	Radhika soni
10	Rajat choudhary
11	Somik choudhary
12	Vidhesh Khanna
13	Vikas singh

14	Vishal kunwar
15	Deepak

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%

Course: Consumer Behaviour

Course Code: noc22-mg47

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Consumer Behaviour, The Changing Patterns of Consumer Behaviour, Use of Market, Segmentation in Consumer Behaviour, Dimensions of Consumerism, Process of Motivation

Week 2: Theories of Motivation-1, Theories of Motivation-2, Consumer Involvement, Case study on Motivation and Involvement, Consumer perception and imagery

Week 3: Case Study on Consumer Perception formation, Theories of Personality, Self-Concept, Learning theories, Case Study on Consumer Learning Process

Week 4: Attitude Formation-1, Attitude Formation-2, Changing Attitude, Attitude Formation, Case Study on Consumer, Consumers' Value

Week 5: AIO classification of Lifestyle, VALSTM Typology, Application of Lifestyle in Marketing, Culture and subculture, Group as a determinant of buyer behaviour

Week 6: Celebrities as Reference group, Concept of family and family life-cycle, Family Buying Decisions, Case Study on Family Buying Decisions, Diffusion of Innovation

Week 7: Opinion Leadership Types of Consumer Buying Behaviour, Black-Box Model, Modelling Buyer Behaviour-1, Modelling Buyer Behaviour-2

Week 8: Modelling Buyer Behaviour-3, Modelling Industrial buyer Behaviour-1,Modelling Industrial buyer Behaviour-2, Dimensions of Consumer Research, Course Wrap up

List of students enrolled

S.no	Name
1	Anjali singh dhaked
2	Unique paliwal
3	Kunal ojha
4	LALIT MEENA
5	Nidhi Parewa
6	Nishita Mathur
7	Yogendra Singh
8	sudeep shukla

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Business analytics and data mining Modeling using R

Course Code: noc22-mg09

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: General Overview of Data Mining and its Components Introduction and Data Mining Process Introduction to R Basic Statistical Techniques

Week 2: Data Preparation and Exploration Visualization Techniques

Week 3: Data Preparation and Exploration Visualization Techniques Dimension Reduction Techniques Principal Component Analysis

Week 4: Performance Metrics and Assessment Performance Metrics for Prediction and Classification

Week 5: Supervised Learning Methods Multiple Linear Regression Week 6: Supervised Learning Methods Multiple Linear Regression

Week 7: Supervised Learning Methods NaÃ¯ve Bayes

Week 8: Supervised Learning Methods Classification & Regression Trees

Week 9: Supervised Learning Methods Classification & Regression Trees

Week 10: Supervised Learning Methods Logistic Regression

Week 11: Supervised Learning Methods Logistic Regression Artificial Neural Networks

Week 12: Supervised Learning Methods and Wrap Up Artificial Neural Networks Discriminant Analysis Conclusion

List of students enrolled

S. No	Name of Student
1	Mulkit sain
2	Priyanshu Lohar
3	Tanishk Jharwal
4	Vinit Kumar Shah

Course: E-Business

Course Code: noc22-mg45

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to E-Business

Week 2: Making Functional Areas E-Business Enabled : Value chain and supply chain, inter and intra organizational business processes, ERP

Week 3: Making Functional Areas E-Business Enabled : E-Procurement

Week 4: Making Functional Areas E-Business Enabled : E-marketing, E-Selling, E-Supply Chain Management

Week 5: Technologies for E-Business: Internet and Web based system

Week 6: Technologies for E-Business: Security and payment systems

Week 7: Technologies for E-Business: Supply chain integration technologies (EDI, RFID, Sensors, IoT, GPS, GIS)

Week 8: Technologies for E-Business: Supply chain integration technologies (Web services and cloud)

Week 9: Decision Support in E-Business: Web analytics

Week 10: Decision Support in E-Business: Customer behavior modeling

Week 11: Decision Support in E-Business: Auctions

Week 12: Decision Support in E-Business: Recommender systems

List of students enrolled

S.no	Name
1	Kuldeep
2	Megha Sharma
3	Rajkumar gangwar
4	Sangeeta Sharma
5	Tanishk Jharwal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Digital Image Processing

Course Code: noc21-ee78

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction and signal digitization

Week 2: Pixel relationship

Week 3: Camera models & imaging geometry

Week 4: Image interpolation

Week 5: Image transformation

Week 6: Image enhancement I

Week 7: Image enhancement II

Week 8: Image enhancement III

Week 9: Image restoration I

Week 10: Image restoration II & Image registration

Week 11: Colour image processing

Week 12: Image segmentation

Week 13: Morphological image processing

Week 14: Object representation ,description and recognition

List of students enrolled

S. No	Name of Student
1	Aadarsh Singh
2	Surbhi Agarwal
3	Amisha Aggarwal
4	ANJALI PARIK
5	anju choudhary
6	ANKIT YADAV
7	aparna maleti
8	Ashima Mehta
9	ashvin
10	brij bhushan
11	devang agrawal
12	Faisal Khan

13	Hritik Gaur
14	Manju Choudhary
15	Monalisa
16	Priyanka Jain
17	Richa
18	Chinmay Sharma
19	Shubhi samaria
20	Suraj sharma
21	Vikas kumar

Course: Experimental Physics - II

Course Code: noc22-ph05

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Summary of previous course on Experimental Physics-I

Week 2: Basic apparatus : Spectrometer, light source, prism, lens, mirror, grating etc

Week 3: Experiment on reflection, refraction and dispersion

Week 4: Experiments on Interference

Week 5: Experiments on Interference

Week 6: Experiments on Interference

Week 7: Experiments on diffraction

Week 8: Experiments on diffraction

Week 9: Experiments on diffraction

Week 10: Experiments on polarization

Week 11: Experiments on quantum physics

Week 12: Experiments on atomic physics

List of students enrolled

S.no	Name
1	gaurav sharma
2	Jatin Yadav
3	Saransh Gupta

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: An Introduction to Information Theory

Course Code: noc22-ee49

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction: Entropy, Relative Entropy, Mutual Information; Information Inequalities;
Week 2: Block to variable length coding-I: Prefix-free code Block to variable length coding-II: Bounds on optimal codelength; Block to variable length coding-III: Huffman coding.

Week 3: Variable to block length coding The asymptotic equipartition property Block to block coding of DMS

Week 4: Universal Source Coding-I: Lempel-Ziv Algorithm-LZ77 Universal source coding-II: Lempel-Ziv Welch Algorithm (LZW)

Week 5: Coding for sources with memory Channel capacity of discrete memoryless channels.
Week 6: Joint typical sequences Noisy channel coding theorem; Differential entropy;

Week 7: Gaussian Channel; Parallel Gaussian Channel.

Week 8: Rate Distortion Theory; Blahut-Arimoto Algorithm for computation of channel capacity and rate- distortion function.

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Akshat Gadodia
3	Akshita Patidar
4	ANURAG KUMAR
5	Archit Bajpai
6	ASHUTOSH TIWARI
7	Aryan sharma
8	RAKESH POONIYA
9	Arzoo jalendra
10	Debopam
11	Ansh Gupta
12	Rashi Kinra
13	Kusum Sharma
14	MANOJ GARG
15	Gitesh khatri
16	Mukul Palol
17	Nishant kumar
18	HARSHIT SHARMA

19	Parul jain
20	Raghav Agarwal
21	Arpit Jain
22	Sushil Kumar Sadhnani

Course: Electromagnetic Theory

Course Code: noc21-ee83

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Coulomb's law and electric fields

Week 2 : Gauss's law, potential and energy, conductors and dielectrics

Week 3 : Laplace and Poisson equations, solution methods, and capacitance

Week 4 : Biot-Savart and Ampere's laws, inductance calculation

Week 5 : Magnetic materials, Faraday's law and quasi-static analysis

Week 6 : Maxwell equations and uniform plane waves

Week 7 : Wave propagation in dielectrics and conductors, skin effect, normal incidence

Week 8 : Oblique incidence, Snell's law, and total internal reflection

Week 9 : Transmission lines, Smith chart, impedance matching

Week 10 :Transients and pulse propagation on transmission line

Week 11 :Waveguides: Metallic and Dielectric

Week 12 : Antenna fundamentals

List of students enrolled

S. No	Name of Student
1	Saurabh_choudhary
2	VISHNU GUPTA
3	Kratika Bansal
4	Guru Sharan Kumawat
5	Hemant Gurjar
6	JAYESH SINGH SAGAR
7	Jay shrivastava
8	Lokesh Patidar
9	MANOJ GARG
10	Monalisa
11	Muskan Meena
12	Neha Maheshwari
13	Sourav Soni
14	Harshit Verma
15	Vinayak gupta


JAIPUR

Course: Science, Technology and Society

Course Code: noc20-hs82

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Science, Technology and Society: Cognitive and Ethical Dimensions
Week 2: Science, Technology and Society: Methodological Dimensions I
Week 3: Science, Technology and Society: Methodological Dimensions II
Week 4: Science, Technology and Society: Methodological Dimensions III
Week 5: Inequalities in Science I
Week 6: Inequalities in Science II
Week 7: Technology as Knowledge
Week 8: Social Shaping of Technology I
Week 9: Social Shaping of Technology II
Week 10: Social Shaping of Technology III
Week 11: Information Society
Week 12: Science and Technology in India

List of students enrolled

1	Hemant Gurjar
2	Kartik Sharma
3	Kushal Rawat
4	Rohit-Verma
5	Tanmay Jaiswal
6	Yash Gupta

Course: Remote Sensing: Principles and Applications

Course Code: noc20-ce24

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction, electromagnetic radiation, basic laws
Week 2: Radiometry, Interaction of EMR with terrain features
Week 3: RS in visible and IR domain: Radiance to reflectance, atmospheric and topographic correction
Week 4: RS image acquisition, Different types of sensors, resolution concepts
Week 5: Resolution concepts, Spectral reflectance curves
Week 6: Spectral reflectance curves, Spectral indices
Week 7: Thermal infrared remote sensing
Week 8: Passive microwave radiometry
Week 9: Active microwave remote sensing: Imaging radar
Week 10: Platforms used for RS data acquisition and characteristics
Week 11: LIDAR, Common remote sensing datasets and data portals
Week 12: Applications of RS for land use and land cover monitoring, water resources management

List of students enrolled

1	Kavya Kulshrestha
2	Kumkum Maurya
3	JENISHA DEVNANI

Course: Soft skills

Course Code: noc20-hs76

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Soft Skills, Aspects of Soft Skills, Effective Communication Skills, Classification of Communication, Personality Development
Week 2: Positive Thinking, Telephonic Communication Skills, Communicating without Words, Paralanguage
Week 3: Proxemics, Haptics: The Language of Touch, Meta-communication, Listening Skills, Types of Listening
Week 4: Negotiation Skills, Culture as Communication, Organizational Communication
Week 5: Communication Breakdown, Advanced Writing Skills, Principles of Business Writing
Week 6: Business Letters, Business Letters: Format and Style, Types of Business Letter
Week 7: Writing Reports, Types of Report, Strategies for Report Writing, Evaluation and Organization of Data
Week 8: Structure of Report, Report Style, Group Communication Skills
Week 9: Leadership Skills, Group Discussion, Meeting Management, Adaptability & Work Ethics
Week 10: Advanced Speaking Skills, Oral Presentation, Speeches & Debates, Combating Nervousness, Patterns & Methods of Presentation, Oral Presentation: Planning & Preparation
Week 11: Making Effective Presentations, Speeches for Various Occasions, Interviews, Planning & Preparing: Effective Résumé,
Week 12: Facing Job Interviews, Emotional Intelligence & Critical Thinking, Applied Grammar

List of students enrolled

1	Arpita sharma
2	Arpita sharma
3	Aryan sharma
4	NAVYA SHARMA
5	Mohit soni
6	Gulshan sharma
7	Aabhas Nama
8	Abhishek Sharma
9	AASHNA PURI
10	Abhishek Sharma
11	ADITYA SHARMA
12	Aditi Sharma
13	Aditi Agarwal
14	Aditi Pareelk
15	Aditya Meghwal

16	Ayushi Agarwal
17	Ritika Agarwal
18	Sakshi Agarwal
19	AJAY KUMAR SHARMA
20	Akshat Jinakar
21	AKSHAT JAIN
22	Akshat Gupta
23	Akshat Parakh
24	Akshat Sharma
25	Akshat Surana
26	Akshi Jain
27	Akul Saxena
28	Alpesh Gupta
29	Aman Bhargava
30	Amartia Anand
31	Ananya Mathur
32	Angelina Freda Smith
33	anjali gupta
34	Anjali Sharma
35	Nikita Choudhary
36	Anshika Goyal
37	Anshshikha agarwal
38	Anushka Porwal
39	ANUSH UPADHYAY
40	Apoorva
41	Arihant pokharna
42	Arnav Godara
43	Arpit Somani
44	Arpita Dubey
45	Arpit Tyagi
46	Arun kumar jharwal
47	Aryan Mishra
48	Ayush Soni
49	Ashtami Tak
50	Ashu Agarwal
51	ASHUTOSH TIWARI
52	Atishayee Singh
53	Ayush Choudhary
54	Ayush Agarwal
55	Ayush jalan
56	Manav Manna
57	CHETAN SHARMA
58	Dhanraj Meena
59	Prakhar Saxena
60	Mrityunjay kumar
61	Abheet yadav

62	piyush kumar rathi
63	Khushi pareek
64	Harsh Singh Narooka
65	Rishika Bansal
66	Bhanupriya Panwar
67	Pratha Bhardwaj
68	Nikhil Bhatia
69	BHAVESH SAXENA
70	Bhavesh Singhal
71	Bhavya Anand
72	Bhomesh Razdan
73	V Bhuvanesh
74	akhilesh chaturvedi
75	Rajat Chaudhary
76	Chhavi Jangid
77	Chhavi Sharma
78	Chirag Bhayana
79	chirag kumar sharma
80	Chirayu Jain
81	Chitwan Agarwal
82	VIJAY CHOUDHARY
83	Tanishq Goyal
84	Debopam
85	Deepanshu Mehta
86	Devansh Pareek
87	Devansh Choudhary
88	Dev sharma
89	Dhairya Gupta
90	Dharmi Kapadiya
91	Dheeraj Kumar garg
92	Dhruv mittal
93	Dinesh Jajoo
94	Dipesh Kumar Karesia
95	Divyam Agarwal
96	DIVYANSH SHARMA
97	Divyansh Gupta
98	DIVYANSH GUPTA
99	Divyanshi Bhardwaj
100	Divyansh Sharma
101	Divyansh jaitlia
102	Dolly Malik
103	CHINMAY PAREEK
104	Dushyant Jakhar
105	Parth Dwivedi
106	EKLAVYA JOSHI
107	RAKESH CHOUDHARY

108	FAIZAN KHAN
109	Gagandeep Singh
110	Tanu Gambhir
111	Neeraj Garg
112	Garvit Jaiswal
113	Garvit Mathur
114	Garvit Tambi
115	gauranshu mathur
116	GAURAV KUMAR
117	Gaurav Bhandari
118	Gaurav Tyagi
119	Geetanshikha Gautam
120	Geetika Mathur
121	Naman goyal
122	HARSH GOYAL
123	Rahul Goyal
124	Gungun wadhwa
125	ASHWIN GUPTA
126	Chinmay gupta
127	Preeti Gurjar
128	Harsh Modi
129	Happy Singh Charan
130	Hari kumar addania
131	Hari dutt vyas
132	Harsh soni
133	Harsh Brahmbhatt
134	Harshil Sodani
135	Harshit Jain
136	Harshit Sharma
137	HARSHITA PALIWAL
138	Harshit khandelwal
139	Harshit Agarwal
140	HARSH JAIN
141	Harsh Vardhan Goel
142	Himanshu Kumawat
143	Himanshu Patni
144	Hitesh Thadani
145	Arpit agrawal
146	Divyanshu
147	Anshul Gora
148	Isha sharma
149	Isha Tripathi
150	Ishika agarwal
151	Shubham jain
152	Jahanvi Rathi
153	Aastha Jain

154	Abhishek jain
155	Anjesh jain
156	Gautam kumar jain
157	Hardik Jain
158	Jash Jain
159	Lavanya jain
160	Piyush Jain
161	Jayesh Singh
162	Archana jha
163	Jitendra Agrawal
164	Krishna Rathi
165	Lakshita Natani
166	Jasmine Bhatti
167	Tarun jain
168	Jyoti agrawal
169	Kalpana Modi
170	Shikhar Gupta
171	Kanika Paliwal
172	kanishk agarwal
173	Karan Chawda
174	Karishma tomar
175	Kartik sharma
176	Ayush Kumar
177	Vishal katariya
178	Dhiraj Kumar
179	Khushi kakkad
180	KIRTI JAISWAL
181	Komal jha
182	Pawan Kumar
183	Anshit Kumar
184	Prateek Kumawat
185	KUNAL SHRINGI
186	Kunika Khandelwal
187	Kushagra Sharma
188	Kushal sharma
189	Kusum Sharma
190	LALIT MEENA
191	Lakshya Sharma
192	Lavina Lahoty
193	nikhil agarwal
194	MANALI SHARMA
195	Mansi Pareek
196	Manish saini
197	Pooja Kumari Meena
198	Mehul Nandwana
199	Anurag Agrawal

200	MadhavMittal
201	Mohit Agarwal
202	MOHIT SINGH
203	Saurabh garg
204	Monika Dudi
205	Chetesh sharma
206	Tanisha choudhary
207	muskan gupta
208	Muskan Tailor
209	sakshi nagpal
210	Naisha gupta
211	GAURAV NAMDEV
212	Naman Jain
213	Naitik popli
214	NAVDEEP CHOUDHARY
215	Nishant Bharwani
216	Aaditya Trivedi
217	NIKUNJ SINGH GEHLOT
218	Niramay Vyas
219	Nishi Chouhan
220	Nishita Tolani
221	Ansh Pancholi
222	Vivek panwar
223	AKSHAT PAREEK
224	Parth chahar
225	Aditya Rawat
226	Parul jain
227	Pawani Bhardwaj
228	PIYUSH BALDWA
229	Piyush Gupta
230	Keshav Pareek
231	Ayush Podar
232	PRADEEP SINGH
233	Prafull bhadauria
234	Prafull Bhargava
235	Pragya Gaggar
236	Prajwal Soni
237	Agrawal Pranjal Pankaj
238	PRASHU JAIN
239	Prateek Gaur
240	Prateek Somani
241	Pratiksha Sharma
242	Pratyush Chhipa
243	Rahul Jain
244	Prerit Goyal
245	PIYUSH AGRAWAL

246	Prisha Kasat
247	Priyadarshini Singh Shekhawat
248	PRIYAL KHANDELWAL
249	Priyanka soni
250	Priyansh Lavadia
251	Priyanshu Suhalka
252	Pulkit tiwari
253	Pulkit vashishth
254	Purvi Goyal
255	Purvi Harpalani
256	Radhika Sodhani
257	Raghav singh manhas
258	Rahul Kumar Balai
259	Rahul Choudhary
260	Rahul Suthar
261	Dhruv Raj Naruka
262	Rajat Malik
263	Nihal Singh Chawla
264	Rajesh Pareek
265	Rajkumar Sain
266	Rakshita Jadoun
267	Rakshit
268	Rishang Tiwari
269	Ritesh Lavti
270	Ritik sharma
271	Ritika Singh
272	Ritik khandelwal
273	Ritin Agarwal
274	Riya Agarwal
275	Rohit kumar
276	Lakshit Sharma
277	Mihir pandiya
278	Robins Kumar
279	Rohit Mehta
280	Rohit-Verma
281	Ritesh Sharma
282	Ritesh Sharma
283	Ruchika Jain
284	Saijal Gulyani
285	Sakshi Gurbani
286	Sakshi Agarwal
287	sakshi khandelwal
288	Sakshi Sharma
289	Samridhi arya
290	Sanyam jain
291	Sarla Karwasra

292	Sarthak Maheshwari
293	Saurabh Singh Jat
294	Yogendra Singh
295	TARUN KANT SHARMA
296	Aayush Sharma
297	AAYUSHI SHARMA
298	Akshat sharma
299	Ashish Sharma
300	Jagrati Sharma
301	shahsank purohit
302	Shashank Verma
303	Shaurya harsh
304	Shivam Todwal
305	Shiv Maheshwari
306	Srishti Ajmera
307	Shruti Dubey
308	Shruti Mehta
309	Shubham singh
310	Shyam Agarwal
311	Siddarth
312	Siddharth Darji
313	Sidhant verma
314	SUKHLEEN SINGH
315	Simmi Jain
316	Manjeet Singh
317	Saurabh Singh Parihar
318	Shailendra Singh
319	Sakshi jain
320	Somil jain
321	Sneha khandelwal
322	Sonia Devi
323	Komal soni
324	Sourav Shandilya
325	Suraj sharma
326	sudeep shukla
327	Suraj Meena
328	suryapratapsingh
329	swati aggarwal
330	sachin yadav
331	Tanisha Mudgal
332	Tanisha Dhemla
333	Tanish Khandal
334	Tanmay Jaiswal
335	Tarav vijay
336	Ayush Singh tomar
337	divyansh pradhan

338	Kartikeya Dixit
339	Shreya Pandey
340	Vansh Choudhary
341	Ankita meena
342	Kunal Sharma
343	Mukul gupta
344	Yuvraj Choudhary
345	Naman Agarwal
346	Trivi Jain
347	Poorvaja Verma
348	Umang Mathur
349	Vaidehi Mudgal
350	varun kumar meena
351	Tanya Verma
352	vijay thakur
353	Vikalp jain
354	Vinay vyas
355	vishal kumawat
356	Vishal
357	Vishal Dandia
358	Vishnu banjara
359	vishnu Sharma
360	Vishal prajapat
361	Vivek Kumar
362	Akshat Sharma
363	Yaman Kumar Malik
364	Yash Gupta
365	Yashvardhan Dukiya
366	Yashvir Singh Nathawat
367	Ritu yadav
368	Yuvraj Singh Naruka

Course: Mechanics of Solids

Course Code: noc20-ce46

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Fundamental principles of mechanics
Week 2: Introduction to Mechanics of Deformable Bodies
Week 3: Concept of Stress
Week 4: Concept of Strain
Week 5: Stress-strain Temperature Relations
Week 6: Forces and Moments Transmitted by Slender Members
Week 7: Torsion
Week 8: Stresses due to Bending
Week 9: Concept of Strain Energy and Yield Criteria
Week 10: Deflections due to Bending
Week 11: Deflection using Strain Energy Method
Week 12: Stability of Equilibrium: Buckling

List of students enrolled

1	Jeeval choradia
2	HIMANSHU MEENA
3	DILKHUSH MEENA
4	Gourav pooniya
5	Jatin Vedwal
6	Kanak sharma
7	Komal Kanwar Korawat
8	Rahul Choudhary
9	Rohit Lamba
10	Vansh Choudhary
11	Arvind Yadav
12	Ankit Yadav
13	Akshay Verma
14	Vishal Bansiwal

Course: Renewable Energy Engineering: Solar, Wind and Biomass Energy Systems

Course Code: noc20-ch27

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Solar Energy: Basics and Concepts
Week 2: Non-Concentrating Solar Collectors
Week 3: Non-Concentrating Solar Collectors: Practice Problems
Week 4: Concentrating Solar Collectors
Week 5: Storage Systems
Week 6: Biomass types and characterization
Week 7: Biochemical conversion processes
Week 8: Biochemical conversion processes (Contd.)
Week 9: Bioconversion of substrates into alcohol and thermo-chemical conversion of biomass
Week 10: Bioconversion of substrates into alcohol and thermo-chemical conversion of biomass (Contd.)
Week 11: Wind Energy: Basics: Turbine terms, types and theories
Week 12: Characteristics and Power Generation from Wind Energy

List of students enrolled

1	NAVYA SHARMA
2	NAVAL TRIPATHI
3	LALIT MEENA
4	Kunal Maniwal

Course: Wildlife Ecology

Course Code: noc21-bt45

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction
Week 2 : Ecological structure
Week 3 : Ecological interactions
Week 4 : Ecological energetics
Week 5 : Population Ecology
Week 6 : Community Ecology
Week 7 : Distribution & abundance
Week 8 : Management of threatened species
Week 9 : Human Ecology
Week 10: Ecology of change
Week 11: Applied Ecology
Week 12: Revision

List of students enrolled

S. No	Name of Student
1	Anshul Sharma

Course: Introduction to Civil Engineering Profession

Course Code: noc20-ce42

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: What is Civil Engineering? Different disciplines of civil engineering. Scope and prospects. Heritage structures, architecture
Week 2: Environmental Engineering. Prevention of environmental impact. Pollution, waste and water treatment
Week 3: Geotechnical Engineering. Soil mechanics and foundations. Hydraulics and water resources
Week 4: Construction Materials and Methods. Infrastructure Engineering. Sustainability.
Week 5: Structural Engineering. Analysis, design and modelling
Week 6: Highway Engineering. Traffic Engineering and Planning
Week 7: Automation and Robotics in Construction. Water Security.
Week 8: Novel areas. Career Prospects

List of students enrolled

1	Sheikh Animul Rehman
2	Vijay Kumar
3	Puneet Dadhich
4	Palkendra mandawat
5	Renu Kumari
6	Nupur Singh Choudhary
7	Priya
8	Saarthak chopra
9	Nikhil garg
10	Yogendra
11	NAMASYA CHOUDHARY
12	Shreyansh nagarwal
13	Seema lega
14	RAKESH POONIYA
15	Reva Verma
16	Pawan kumar dhakar
17	Simran choudhary
18	Sajid khan
19	Rajat bhaskar
20	Uday Singh Sisodia
21	Rinku
22	Saloni Meena
23	RITIKA MEENA
24	JENISHA DEVNANI

25	Komal Kanwar Korawat
26	Sachin meena
27	Yogendra Singh
28	vipul raman

Course: Introduction to Accounting and Finance for Civil Engineers

Course Code: noc22-ce08

Session: 2021-22

Duration: 08 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Basic Accounting and concepts in finance. Bookkeeping: definitions, objectives, elements, journal, and ledger.
Week 2: Accounting & Concepts in Finance I: definitions, objectives, characteristics, limitations, basic terms, GAAP (Generally Accepted Accounting Principles)
Week 3: Accounting & Concepts in Finance II: Systems of accounting, cash book, bank book, depreciation, provisions, reserves, accounting equation, journal & ledger entries, trial balance, profit & loss account, balance sheet, cash flow statement)
Week 4: Analysis of financial statements I: Financial leverage, financial ratios
Week 5: Analysis of financial statements II: Significance and applications
Week 6: Financial planning including capital budgeting I: Definition, financial planning options and objectives, time value of money
Week 7: Financial planning including capital budgeting II: simple and compound interest, rule of 72, methods of capital budgeting - payback period
Week 8: Financial planning including capital budgeting III: Accounting rate of return (ARR), net present value (NPV), internal rate of return (IRR)

List of students enrolled

S. No	Name of Student
1	Ayush Choudhary
2	Ved Pratap Singh

Course: Air Pollution and Control

Course Code: noc22-ce22

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Air Pollution: Introduction and Impacts of air pollution on human health, vegetation, animals, building materials, structures, and atmosphere, soil and water bodies.
Week 2 : Sources, classification and formation/transformation of air pollutants: Meteorology and Atmospheric Stability.
Week 3 : Lapse Rate, Plume Behaviour, and Air Quality Monitoring, Air Quality Index (AQI)
Week 4 : Air Quality Modelling, Gaussian dispersion models: point, line and area source models
Week 5 : Emissions Inventory: Transport, Industrial, Agricultural, Residential and Commercial sectors
Week 6 : Application of Remote sensing/Satellite based data in emission inventory, Source apportionment using receptor modelling.
Week 7 : Indoor air pollution: sources, types and health impacts. Sampling, assessment and evaluation of Indoor air quality.
Week 8 : Global and regional environmental issues of air pollution: Ozone depletion, Climate change, Global warming, Acid rain.
Week 9 : Air pollution control devices, equipment and their design.
Week 10 : Air pollution emission standards, National and international policies, acts, rules and regulations.
Week 11 : Emerging technologies and strategies to mitigate air pollution, Current challenges and way forward.
Week 12 : Lab-based measurements of air pollutants.

List of students enrolled

S. No.	Name of Student
1	Khushank Sharma
2	ASHUTOSH KUMAWAT
3	Raghuveer Meena
4	Harsh Gupta
5	Khushi Rajawat
6	Shreya Jha
7	Karishma kumawat
8	Shreyansh
9	Jatin Chaudhary
10	FAIZAN KHAN
11	Garvit Jaiswal
12	Harsh kumar sahu
13	Jatin Vedwal

14	Khushi Jain
15	LALIT MEENA
16	MADAN LAL PRAJAPAT
17	SHUBHAM MAHESHWARI
18	Kushmay porwal
19	Raghvendra Singh Rathor
20	Rajkumar gangwar
21	Rajvardhan gupta
22	Ratan Soni
23	Robins Kumar
24	Shruti Chauhan
25	Shruti Dubey
26	Somik choudhary
27	Rahul Meena
28	ABHISHEK SINGH
29	TUSHAR MITTAL
30	Yash Gupta
31	Yash Goyal

Course: Development and Applications of Special Concretes

Course Code: noc22-ce09

Session: 2021-22

Duration: 08 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

List of students enrolled

S. No	Name of Student
1	Kritika Meena
2	DILKHUSH MEENA
3	Kanak sharma
4	Kanishk Sharma
5	Avdesh Meena
6	Arvind Yadav
7	Ankit Yadav

Course: Applied Linguistics

Course Code: noc20-hs67

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Applied Linguistics
Week 2: Introduction to Language
Week 3: Structure of Language
Week 4: Language and Society
Week 5: Multilingualism and Language Learning
Week 6: First Language Acquisition
Week 7: Second Language Acquisition
Week 8: Language and Cognition
Week 9: Disabilities
Week 10: Cohesion and Coherence
Week 11: Behaviorism and Language Teaching
Week 12: Sapir-Whorf Hypothesis

List of students enrolled

1	Anshita Yadav
2	Bhomesh Razdan
3	Pradhum Malhotra
4	EKLAVYA JOSHI
5	Mukul Palol
6	Tanmay Jaiswal

Course: German - I

Course Code: noc20-hs79

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Themes: Introducing oneself and others; Grammar: W questions, personal pronouns, simple sentence, verb conjugation
Week 2: Themes: hobbies, the week, numbers, the alphabet, months, seasons /Grammar: articles , plural, the verbs to have and to be
Week 3: Theme: In the city / naming places and buildings, means of transport, basic directions / Grammar: definite and indefinite articles; negation - kein and nicht; imperative
Week 4: Themes: food, drink, family / groceries and meals / Grammar: the accusative
Week 5: Theme: Everyday life, telling time, making appointments / Grammar: prepositions am, um, von..bis; modal verbs, possessive articles
Week 6: Leisure activity, celebrations / Grammar: separable verbs, the accusative, past tense of to have and to be
Week 7: Contacts, writing letters / Grammar: dative
Week 8: My apartment, rooms, furniture, colours / Grammar: changing prepositions
Week 9: Professions / Grammar: perfect tense
Week 10: Clothes / Grammar: perfect tense and dative
Week 11: Health and the body / Grammar: the imperative and modal verbs
Week 12: Holiday and weather

List of students enrolled

1	Akshita singhvi
2	Aayush Vaishnav
3	Abhishek Sharma
4	Ayushi Agarwal
5	Hemant Ameta
6	Amishi Gupta
7	Anchal Gupta
8	Ankit Saini
9	Kshitiz Anurag
10	Ashok Jat
11	ASHUTOSH TIWARI
12	jeeval choradia
13	Manjeet suman
14	Aish khan
15	Kartik soni
16	Gaurav swami
17	Shreyansh
18	AKSHAY SINGH SHAKTAWAT
19	choudhary sanjay rataram

20	NAVAL TRIPATHI
21	NIKHIL PANDEY
22	Samarth Jain
23	Chaitanya Bhushan Mudgal
24	chirag kumar sharma
25	Chitransh Gupta
26	Neeraj Choudhary
27	Devaksh Narwara
28	Devansh Choudhary
29	Devasheesh Sharma
30	Dheeraj Kumar garg
31	Dipesh Kumar Karesia
32	DIVYANSH GUPTA
33	Divyansh jaitlia
34	Gaurav Bhandari
35	Gaurav Dubey
36	Gaurav Mishra
37	Nishkarsh Goyal
38	HARDIK PATEL
39	Harshika Kumari
40	Harsh shringi
41	Hemant Gurjar
42	Himani devi
43	Himanshu Patni
44	ANKIT KUMAR
45	Rohan jain
46	Jancy C Joshwa
47	Juber khan
48	Kanhaiya Lal Parsoya
49	Brijesh Sharma Jangid
50	Kartik somani
51	Kartik Singhal
52	Kashish karamchandani
53	Vishal katariya
54	Dhiraj Kumar
55	Kapil Raj Tanwar
56	KUNAL MITTAL
57	Kunal Colin Williams
58	Sourabh kumawat
59	Lalit Soni
60	Atul Pancharia
61	Khushi Malasiya
62	MANOJ KUMAR SAHU
63	Mohd Mateen joad
64	JATIN MEHRA
65	RAKSHA MODI

66	Monil Goyal
67	GAURAV NAMDEV
68	Navdeep Singh Rathore
69	Navneet singh
70	Nikhil Pandey
71	Nikhil Singh
72	Nikit Lamror
73	Akash Agarwal
74	Vivek panwar
75	Parth Sharma
76	Harshit parwani
77	Pawani Bhardwaj
78	Prakhar Pareek
79	Pranay Prabhat
80	Priya gupta
81	Purvi Tanwar
82	shadab qureshi
83	Raghav singh manhas
84	Sindhoor Singh
85	Rajat Swami
86	Akshit sharma
87	Rahul Choudhary
88	Rishi Prakash Sharma
89	Rohit Haridasan
90	Sagar naval
91	Samardeep Singh Chopra
92	Samarth Jain
93	Sameer Singh
94	samridhi
95	SARANSH SHARMA
96	Yogendra Singh
97	Akshita Sharma
98	Simmi Jain
99	Sohail Khan Jatu
100	Rohit banjara
101	Somin Seth
102	Sonia Devi
103	Deepak Meena
104	Suleman ahmed
105	SURAJ SINGH RATHORE
106	Tanmay Mudgal
107	Tanveer Singh Nathawat
108	TARUN PRAKASH SAINI
109	Harsh shringi
110	Divyansh Gupta
111	Pradeep Bhat

112	chakshit gunidia
113	Tushar Sanadhya
114	Umesh Kumar Jangir
115	Vaibhav sahu
116	Tushar Kumar Verma
117	Vishal Bansiwal
118	vishal gupta
119	VISHNU KUMAR SHARMA
120	Yash Bairwa
121	yash maheshwari
122	Yatin Meena
123	Yuvraj Singh Naruka

Course: Geotechnical Engineering 1

Course Code: noc21-ce03

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Origin of Soils and Rocks, Rock cycle
Week 2 : Basic relationships, Index properties of aggregates
Week 3 : Soil structure, Soil classification
Week 4 : Soil compaction
Week 5 : Soil-water Statics
Week 6 : Flow through soils, Quick sand condition
Week 7 : Permeability and methods for its determination
Week 8 : Flow-nets, Stresses in soil from surface loads
Week 9 : Boussinesq theory
Week 10 : New marks chart, Contact pressures
Week 11 : Consolidation of soils
Week 12 : Settlement of compressible soil layer

List of students enrolled

S. No	Name of Student
1	Kavya Kulshrestha
2	Aman jain
3	Anurag Meena
4	Ayush Choudhary
5	Arvind kumawat
6	Kumkum Maurya
7	ISHANT JOGANI
8	Lokesh Mali
9	Sandeep Verma
10	Tanmay Jaiswal

Course: Concrete Technology

Course Code: noc20-ce50

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Basic Concepts
Week 2: Cement
Week 3: Aggregates
Week 4: Fresh Concrete
Week 5: Properties of Concrete
Week 6: Concrete Mix Design
Week 7: Admixtures in Concrete
Week 8: Special Concretes
Week 9 and 10: Concreting Operations

List of students enrolled

1	Kavya Kulshrestha
2	Abhishek Bansal
3	Aman kumar meena
4	Aman jain
5	Ankesh raj
6	ARPIT GOTHWAL
7	Ashok Jat
8	Neeraj Derwal
9	Ajay kumar meena
10	Manjeet suman
11	Anupam Meena
12	Kritika Meena
13	Deepakmeena
14	Archana meena
15	Shreyansh
16	HIMANSHU MEENA
17	Vinod dewasi
18	DILKHUSH MEENA
19	Gourav pooniya
20	Indrajeet Dangi
21	Kanak sharma
22	Kamlesh Choudhary
23	Kanishk Sharma
24	Komal Kanwar Korawat
25	Kunal Sharma
26	R S Laxman Meena

27	Manish kumar dhanwant
28	Manish Sattavan
29	Avdesh Meena
30	MOHEET ALAM
31	Mohit Sharma
32	Monil Goyal
33	Rishi Prakash Sharma
34	Rohit Lamba
35	Mitali Saini
36	Kunal singh solanki
37	Vansh Choudhary
38	AMIT KUMAR
39	Arvind Yadav
40	Ankit Yadav
41	kushagra Gautam
42	Varun Kumar Meena
43	Vikas Aechara
44	Vishal Bansiwal
45	Yash jangid

Course: Introduction to Psychology

Course Code: noc22-hs20

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Why Psychology?
- Major milestones in psychology
- Major areas of psychology
- Major methods used in psychology
- Redefining boundaries of the discipline

Week 2:Perception
Week 3:Learning
Week 4:Memory
Week 5:Emotion
Week 6:Genetic and Environmental bases of behaviour
Week 7:Personality
Week 8:Lab session: Perception

List of students enrolled

S. No	Name of Student
1	akshita singhvi
2	Rakshita Agarwal
3	Anshita Yadav
4	Piyush Arora
5	Nikhil Bhatia
6	EKTA GUPTA
7	Hritik Gaur
8	Rashi Kinra
9	Mohit Tolani
10	Nilesh Suthar
11	AKSHAT PAREEK
12	Pawani Bhardwaj
13	Yogendra Singh
14	Vaibhav Bairathi
15	pranaya vashistha

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Technical English for Engineers

Course Code: noc22-hs034

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Listening:	Listening/Reading Comprehension
	Dictation
	Notemaking
Speaking:	Using words in context
	Use of formal expressions and usages
	Formal presentations (organizing data and slide preparation)
Reading:	Skimming through the text
	Scanning
Writing:	Grammar
	Introduction to elements of academic writing
	Report Writing
	Resume writing
	Project Proposal writing

List of students enrolled

S. No	Name of Student
1	Abhishek Bansal
2	Abhishek Moond
3	ADAMYA AGARWAL
4	Aditya Kumar Sharma
5	Ayushi Agarwal
6	Akanksha Foujdar
7	Abhishek meena
8	AKSHAT JAIN
9	Akshat Gupta
10	Akshi Jain
11	Akul Saxena
12	Aman Bhargava
13	Aman Sharma
14	Amit kumar
15	Angelina Freda Smith
16	Anjali Singh
17	ANJU KATARIYA
18	Ankit Sharma
19	Anshika Goyal

20	Arnav Godara
21	Ayushi Agrawal
22	Ashtami Tak
23	Dharmveer Singh shekhawat
24	ASHUTOSH TIWARI
25	AYUSH SINGHAL
26	Chinmay gupta
27	HARSH BHARGAVA
28	ADITYA SONI
29	Aarti Rajpurohit
30	Akshat Saini
31	Rajveer Singh
32	Jaswant Jangid
33	Falguni pareta
34	Darshit Mathur
35	Aditya Parashar
36	Anugrah Pathak
37	Almazim Akhtar
38	DHRUV PARWANI
39	RITIKA MEENA
40	Bhagyansh Garg
41	akhilesh chaturvedi
42	Chhavi Sharma
43	Deepak
44	Deepesh Gupta
45	Dipak Kumar
46	Darshika Maheshwari
47	FAIZAN KHAN
48	Garvit Jaiswal
49	Yashasvi Gupta
50	Harsh kumar sahu
51	Himanshu Kumawat
52	Aastha Jain
53	Harshit Kumar Jain
54	Tarun jain
55	Ayush Kumar
56	KIRTI JAISWAL
57	KSHITIJ KUMAWAT
58	LALIT MEENA
59	Nikhil Kumar Lamba
60	Aditya Prakash Srivastava
61	SHUBHAM MAHESHWARI

62	anupam jain
63	Manik Mehra
64	Riya Mehta
65	Mohit kumar pamnani
66	Mriduraj Singh Rathore
67	Mudeet Jain
68	Nicky Lakhisarani
69	Aaditya Trivedi
70	Nilesh Suthar
71	Nishi Chouhan
72	Nishtha Sainani
73	NITYA SINGH
74	AKSHAT PAREEK
75	Pratiksha Sharma
76	Pratyush Chhipa
77	Rahul Jain
78	Prince Agrawal
79	Prince kumar
80	Priyadarshini Singh Shekhawat
81	PRIYAL KHANDELWAL
82	Priyansh Lavadia
83	Purvi Harpalani
84	Ramkishor Sharma
85	Ritika Singh
86	Rudraksh Agarwal
87	saksham jain
88	Sakshi Gurbani
89	DEVANSHU SHARMA
90	Shalin Devpura
91	Sangeeta Sharma
92	Shivani Chaturvedi
93	Shiv Lal
94	Shubham Nagar
95	pradeep singh
96	Nikunj sahu
97	Kunal singh solanki
98	Somik choudhary
99	SOURAV MAJEE
100	Suryansh Johari
101	Lavanya Talwar
102	Tapesh Kumar
103	Sainyali trivedi

104	Tushar Kumar Sahu
105	Tushar Sanadhya
106	Vipul kaushik
107	Virendrq yadav

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Human Behaviour

Course Code: noc22-hs018

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to the science of human behavior
Week 2 : Sensation & Perception-I
Week 3 : Perception-II, Learning
Week 4 : Memory and Language-I
Week 5 : Language-II and Emotion
Week 6 : Intelligence
Week 7 : Personality
Week 8 : Social influence and cognition

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Akshita Sharma
3	Piyush Arora
4	Ashish meena
5	Diwakar
6	ABHINANDAN SHARMA
7	FAIZAN KHAN
8	Garvit Jaiswal
9	Ronak Gupta
10	Jayesh Singh
11	Krishna Rathi
12	Khushi Jain
13	Rashi Kinra
14	SHUBHAM MAHESHWARI
15	RAKSHA MODI
16	Sakshi Agarwal
17	AAYUSHI SHARMA
18	Sangeeta Sharma
19	Shivani Chaturvedi
20	Shailendra Singh
21	Shivani Lamba
22	Sneha khandelwal
23	Somik choudhary

24	SRISHTY AGARWAL
25	pranaya vashistha
26	Tanya Verma
27	Vinit Kumar Shah
28	Yashwardhan Gaur

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Introduction to Cognitive Psychology

Course Code: noc22-hs019

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: History, Theory and Research in Human Cognition
Week 2: Object Perception and Recognition
Week 3: Attentional Processes and cognition
Week 4: Memory Introduction
Week 5: Long Term Memory
Week 6: Memory of general knowledge
Week 7: Concept Formation
Week 8: Visual and Spatial Memory
Week 9: Human language skills
Week 10: Thought process and Problem Solving
Week 11: Reasoning
Week 12: Decision Making

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Gaurav Vijayvergiya
3	Yogendra Singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Economic Growth and Development

Course Code:noc22-hs016

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Concepts of economic growth & development; The Global North & Global South Divide

Week 2: Indices of economic development and contemporary controversies

Week 3: Strategies of economic development I

Week 4: Strategies of economic development-II

Week 5: Growth and Inequality

Week 6: Introduction to Human Development

Week 7: Human Development Indices

Week 8: MDGs, SDGs & gender budgeting

List of students enrolled

S. No	Name of Student
1	Mohammed Danish
2	Kuldeep sharma
3	Kushal Rawat
4	LALIT MEENA
5	Lalit Sharma
6	Lovenesh
7	Nishant Kumar
8	Rajkumar gangwar

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Enhancing Soft Skills and Personality

Course Code:noc22-hs08

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 :
- Highlights of Developing Soft Skills and Personality Course-1-24
- Highlights of Developing Soft Skills and Personality Course-25-48
- Definitions and Types of Mindset
- Learning Mindsets
- Secrets of Developing Growth Mindsets

Week 2 :
- Importance of Time and Understanding Perceptions of Time
- Using Time Efficiently
- Understanding Procrastination
- Overcoming Procrastination
- Don't Say "Yes" to Make Others Happy!

Week 3 :
- Types of People
- How to Say "No"
- Controlling Anger
- Gaining Power from Positive Thinking-1
- Gaining Power from Positive Thinking-2

Week 4 :
- What Makes Others Dislike You?
- What Makes Others Like You?-1
- What Makes Others Like You?-2
- Being Attractive-1
- Being Attractive-2

Week 5 :
- Common Errors-1
- Common Errors-2
- Common Errors-3
- Common Errors-4
- Common Errors-5

Week 6 :
- Humour in Communication
- Humour in the Workplace
- Function of Humour in the Workplace
- Money and Personality
- Managing Money

Week 7 :
- Health and Personality
- Managing Health-1: Importance of Exercise
- Managing Health-2: Diet and Sleep

- Love and Personality
- Managing Love

Week 8 :

- Ethics and Etiquette
- Business Etiquette
- Managing Mind and Memory
- Improving Memory
- Care for Environment
- Highlights of the Course

List of students enrolled

S. No	Name of Student
1	Deepesh choudhary
2	Saurabh_choudhary
3	Dhruv sharma
4	Aanchal yadav
5	Aashita Sharma
6	Abhijeet Giri
7	Abhijeet sarkar
8	Abhinav Sharma
9	Abhishek Bansal
10	Abhishek gupta
11	Abhishek saini
12	Abhishek Sharma
13	Kashish Arora
14	Rakshita Agarwal
15	Doly bansal
16	Siddhi Agarwal
17	Varsha
18	Himanshu Agarwal
19	Aishwarya Kumari Sharma
20	Akash
21	Kartikey Sharma
22	Akshat sharma
23	Akshita sharma
24	Akul Saxena
25	Aman Jangid
26	Aman Maru
27	Ameen Zehra
28	Amit Verma
29	Anirudh soni
30	anjali gupta
31	Anjali Sharma
32	Anjali Singh
33	Dhruv Kumar Gupta

34	Ankit Sharma
35	Ankit shakdweepiya
36	Anmol Gupta
37	Ansh Agarwal
38	Ansh Garg
39	Anshita Yadav
40	Anuj kanchal
41	Apeksha pitaliya
42	Aditi Praveen Gupta
43	Archika Dixit
44	Archi Patidar
45	Vagya Gupta
46	Ashima Mehta
47	Ashish
48	SHREYANSH AGRAWAL
49	Avni Jain
50	Ayush Jhawar
51	Manav Manna
52	Akshat Mathur
53	Mayank jangir
54	Sumit Sharma
55	Vijay Kumar
56	Chirag Gurnani
57	Sourav
58	AAKASH GUPTA
59	Nehansh Barjatya
60	Manan Sharma
61	Puneet Dadhich
62	Ameen Zehra
63	NIKHIL SUWALKA
64	Palak Singh
65	Pranav pratap singh naruka
66	Danish Khan
67	Renu Kumari
68	Nupur Singh Choudhary
69	Priya
70	Rajveer Singh
71	Jugal Kishor Choudhary
72	Saarthak chopra
73	KHUSHI AGRAWAL
74	Pratham sharma
75	Tariq
76	Preeti Gupta
77	Shivam tiwari

78	Unique paliwal
79	Harsh Pathak
80	Suhani goyal
81	Ram modi
82	Nikhil garg
83	Ramakant
84	Bhavya Sharma
85	Yogendra
86	Kunal Gupta
87	Aditya Pratap Singh
88	BHARG MAHAJAN
89	NAMASYA CHOUDHARY
90	Aarohi Malsaria
91	Shreyansh nagarwal
92	Aryan sharma
93	ANUSHKA SHARMA
94	Chetan Prakash vyas
95	Deeptanshu vyas
96	Ayush Soni
97	Aditya Rawat
98	NIRMAL PRAJAPATI
99	Anand Tripathi
100	Seema lega
101	Jai Prakash Anand
102	Kalpana Sharma
103	Purva Kumawat
104	Bhavya Gupta
105	Vijay Jangid
106	RAKESH POONIYA
107	Reva Verma
108	Aditya Soni
109	KARAN MOOND
110	Kamlesh Gurjar
111	Divyaraj Singh Ranawat
112	Pawan kumar dhakar
113	Mohammed Fardeen
114	PIYUSH GUPTA
115	Sachin Kumar
116	Gautam Sethiya
117	Gazal jain
118	Dinesh Sharma
119	Simran choudhary
120	NIHARIKA SINGH
121	Khushi Bhatia

122	Kirti sharma
123	Vishnu kumar bangdwa
124	NAITIK VIJAYVARGIYA
125	Himanshu Sharma
126	Asha sharma
127	Chahak Khurana
128	Chirag wadhwa
129	Karan sharma
130	Arushi Hinger
131	Himansh Singh
132	Divit Gautam
133	SAKET JAIN
134	SAKSHI YADAV
135	Devang Joshi
136	Akshita Agarwal
137	Aakash yadav
138	Naman Tak
139	Sajid khan
140	Kanishka Khorwal
141	Priyanshu Prajapat
142	Rajat bhaskar
143	Ravi meena
144	Abhay raj shukla
145	Abhijeet Agarwal
146	Abhishek Kumar
147	ALISHA AGARWAL
148	Aman soni
149	ARYAN BIRLA
150	ASHLESH SINGH CHOUHAN
151	Dishika sharma
152	Garvit Khandelwal
153	Himanshu Agarwal
154	Ishika patni
155	Jai Kumar Bisaria
156	Khushi Rajawat
157	Nandani Khandelwal
158	Rohit jain
159	Varun mathur
160	Panjak Samota
161	RISHIKA JAIN
162	Sakshya Mawaliya
163	Tarun Saini
164	Urvashi Gautam
165	Bhavesh Agarwal

166	Rohan Rao
167	Hardik Sharma
168	Naman Jain
169	ABHIJEET MATHUR
170	Ruchi singh
171	Vikram pal
172	Aryan sharma
173	Ashutosh Vijay
174	Yash Sihag
175	Shreya Jha
176	Krish yadav
177	Uday Singh Sisodia
178	Abhishek Gupta
179	Pranshul
180	Diya Sharma
181	Rahul singh panwar
182	Ansh Kumar
183	payal gupta
184	ARVIND KUMAR MEENA
185	Mohit Ramnani
186	Karishma kumawat
187	Rinku
188	Saloni Meena
189	Aditya Poonia
190	Prakash Sharma
191	Mahendra chhaba
192	Ansh Tyagi
193	Anupam jain
194	RITIKA MEENA
195	Neeraj singh meena
196	Lovesh chhabra
197	Jashan
198	Akshita Sharma
199	Deepanshu Khandelwal
200	Hanuman saini
201	Preeti verma
202	Rishabh Jain
203	Ayushi Katyayan
204	RAHUL KUMAR
205	Kartikey
206	Balveer Saini
207	Gaurav Chakraborty
208	Bhavya sharma
209	bhavya sharma

210	mohit
211	Ved Pratap Singh
212	Pratyush Solanki
213	Gaurav Singh Mangat
214	Chinkle
215	Chinmay Bhatnagar
216	Chirag Bhayana
217	chirag kumar sharma
218	Chirag Parihar
219	JENISHA DEVNANI
220	Deepansh Sharma
221	Deepanshu
222	Devendra Ghasia
223	Vinod dewasi
224	Dharmanshu Kumar
225	Dhruv Pathak
226	Diksha Aswani
227	Dimple Menghani
228	Disha Garg
229	Diva Bhati
230	divya arora
231	Divya jain
232	Divya
233	Divyanshu Gupta
234	Divya Nyati
235	Diya Sharma
236	Dolly Sharma
237	Deepak Sharma
238	EKTA GUPTA
239	Vishal Verma
240	Fejan shekh
241	Gagandeep Singh
242	Saloni garg
243	GARIMA GUPTA
244	Garvit mathodia
245	Gaurav Vijayvergiya
246	Gaurav Bhandari
247	Naman goyal
248	Suhani goyal
249	Ayush Gurjar
250	Vinita Garg
251	Yashasvi Gupta
252	Hardik Verma
253	Hardik jain

254	Harish
255	Harshika Pradhan
256	Harshita Jain
257	HARSHITA PALIWAL
258	Harshavardhan Verma
259	Harsh Bindal
260	Himanshu Choudhary
261	Hemant Yogi
262	Himanshu Sharma
263	Himisha Tunwal
264	Hiteshi Agrawal
265	Ishika yadav
266	ishita jain
267	Ishita Jangir
268	Kanishk dutt Sharma
269	Aakansha Nolkha
270	Harsh Jain
271	Harshit Kumar Jain
272	Kartik Jain
273	Rishika Jain
274	Tanisha jain
275	Sanjay kumar Jangid
276	Jatin Bhagtani
277	Jatin Jhajharia
278	Ayushi Katyayan
279	Jigyashu Sharma
280	Lakshita Natani
281	Devesh Sharma
282	Rishi jain
283	KAILASH POONIYA
284	Kajal Naggar
285	Kalpit Mathur
286	Ayush garg
287	KANIK SHARMA
288	Kanishk khandal
289	Kanishk saini
290	Harsh Sharma
291	KASHYAP
292	Karan Singh Bargujar
293	Kartikey Nehra
294	Kavita sharma
295	Keshav Gautam
296	Pragati khandelwal
297	Shubhi Khandelwal

298	khushi
299	Khwaish Gupta
300	Rashi Kinra
301	Kishan Kumar Das
302	Kishita Agarwal
303	Komal Kanwar Korawat
304	Pawan Kumar
305	Krati choudhary
306	Krishna Gupta
307	Kritika Surana
308	Kuldeep joshi
309	KULDEEP SINGH MEENA
310	KUL PRATAP SINGH
311	Yogit Kumar
312	Kushagra Mundra
313	Lakshay Jain
314	Laveena goyal
315	Vishva Yash Pandey
316	Lavneesh Kumar Gupta
317	Lokesh kumar saini
318	Priyansh Sharma
319	Lucky bharia
320	MADHUR AGRAWAL
321	Manu Mahawar
322	Mahi swami
323	anupam jain
324	MAMTA SOLANKI
325	MANALI SHARMA
326	Manan Sharma
327	Manav Modi
328	Naitik Mangal
329	Manik Mehra
330	Manogya jain
331	MANUJ GANERIWALA
332	Arman Mathew
333	Deepjyoti Mech
334	Mohit Meena
335	Pooja Kumari Meena
336	Siddharth Meena
337	Megha agarwal
338	Riya Mehta
339	Mehul mangal
340	Anurag Agrawal
341	MINAKSHI KUMARI

342	Sarim Ur Rehman
343	Mohit Agarwal
344	Mohit Jarwal
345	Mohit Trivedi
346	Monil Goyal
347	Mudeet Jain
348	Muskan Rangrej
349	Nakul Narwani
350	Naman Joshi
351	Roshan Singh
352	Naveen ghosliya
353	Nehal Jain
354	Neha Maheshwari
355	Neha Meerchandani
356	Nicky Lakhisarani
357	Sahil karwani
358	Nikhil sharma
359	Nikita Gupta
360	Nilisha nagar
361	Nishant Jain
362	Nishi Chouhan
363	Atika Khandelwal
364	Nitin verma
365	Karan mourya
366	Aman ojha
367	Omik parmani
368	Palak Gupta
369	Pallvi thakur
370	Parag saini
371	Paridhi Khandelwal
372	parth shekhawat
373	Payal Meena
374	Payal gupta
375	Keshav Pareek
376	Ayush Podar
377	Pradeep Badgoti
378	Praful Singh Sikarwar
379	Prakash Meena
380	Prashant Kala
381	Prashant Jethwani
382	Pratiksha Sharma
383	Priyanshu sharma
384	Prince Agrawal
385	Prince kumar

386	Prithvee vasudev
387	Priyadarshini Singh Shekhawat
388	priyal ajmera
389	PRIYAL KHANDELWAL
390	Priyambada Singh Shekhawat
391	Priyanshu Sharma
392	Priyanshu goyal
393	Priya Gupta
394	PUNEET GARG
395	Radhikabirla
396	Raghav Agarwal
397	AVISH RAGHAV
398	Rahul Ahuja
399	Rahul Chaudhary
400	Rahul dubey
401	Rahul saini
402	Rahul sharma
403	Rahul singh panwar
404	Rahul Suthar
405	Riaz Ahmed
406	Raj tiwari
407	Rajdev Dhakar
408	Rajni Attri
409	Rajveer Chopra
410	Deependra Singh Ranawat
411	Ranveer singh
412	NIHARIKA RATHORE
413	Rohit Upadhyay
414	Rini Jain
415	Rishabh Jain
416	Rishabh Singh Shekhawat
417	Rishi
418	Ritesh Agarwal
419	RIYA PARAKH
420	Mihir pandiya
421	PIYUSH GUPTA
422	Rohit Garg
423	Rohit jain
424	Rohit Lamba
425	Ronak Kumar
426	Rohit Rajoriya
427	Rudraksh Agarwal
428	Sachin Kumar
429	Sachin meena

430	Sahil Gupta
431	Vivek singh
432	Vishnu saini
433	Garvita Sakhrani
434	Saksham Sharma
435	Sakshi Gurbani
436	Saloni Sharma
437	SAMAKSH MATHUR
438	Samiksha Sambyal
439	sandeep singh
440	Sanskriti Kaushal
441	Saransh Gupta
442	Saurabh Kumar pushp
443	Pranjal soni
444	Saloni Agarwal
445	Shalin Devpura
446	Abhijay Sharma
447	Sangeeta Sharma
448	shruti sharma
449	Tanishtha sharma
450	Shital
451	Shivam Gupta
452	Shivani Chaturvedi
453	Shiv Lal
454	Shorya pathak
455	Shreya Bhargava
456	Shubham Gupta
457	Shubham jain
458	Shubham Nagar
459	Shubham singh
460	Shreshtha Suri
461	Siddhi Saxena
462	pradeep singh
463	Simmi Jain
464	Simran Udhani
465	Aditya Singh
466	Muskan Singhal
467	Chetan Singh Rathore
468	Nitu Singh
469	Prashant Singh
470	Somik choudhary
471	Somya Jain
472	Sonali jain
473	Sonia Devi

474	Sonu saini
475	Kartik thakral
476	sudeep shukla
477	Sumer singh rawat
478	Sumit meena
479	Sumit sarsar
480	Krishan Kumar swami
481	Rakesh swami
482	Tamanna Sharma
483	Tanish Khandal
484	Tapesh Kumar
485	Tejasva Sharma
486	Kriishnanshu Bhargava
487	Vansh Choudhary
488	Sainyali trivedi
489	Tushar Kumar Sahu
490	Poorvaja Verma
491	Ujjwal Mantri
492	uma kumari
493	Umang Mathur
494	Vaishali Bansal
495	Vanshika Namdev
496	Vartika Garg
497	Kush Vasaniya
498	Akshay Verma
499	Tushar Kumar Verma
500	Vidisha mamnani
501	Vijay Kumar
502	VISHWAS VIJAY VARGIYA
503	Vikalp jain
504	VIPUL JAIN
505	Vishal Bansiwal
506	Vishal Singh Rajpurohit
507	Vishnu kumar bangdwq
508	Vivek Kumar
509	Virender Singh
510	Rohit kumar soni
511	Nikhil Sharma
512	Yash agarwal
513	Yash gupta
514	Yashpal siyag
515	Yashmita bansal
516	Yash jangid
517	Deepak

518	Lokendra Pal Rathore
519	Yuvraj Kishan Sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Effective Writing

Course Code: noc22-hs05

Session: 2021-22

Duration: 4 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction to Effective Writing
- Effective Writing as an Art
- Principles of Effective Writing
- Types and Stages of Effective Writing

Week 2:

- Notions of Correctness and Appropriateness, Part I
- Notions of Correctness and Appropriateness, Part II
- Essay Writing
- Types of Essays
- Essentials of Academic Writing, Part I

Week 3:

- Essentials of Academic Writing, Part II
- Business Writing and its Functions
- Mechanics of Business Writing
- Business Letters and Memos
- Format of Business Letters and Memos
- Types of Business Letter

Week 4:

- Sales, Complaint and Adjustment Letters
- Report Writing
- Strategies and Structure of Reports
- Style of Report Writing
- Creative Writing

List of students enrolled

S.No.	Name of Student
1	Aashita Sharma
2	Abhishek Nagar
3	Varsha
4	Aman Khan
5	Anshita Yadav
6	Arjit Jain
7	Aryan Sharma
8	Gaurav Chakraborty
9	Priyanka Bhaskar (Faculty)
10	Nikhil Bhatia
11	Bhavit jain
12	Chhavi Sharma
13	Anshi Jha
14	Kartikeya Dixit
15	Dolly Sharma
16	Isha Tripathi
17	Aakansha Nolkha
18	Jitesh Meghwanshi
19	Kajal Sharma
20	Shubhi Khandelwal
21	Khushi Jain
22	Komal Kanwar Korawat
23	Rahul Kumawat
24	Malika khandelwal
25	manisha balani
26	Nishita Mathur
27	Atika Khandelwal
28	NITYA SINGH
29	Pawani Bhardwaj
30	Radhikabirla
31	Ramkishor Sharma
32	Ritesh Sharma
33	Sakshi Agarwal
34	Sakshi meena
35	Saransh Gupta
36	Saloni Agarwal
37	Shivani Chaturvedi
38	Somik choudhary
39	Sumer singh rawat
40	Tejasva Sharma
41	Kriishnanshu Bhargava
42	Naman Agarwal
43	Vaishali Bansal
44	Drishti Gupta
45	Mohd.zain khan
46	Aashita Sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Speaking Effectively

Course Code: noc22-hs013

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction
- The Art of Speaking
- Encoding Meaning Using Verbal and Nonverbal Symbols
- Cross Cultural Communication
- Verbal Communication
- Encoding Meaning Using Verbal Symbols

Week 2: Nonverbal Communication
- Encoding Meaning Using Nonverbal Symbols
- How to Improve Body Language
- Eye Communication, Facial Expression, Dress and Appearance
- Posture and Movement, Gesture, Paralanguage

Week 3: Phonetics
- Standard Language and Queen's English
- Phonemes of English: Vowels
- Phonemes of English: Diphthongs and Consonants
- Stress and Rhythm
- Intonation

Week 4: Voice and Delivery
- Voice and Personality
- How to Improve Voice
- How to Improve Delivery
- Pace,Pause,Pitch
- Volume, Modulation, Resonance

Week 5: Basic Conversational Skills
- Greetings and making introductions
- Asking for information and giving instructions
- Making requests
- Agreeing and disagreeing

Week 6: Appearing in Interviews and taking Interviews
- Interviewing Skills
- Appearing in an Interview
- Conducting an Interview
- Analysis of a bad interview

Week 7: Making and Assessing Presentations
- How to Make Successful Presentations
- How to Make Successful Presentations
- Analysis of a Bad Presentation
- Analysis of a Good Presentation

Week 8: Group Discussions and Meetings

- Participating in a Meeting
- Chairing a Meeting
- Analysis of an ill conducted meeting
- Analysis of a well conducted meeting

List of students enrolled

S. No	Name of Student
1	Arpita sharma
2	NAVYA SHARMA
3	Daksh Gupta
4	Aarushi Sharma
5	Aashka jain
6	Abhinav Sharma
7	abhishek gupta
8	Abhishek gupta
9	Abhishek gupta
10	ADARSH KUMAR BHARDWAJ
11	Aditya Agarwal
12	Aditya Misra
13	Aditya Soni
14	Ayushi Agarwal
15	Shivam Agarwal
16	Sakshi Agarwal
17	AKSHAT JAIN
18	Akshat Gadodia
19	Akshat Gupta
20	Akshat Sharma
21	Akshita Sharma
22	Akshi Jain
23	Akul Saxena
24	Aman Bhargava
25	Aman Chaumal
26	Shreya Ameta
27	Amit Mehra
28	AMOL KUMARI
29	Ankit Sharma
30	ANKUR YADAV
31	Ansh Agarwal
32	Anushka Tiwari
33	Anurag lohar
34	Aravi Sharma

35	Arnav Godara
36	Arshia Agarwal
37	Lahar
38	Aryan Gupta
39	Ayush Soni
40	Ayushi Agrawal
41	Ashu Agarwal
42	Ayush jalan
43	AYUSH SINGHAL
44	Sachin Kumar
45	Sakshee Shalinee
46	Mansi nigam
47	Rinki Barman
48	Anshuman Singh Sikarwar
49	Anushka Jain
50	Rajveer Singh
51	Shivani yadav
52	Nikita Rao
53	Aaditya Sharma
54	BHARG MAHAJAN
55	Kunal Jaiswal
56	Harshit Madan
57	Abhishek choudhary
58	Baldeep Singh
59	Vicky Soni
60	Sachin Sharma
61	Harshit Kumawat
62	Manan Singh Jain
63	Arpit
64	Rishabh Kumar Kanther
65	Anshika Bhatt
66	Suyash ameta
67	kavya
68	Aman Kawadia
69	Shobhit Singh
70	Aditi Tiwari
71	Rahul Singh Rautela
72	Anand Tiwari
73	NIHARIKA SINGH
74	YASH GUPTA
75	Khushi Bhatia
76	Kirti sharma

77	Leepika agarwal
78	Aarish Quazi
79	Aashi jain
80	UTSAV KUMAR KOTHARI
81	Vidit khandelwal
82	Neha Dhaked
83	Vanshika jindal
84	Palak garg
85	Jayesh Darwani
86	Ashmit Kumar Kurmi
87	Yash bansal
88	SHARAD BAGHLA
89	Parag pareek
90	Sarthak Kothari
91	Ashutosh Vijay
92	Vikas sharma
93	Rohit rao
94	Ayush Gupta
95	Madhav soni
96	RITIKA MEENA
97	Arushi
98	Bhanupriya Panwar
99	Bhagyansh Garg
100	Bhavesh Singhal
101	Bhomesh Razdan
102	Bhumika Chaudhary
103	Kartik Singh Bisht
104	Yogesh Sharma
105	V Vighnesh Rajan
106	Vishal dandia
107	Yatharth jain
108	akhilesh chaturvedi
109	Chetan Sharma
110	Chhavi Sharma
111	Chinmay Singh Nathawat
112	Tanishq Goyal
113	Priyanshu goyal
114	Deepansh Sharma
115	Devesh nagar
116	Devesh Nagar
117	Dharmi Kapadiya
118	Dheeraj Kumar garg

119	Dhruv Pathak
120	DIVYANSH GUPTA
121	Divyanshi Bhardwaj
122	CHINMAY PAREEK
123	FAIZAN KHAN
124	Khushi Choudhary
125	Jamuna Jangid
126	Geetanshikha Gautam
127	Drishti Gupta
128	Ayush Gurjar
129	Preeti Gurjar
130	Hardik jain
131	Hari kumar addania
132	Harsh soni
133	Himanshu Kumawat
134	Himanshu Patni
135	Himesh kumar
136	Ronak Gupta
137	ishita jain
138	JAGRATI MEENA
139	Abhishek jain
140	Anjesh jain
141	Gautam kumar jain
142	Megha Jangid
143	Yashwant jangid
144	anushka jain
145	Jatin Yadav
146	Jayesh Gupta
147	Jayesh Singh
148	Krishna Rathi
149	Jitendra Singh
150	Devesh Sharma
151	Joshita sharma
152	Jyoti agrawal
153	Ayush garg
154	Harsh Sharma
155	Kartik sarda
156	Vishal katariya
157	Manan khandelwal
158	Suzane Khan
159	Khechraay Arkaay
160	khushi khandelwal

161	KIRTI JAISWAL
162	Arya Negi
163	Kavya Jain
164	Kuldeep joshi
165	LALIT MEENA
166	Madhav kankani
167	MANALI SHARMA
168	Manav Modi
169	MANUJ GANERIWALA
170	Mayank lalwani
171	Mayank Pugalia
172	Riya Mehta
173	Anurag Agrawal
174	Mishu Jain
175	MOHEET ALAM
176	MOHIT SINGH
177	sakshi nagpal
178	Naina Madan
179	Nicky Lakhisarani
180	Nidhi Yadav
181	Nikita Gupta
182	Aaditya Trivedi
183	Nikita Rao
184	NIKUNJ SINGH GEHLOT
185	Nilesh Suthar
186	Nishtha Sainani
187	Nitin Jain
188	NITYA SINGH
189	Palak
190	AKSHAT PAREEK
191	Prajwal Parihar
192	Agrawal Pranjal Pankaj
193	Prateek Meena
194	Prateek Somani
195	Pratiksha Sharma
196	Pratyush Chhipa
197	Rahul Jain
198	Prerit Goyal
199	Prince Agrawal
200	Priyadarshini Singh Shekhawat
201	PRIYAL KHANDELWAL
202	Priyansh Lavadia

203	Priyanshu goyal
204	Purvi Harpalani
205	Rachi Khandelwal
206	Radhika soni
207	Rucha Kukreti
208	Rudraksh Agarwal
209	saksham jain
210	Sakshi Agarwal
211	Sakshi meena
212	samridhi
213	SAMYAK JAIN
214	Sanyam jain
215	Saransh Gupta
216	Yogendra Singh
217	Shalin Devpura
218	AAYUSHI SHARMA
219	shruti sharma
220	Shashank Sharma
221	Shivam Todwal
222	Shivam Choudhary
223	Shiv Lal
224	Shray Rathore
225	Srishti Ajmera
226	Shruti Dubey
227	Shubham Gundaliya
228	Shubham Gupta
229	Shubham jain
230	Shreshtha Suri
231	Simran Parwani
232	Simran Udhani
233	AYUH SINGHAL
234	Chinmay Singh Nathawat
235	Manjeet Singh
236	Saurabh Singh Parihar
237	Shailendra Singh
238	Sonali kumawat
239	Srashti soni
240	Sandeep Singh
241	sudeep shukla
242	Navin suthar
243	Tamanna yadav
244	Tanisha Mudgal

245	Tanisha Jawale
246	Tanish Khandal
247	Tushar Kumar Sahu
248	Tushar Sharma
249	Vaibhav Bairathi
250	Vanshika Namdev
251	vanshikatahalwani
252	Varenyam Sharma
253	Varun Kumar Meena
254	Tanya Verma
255	Vikas sharma
256	Vinay Bansal
257	Vinit Kumar Shah
258	Vishal Sharma
259	Vishal Bansiwal
260	Vishal singh chouhan
261	Yaman Kumar Malik
262	Yashwardhan Gaur
263	DHARMPAL YADAV
264	Yuvraj Singh Naruka

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Entrepreneurship Essentials

Course Code: noc22-ge03

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
- Introduction
- Dhirubhai Ambani & Sofia
- Myths & Realities about entrepreneurship
- entrepreneurial qualities
- Why start-ups fail?

Week 2:
- Mission, vision, entrepreneurial qualities – I
- Mission, vision, entrepreneurial qualities – II
- Value proposition
- Business Model canvas
- Business model generation

Week 3:
- Competitive advantage
- Lean start-up – 1
- Lean start-up – 2
- Team and early recruit
- Legal forms of business

Week 4:
- Marketing management 1
- Marketing management 2
- Market research –I
- Market research –II
- Market research –Example

Week 5:
- Introduction to financial statements
- Profit & Loss statement
- Balance sheet
- Cash flow
- Example – 1
- Example – 2
- Cost-volume-profit & Bread-Even analysis
- Capital budgeting

Week 6:
- Business plan-I
- Business plan-II
- Pitching
- Go-to-market strategies

- Does & Don'ts

Week 7:

- How to innovate
- Design Thinking
- Design-Driven Innovation, Systems thinking
- Open innovation, TRIZ
- How to start a start-up?

Week 8:

- Government incentives for entrepreneurship (1 lecture)
- Incubation, acceleration

Funding new ventures – bootstrapping, crowd sourcing, angel investors, VCs, debt financing (3), due diligence

- Legal aspects of business (IPR, GST, Labour law)

Week 9:

- Cost, volume, profit and break-even analysis
- Margin of safety and degree of operating leverage
- Capital budgeting for comparing projects or opportunities
- Product costing
- Product pricing

Week 10:

- Funding new ventures – bootstrapping, crowd sourcing,
- Angel investors, VCs, debt financing (3), and due diligence
- Incubation and acceleration
- Government incentives for entrepreneurship
- Project cost and Financial Closure

Week 11:

- Dos & Don'ts in entrepreneurship
- Growth Hacking
- Growth Strategy
- Legal aspects of business (IPR, GST, Labour law)
- Negotiation skill

Week 12:

- Human Resource management in start-ups
- Pivoting
- Entrepreneurial cases
- Risk assessment and analysis
- Strategy management for entrepreneurial ventures
- Factors driving success and failure of ventures
- Concluding remarks

List of students enrolled

S.No.	Name of Student
1	Anupam jain
2	Mansi kanwar
3	CHINMAY PAREEK
4	Lavanya jain
5	Harsh Sharma
6	khushi khandelwal
7	Kritika Surana
8	anupam jain
9	Ratan Soni
10	RIYA PARAKH
11	Shubhijain
12	Sneha khandelwal
13	Sonali kumawat
14	Varenyam Sharma
15	Yashvir Singh Nathawat

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Soft Skill Development

Course Code:noc22-hs07

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
Communication skills 1: The basics
Topics to be covered:
i. Understanding the communicative environment-I
ii. Understanding the communicative environment-II
iii. What to listen for and why
iv. When to speak and how
v. Starting and sustaining a conversation
Week 2:
Communication skills 2 : Presentation and interaction
Topics to be covered:
i. What to present and how – I
ii. What to present and how – II
iii. Multimedia presentation: Understanding the basics
iv. Communication styles
v. Speaking in groups
Week 3:
Communication skills 3: Visual, nonverbal and aural communication
Topics to be covered:
i. The world of visual culture
ii. Visual perception
ii. The aural: Its relevance and impact
iv. The body and the way it communicates
v. The face, its expressions and what it says
Week 4:
Interpersonal communication 1: Individuals, groups and cultures
Week 5:
Interpersonal communication 2: Emotional and social skills
Week 6:
Developing key traits 1: Creativity, critical thinking and problem solving
Week 7:
Developing key traits 2: Motivation, persuasion, negotiation and leadership
Week 8:
Essential and vocational skills: survival strategies

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Akshat sharma

3	Anshita Yadav
4	Anushka sonwal
5	Ashima Mehta
6	Aadityakaushik
7	SHARAD BAGHLA
8	Satvikpriyadarshi
9	Ashutosh Vijay
10	Manav Singh
11	Vishal Kumar
12	JENISHA DEVNANI
13	Deepanshu Rai
14	Deveshwar Singh Rajawat
15	EKTA GUPTA
16	FAIZAN KHAN
17	GARIMA GUPTA
18	Garvit Jaiswal
19	Yashasvi Gupta
20	Himanshu Patni
21	anushkajain
22	Devesh Sharma
23	Jitendra Choudhary
24	Kannu Sharma
25	Harsh Sharma
26	Kartik Sharma
27	Vishal katariya
28	Keshav Gaur
29	khushikhandelwal
30	RashiKinra
31	Kirti Soni
32	Muskan Kumari
33	Kunika Khandelwal
34	Kushal Rawat
35	Madhur Khandelwal
36	SHUBHAM MAHESHWARI
37	MANUJ GANERIWALA
38	Mohit kumarpamnani
39	khan mosimwahid
40	Naman Joshi
41	Khushi nayak
42	Neha Meerchandani
43	Nishant Kumar
44	Omikparmani

45	Palak
46	Prince Agrawal
47	Priyanshugoyal
48	Rishabh Jain
49	Sakshi Gurbani
50	Sakshi Agarwal
51	Sakshi Sharma
52	samridhi
53	Sapna
54	Yogendra Singh
55	Shivam Garg
56	Shubham Nagar
57	Salonikumari
58	Chetan Singh Rathore
59	Prashant Singh
60	Sneha khandelwal
61	Somikchoudhary
62	TanishKhandal
63	Tushar Sharma
64	Ujjwal Mantri
65	Vanshika Gupta
66	Vidisha mamnani
67	VIKAS YADAV
68	Vinay Bansal
69	Vinit Kumar Shah
70	yashmaheshwari
71	Yashwardhan Gaur

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Non-conventional energy Resources

Course Code: noc22-ge14

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
- Scale of quantities
- Impact of current energy usage
- Conventional sources of energy

Week 2:
- Overview of non-conventional energy resources
- Consumption by sector

Week 3:
- Solar energy incident on earth
- solar spectrum

Week 4:
- Overview of solar energy technologies
- Solar Thermal devices

Week 5:
- Solar Photovoltaic devices
- Performance and durability of solar devices

Week 6:
- Wind energy, technology and geographical aspects

Week 7:
- Geothermal and Biomass

Week 8:
- Battery basics, types

Week 9:
- Testing, performance of batteries

Week 10:
- Fuel cell types, Fuel processing, concept to product.

Week 11:
- Characterization and durability of fuel cells

Week 12:
- Flywheels and super capacitors

List of students enrolled

S.No.	Name of Student
1	Arun Beniwal (faculty)
2	Muskan Rangrej
3	Priyanka soni
4	Yogendra Singh
5	Varun Kumar Meena

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Emotional Intelligence

Course Code:noc22-hs011

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to emotion, intelligence & wisdom
Week 2: Concept, theory, measurement and applications of intelligence
Week 3: Emotional intelligence: concept, theory and measurements
Week 4: Correlates of emotional intelligence
Week 5: Emotional intelligence, culture, schooling and happiness
Week 6: For enhancing emotional intelligence EQ mapping
Week 7: Managing stress, suicide prevention, through emotional intelligence, spirituality and meditation
Week 8: Application of emotional intelligence at family, school and workplace

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Aditi Praveen Gupta
3	Nikhil Bhatia
4	Disha Garg
5	CHINMAY PAREEK
6	Garvit Jaiswal
7	Jayesh Singh
8	Khushi Jain
9	Komal Kanwar Korawat
10	anupamjain
11	Naman Joshi
12	Nishita Mathur
13	Ratan Soni
14	Srishti Kulshrestha
15	Tisha Gupta
16	Yash Gupta

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Literature and Life

Course Code: noc22-hs01

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
- Introduction

Week 2:
- Elements of Literature

Week 3:
- Prose - 1

Week 4:
- Prose - 2

Week 5:
- Poetry - 1

Week 6:
- Poetry – 2

Week 7:
- Drama

Week 8:
- One Act Plays

Week 9:
- Novel

Week 10:
- Short Story – 1

Week 11:
- Short Story - 2

Week 12:
- Panel Discussion

List of students enrolled

S.No.	Name of Student
1	Rakshita Agarwal
2	Krishna Rathi
3	Rakshit khandelwal
4	Nishita Mathur
5	Ratan Soni
6	Rohit Lamba
7	AAYUSHI SHARMA
8	Nikunj sahu
9	SRISHTY AGARWAL
10	Vansh Choudhary

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Digital Electronic Circuits

Course Code: noc22-ee55

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction; Relation between switching and logic operation;
- Use of Diode and Transistor as switch; Concept of noise margin, fanout, propagation delay; TTL,
- Schottky TTL, Tristate; CMOS Logic, Interfacing TTL with CMOS

Week 2:

- Basic logic gates, Universality of NAND, NOR gates, AND-OR-Invert gates,
- Positive and Negative Logic; Boolean Algebra axioms and basic theorems; Standard and canonical representations of logic functions,
- Conversion between SOP and POS; Simplification of logic functions, Karnaugh Map, Don't Care Conditions.

Week 3:

- Minimization using Entered Variable Map, Minimization using QM algorithm;
- Cost criteria, Minimization of multiple output functions; Static-0, Static-1 and Dynamic Hazards and their cover..

Week 4:

- Multiplexer; Demultiplexer / Decoder, BCD to 7-segment decoder driver;
- Encoder, Priority encoder; Parity generator and checker

Week 5:

- Number systems-binary, Signed binary, Octal, hexadecimal number;
- Binary arithmetic, One's and two's complements arithmetic; Codes,
- Code converters; Adder, Subtractor, BCD arithmetic

Week 6:

- Carry look ahead adder; Magnitude comparator; ALU; Error detecting and correcting codes

Week 7:

- Bistable latch, SR, D, JK, T Flip-Flop: level triggered, edge triggered,
- master – slave, Various representations of flip-flops;
- Analysis and synthesis of circuits that use flip-flop

Week 8:

- Register, Shift register, Universal shift register;
- Application of shift register: ring counter, Johnson counter, sequence generator and detector, serial adder;
- Linear feedback shift register

Week 9:

- Up and down counter, Ripple (asynchronous) counters, Synchronous counters;
- Counter design using flip flops, Counter design with asynchronous reset or preset; Applications of counters

Week 10:

- Design of synchronous sequential circuit using Mealy model and Moore model: state transition diagram,
- algorithm state machine (ASM) chart; State reduction technique

Week 11:

- Digital to analog converters: weighted resistor/converter, binary ladder, converter, accuracy and resolution;
- Analog to digital converter: quantization and encoding, different types of conversion, accuracy and resolution

Week 12:

- Memory organization and operation, Memory expansion; Memory cell;
- Different types of memory, ROM, PROM, PAL, PLA, CPLD, FPGA

List of students enrolled

S.No.	Name of Student
1	Aakash Dadhich
2	Akash Kumar
3	ANURAG KUMAR
4	Archita Gocher
5	Arun Singh
6	Ashutosh jangir
7	Kamal nayan
8	Chirayu Jain
9	Karishma tomar
10	Rahul Suthar
11	saurabh gupta
12	Shubham Naryani
13	Nikunj sahu
14	sumita
15	Mumal Bhati
16	TANUJ RAWAT
17	Vaidehi Mudgal
18	vishal singh
19	Shivam sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Signals and Systems

Course Code: noc22-ee42

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
- Mathematical Preliminaries

Week 2:
- Types of Signals and Transformations

Week 3:
- Fourier Transform of Continuous-Time Signals

Week 4:
- Properties of Fourier Transforms

Week 5:
- LTI Systems

Week 6:
- Convolution and LTI System Properties

Week 7:
- Laplace Transform

Week 8:
- Laplace Transform Properties

Week 9:
- Fourier Series of Continuous-Time Periodic Signals and Properties

Week 10:
- Discrete-Time LTI Systems and Sampling

Week 11:
- Discrete-Time Fourier Transform (DTFT)

Week 12:
- Z-Transform

List of students enrolled

S.No.	Name of Student
1	Arun Singh
2	Lahar
3	Shyanu kumar sharma
4	Priyanshu Rawat
5	Prakhar Saxena
6	piyush kumar rathi
7	Mandeep hingonia
8	Rajat Chaudhary
9	Neeraj Garg
10	Geetam
11	Mukul gupta
12	Guru Sharan Kumawat
13	Mahi Jain
14	Megha Jangid
15	Kavya Jain
16	Chandan Kumar
17	Lokesh kumar kumawat
18	mohd imran
19	Saurabh garg
20	Naman Jain
21	Parth chahar
22	Parth singh deval
23	Piyush Baldwa
24	Ranjan Kumar Tiwari
25	Sakshi Gupta
26	samridhi
27	Rohit Sharma
28	Shubham Naryani
29	Tanish Khandal
30	Tanishq Rathore
31	Abhishek singh chandel
32	pulkit Gupta
33	vishal singh

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Digital Protection of Power System

Course Code: noc22-ee46

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction of digital relays; Fundamentals of digital relays;
- Basic layout and elements of the digital relays with visual illustration;
- The concept of sampling and aliasing for digital relays; Sliding window concept of digital relays

Week 2:

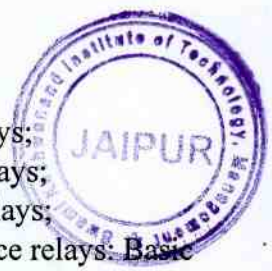
- Estimation of phasors using Full-cycle Discrete Fourier Transform (DFT);
- Estimation of phasors using Half-cycle DFT and introduction of Discrete Cosine Transform;
- Estimation of phasors using Walsh function technique and Least Error Square technique;
- Estimation of frequency in digital relays and practical considerations for selection of various algorithms;
- Digital Differential Protection of Generator, Induction motors and Busbar

Week 3:

- Digital Differential Protection of Transformers;
- Digital Directional/Non-directional Over current and Earth fault relays;
- Over current relay coordination in an interconnected power system network: LINKNET structure and determination of primary/backup relay pairs;
- Over current relay coordination in an interconnected power system network: Example; Problems faced by digital distance relays.

Week 4:

- Computation of direction and impedance for digital distance relays;
- Power swing detection and blocking technique in digital distance Relays;
- Protection of double-circuit transmission line using digital distance relays;
- Protection of multi-terminal transmission line using digital distance relays;
- Protection of series compensated transmission line using digital distance relays: Basic components.



Week 5:

- Protection of Series compensated transmission line using digital distance relays:
- Voltage/current inversion and sub-synchronous oscillations and additional transients; Load shedding and Frequency relaying:
- Various load shedding techniques and frequency relays; Load shedding and Frequency relaying:
- Factors to be considered and rate of frequency decline; Islanding phenomena: Hazards and risk of islanding and methods of islanding;
- Loss of existing protection coordination among protective devices: Recloser-Fuse coordination for DG interfaced Distribution network

Week 6:

- Hardware-in-loop testing of an islanding detection technique;
- Protection of dc micro grid: Review and challenges; AC micro grid protection: Problems and solutions;
- Insight in to hybrid ac-dc micro grid protection; Application of travelling wave (TW) and wavelet transform (WT) based algorithm

Week 7:

- Application of artificial intelligence (AI) in digital relaying;
- Introduction to Phasor Measurement Unit (PMU); Introduction of IEEE C37.118 standard; Wide area monitoring, control and protection using PMU;
- Introduction to IEC 61850 standard for substation automation and relay interoperability: Part-1

Week 8:

- Introduction to IEC 61850 standard for substation automation and relay interoperability: Part-2;
- Introduction to IEC 61850 standard for substation automation and relay interoperability: Part-3;
- Protection of High voltage dc transmission network; Various cyber-attacks at substation/transmission level for Indian power grid network; Basic concept and application of control switching

List of students enrolled

S.No.	Name of Student
1	Akshita Sharma
2	Poorvaja Verma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Microprocessors and Interfacing

Course Code: noc22-ee09

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: 8086 Architecture

Week 2: 8086 Pins and Signals

Week 3: 8086 Instruction Set I

Week 4: 8086 Instruction Set II

Week 5: 8086 Instruction Set III

Week 6: 8086 Instruction Set IV

Week 7: 8086 Programming I

Week 8: 8086 Programming II

Week 9: Memory Interfacing

Week 10: 8255 Interfacing Examples

Week 11: Interfacing of DC and Stepper Motors

Week 12: Interfacing of Key board,Display,USART

List of students enrolled

S. No	Name of Student
1	Vibhor Bansal

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Digital System Design

Course Code: noc22-ee45

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
- Introduction of digital systems.
- Number system

Week 2:
- Number representation: BCD,
- floating point numbers

Week 3:
- Boolean algebra, application of Boolean algebra in minimization of Boolean expressions

Week 4:
- Boolean minimization using K-map and Quine McCluskey method.
- Introduction to Verilog

Week 5:
- MSI Logic: Multiplexer, encoder, decoder

Week 6:
- Arthimetic circuits: Adder, subtractor
- multiplier, comparator

Week 7:
- Latches and flipflop (SR, JK, T, D)
- counters

Week 8:
- Sequential logic like Registers
- introduction to behavior modeling in Verilog

Week 9:
- Finite state machine, state graphs and tables.

Week 10:
- Reduction of state table and state assignments.
- Arithmetic circuits using sequential design.

Week 11:
- Register transfer level (RTL) design
- RTL design examples

Week 12:
- FPGA, VLSI design flow using HDL
- Introduction to behavior, logic and physical synthesis.

List of students enrolled

S.No.	Name of Student
1	Aabhas Nama
2	Abhishek Sharma
3	Arun Singh
4	Avni Jain
5	Ayush Pandey
6	Charvi dadhich
7	Ashish Gurjar
8	Kumari Ridhi
9	Kumari Sidhi
10	Kushal Tambi
11	Neha Maheshwari
12	Pawani Bhardwaj
13	Roshan Kumar Jha
14	samridhi
15	Tanish Khandal
16	Akash Kumar
17	chakshit gunidia
18	Utkarsh Bhargava
19	Vansh agrawal
20	Vikas Pathak (faculty)

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Recent Advances in Transmission Insulators

Course Code: noc22-ee29

Session: 2021-22

Duration: 4 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction, Important components of transmission system
- Insulation coordination
- Design and selection of insulators for transmission/distribution

Week 2:

- Non ceramic insulators performance-service experience
- Pollution/contamination flashover phenomena, modelling etc ,Failures
- importance of reliability and testing

Week 3:

- High Voltage testing and techniques employed
- HV testing techniques for Ceramic/glass Insulators
- HV testing on Composite Insulators

Week 4:

- Surface degradation studies on composite insulators
- Recent studies on composite insulators / Summary

List of students enrolled

S. No	Name of Student
1	Rakshita Agarwal
2	Akshita Sharma
3	Rashi Kinra
4	Yash Saini

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Analog Circuits

Course Code: noc22-ee15

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Diode Circuit.

Week 2: Transistor Biasing and Low Frequencies.

Week 3: Transistor Frequency Response.

Week 4: General and Feedback Amplifiers.

Week 5: Power Amplifier.

Week 6: Oscillators.

Week 7: FET Amplifiers.

Week 8: Multivibrators.

List of students enrolled

S. No	Name of Student
1	Aabhas Nama
2	Abhishek Sharma
3	Amartia Anand
4	Archita Gocher
5	Avni Jain
6	Ayush Pandey
7	Prachi Dhiliwal
8	Arun Singh
9	Navneet Raj
10	KASHISH JAGWANI
11	Ashmit Kumar Kurmi
12	Bhoomika Bulchandani
13	Charvi dadhich
14	Chirayu Jain
15	Chitaansh
16	Chitvan Tak
17	Dhruvtash gupta
18	Dikshant Sharma

19	Divya chachlani
20	Gaurav Kumar Gupta
21	Gaurav kumar saini
22	Mukul gupta
23	Hardik tyagi
24	Kashish karamchandani
25	Kashish Sharma
26	Dhiraj Kumar
27	Muskan Meena
28	GAURAV NAMDEV
29	NAVDEEP CHOUDHARY
30	Om Verma
31	Rahul Suthar
32	Rajkumar Sain
33	Ruchika Jain
34	Shubham Naryani
35	Shivani Lamba
36	Pradeep Bhat
37	chakshit gunidia
38	ABHISHEK SINGH
39	Naman Agarwal
40	Tushar vijayvargia
41	Shivam sharma
42	Divyansh Sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Object Oriented Analysis and Design

Course Code: noc21-cs57

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Software Complexity: Understanding the challenges OOAD can address

Week 2: Object Model: Defining the primitives of the OO paradigm

Week 3: Classes and Objects: Bringing in the broader perspectives

Week 4: Classes and Objects: Identification approaches using OOAD

Week 5: Unified Modeling Language

Week 6: Unified Modeling Language

Week 7: Unified Modeling Language

Week 8: OOAD Case Studies: Applying OOAD in different contexts

List of students Enrolled

S.No	Name of Student
1	Aniket Rathi
2	Archika Dixit
3	Harshit Gupta
4	Shruti Dubey
5	Siddhi Saxena
6	Simran Rathore
7	Vipul Kaushik

Course: The Joy of Computing using Python

Course Code: noc21-cs75

Session: 2021-22

Duration: 12 Weeks

Assessment procedures:

Final score = Assignment score + Unproctored programming exam score + Proctored Exam score

- Assignment score = 25% of average of best 8 assignments out of the total 12 assignments given in the course.
- Unproctored programming exam score = 25% of the average scores obtained as part of Unproctored programming exam - out of 100
- Proctored Exam score =50% of the proctored certification exam score out of 100

Curriculum of the Course:

Course layout

- Motivation for Computing
- Welcome to Programming!!
- Variables and Expressions : Design your own calculator
- Loops and Conditionals : Hopscotch once again
- Lists, Tuples and Conditionals : Lets go on a trip
- Abstraction Everywhere : Apps in your phone
- Counting Candies : Crowd to the rescue
- Birthday Paradox : Find your twin
- Google Translate : Speak in any Language
- Currency Converter : Count your foreign trip expenses
- Monte Hall : 3 doors and a twist
- Sorting : Arrange the books
- Searching : Find in seconds
- Substitution Cipher : What's the secret !!
- Sentiment Analysis : Analyse your Facebook data
- 20 questions game : I can read your mind
- Permutations : Jumbled Words
- Spot the similarities : Dobble game
- Count the words : Hundreds, Thousands or Millions.
- Rock, Paper and Scissor : Cheating not allowed !!
- Lie detector : No lies, only TRUTH
- Calculation of the Area : Don't measure.
- Six degrees of separation : Meet your favourites
- Image Processing : Fun with images
- Tic tac toe : Let's play
- Snakes and Ladders : Down the memory lane.

- Recursion : Tower of Hanoi
- Page Rank : How Google Works !!

List of students enrolled

S.no	Name
1	Abhishek Kumar Sarang
2	Aditi Sharma
3	Akshat Nama
4	Akshi Jain
5	Aman Bhargava
6	Amisha Aggarwal
7	Anagh Kumar
8	Archita Gocher
9	Arnav Rajoria
10	Arushi Arora
11	Arun Singh
12	Ayush Soni
13	ASHUTOSH TIWARI
14	Atishayee Singh
15	Ayush Maheshwari
16	Bhanupriya Panwar
17	Chhavi Jangid
18	Chirag Bohra
19	VIJAY CHOUDHARY
20	Somu Dey
21	RISHABH DHAYAL
22	Dikshant Sharma
23	Dinesh Jajoo
24	Gunjan Khandelwal
25	Hari kumar addania
26	Harikishan jangid
27	Harsh soni
28	Harshit Mittal
29	Himanshu Patni
30	Vaibhav Jain
31	Jatin Vedwal
32	Jitendra Agrawal
33	Vishal katariya
34	Kaushal
35	khushi
36	KIRTI JAISWAL
37	KRISHAN KUMAWAT
38	Prateek Kumawat
39	KUNAL SHARMA

40	Kusum Sharma
41	Lakshya verma
42	nikhil agarwal
43	Monay Chhattani
44	muskan gupta
45	Nicky Lakhisarani
46	Nikita Gupta
47	Nilesh Suthar
48	Niramay Vyas
49	NITYA SINGH
50	Ayush Podar
51	Prafull bhadauria
52	Pragya Gaggar
53	Pratiksha Sharma
54	Priyansh indoria
55	Lakshya Purohit
56	Radhika Sodhani
57	Nihal Singh Chawla
58	Rajdev Dhakar
59	Richa
60	Rishabh Shrivastava
61	Ritik sharma
62	Ruchika Jain
63	Saijal Gulyani
64	Sakshi Agarwal
65	Sanjay Singh
66	Sanskar Rana
67	SARANSH SHARMA
68	Shivam Sharma
69	Shray Mathur
70	Shubham Soni
71	Siddharth Darji
72	Hidanshu sikri
73	SURABHI SOMAI
74	Raghav
75	Sourabh vyas
76	Sumit Gupta
77	Sunidhi Sharma
78	Tushar Soni
79	hitesh mishra
80	vijay thakur
81	Vinit Kumar Shah
82	Vishal Sharma
83	Vishal Bothra

Course: Problem solving through Programming In C

Course Code: noc21-cs54

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: 25% of Assignment score + 50% of Online exam score (Proctored) + 25% of Programming exam (Unproctored)

Curriculum of the Course:

Week 1 : Introduction to Problem Solving through programs, Flowcharts/Pseudo codes, the compilation process, Syntax and Semantic errors, Variables and Data Types

Week 2 : Arithmetic expressions, Relational Operations, Logical expressions; Introduction to Conditional Branching

Week 3 : Conditional Branching and Iterative Loops

Week 4 : Arranging things : Arrays

Week 5 : 2-D arrays, Character Arrays and Strings

Week 6 : Basic Algorithms including Numerical Algorithms

Week 7 : Functions and Parameter Passing by Value

Week 8 : Passing Arrays to Functions, Call by Reference

Week 9 : Recursion

Week 10 : Structures and Pointers

Week 11 : Self-Referential Structures and Introduction to Lists

Week 12 : Advanced Topics

List of students enrolled

S.No	Name of Student
1	Arpita Sharma
2	Aman Porwal
3	Lavanya Sharma
4	Yash Soni
5	Aditya Agarwal
6	Shekhar Sharma
7	Aabhas Nama
8	Abhishek Sharma
9	Aakash Dadhich
10	Aanchal Yadav
11	Arpit Agarwal
12	Abhay Mangal
13	Abhishek Sharma
14	Abhishek Sharma

15	Abhishek Khandelwal
16	Abhishek Moond
17	Adarsh Dixit
18	Aditya Sharma
19	Aditya Kumar Meena
20	Aditya Meghwal
21	Aditya Shri Shri Mal
22	Ajay Kumar Buri
23	Akshat Jinakar
24	Akanksha Foujdar
25	Akash Sharma
26	Akshat Jaiman
27	Akshat Surana
28	Akshit Kumar Sain
29	Akshit Tiwari
30	Aman Kumar Meena
31	Amartia Anand
32	Amey Vijaywargiya
33	Amit Kumar
34	Amit Pareek
35	Amit Kumar
36	Anirudh Pal Yadav
37	Anish Choudhary
38	Anjali Gupta
39	Anjali Sharma
40	Nikita Choudhary
41	Nikita Choudhary
42	Ankit Kasana
43	Ankit Sharma
44	Ankit Sharma
45	Anu Kumari
46	Anuj Sharma
47	Anurag Meena
48	Anurag Kumar
49	Archita Gocher
50	Ayushi Agrawal
51	Ashutosh Tiwari
52	Ashutosh Jangir
53	Ashvani Khandelwal
54	Anjali Thakur
55	Avinash Mittal
56	Avni Jain
57	Ayush Pandey
58	Abhay Bhardwaj
59	Saksham Gupta
60	Abhishek Bansal
61	Chetan Sharma
62	Gautam Kumar Kamat

63	Mahi Jain
64	Dhruv Jain
65	Sailesh Mathur
66	Himanshu Kachhawa
67	Ankur Yadav
68	Mrityunjay Kumar
69	Manjeet Suman
70	Soham Sharma
71	Anirudh Pal Yadav
72	Akshit Tiwari
73	Param Agarwal
74	Kartik Soni
75	Manan Sharma
76	Rahul Meena
77	Abheet Yadav
78	Rahul Meemrot
79	Manjeet Bijarniya
80	Manisha Kukna
81	Riaz Ahmed
82	Nitesh Kumar Mishra
83	Amol Kumari
84	Mayank Jangir
85	Dhruvesh Surolia
86	Rahul Choudhary
87	Abhay Mangal
88	Harsh Singh Narooka
89	Satyanand Kandela
90	Shreyansh
91	Bharat Kumar Sharma
92	Bhanu Pratap Singh Chouhan
93	Mohit
94	Arvind Kumawat
95	Naval Tripathi
96	Nikhil Pandey
97	Abhishek Singh Chandel
98	Chirayu Jain
99	Chitvan Tak
100	Chitwan Agarwal
101	Vijay Choudhary
102	Deepanshu Mehta
103	Deepesh Khandelwal
104	Yatin Parmar
105	Devesh Nagar
106	Devesh Shrimal
107	Dhruvesh Surolia
108	Dhruvtash Gupta
109	Dikshant Sharma

110	Dishank Agrawal
111	Divya Arora
112	Divya Chachlani
113	Dolly Malik
114	Bharat Doodi
115	Dharma Ram Jat
116	Chirag Jain
117	Gaurav Kumar Gupta
118	Khushi Garg
119	Garvit Jain
120	Gaurav Jangid
121	Gaurav Kumbhkar
122	Shagun Kumar Gauttam
123	Vipasha Goyal
124	Gungun Wadhwa
125	Hammir
126	Hardik Sharma
127	Harsh Brahmbhatt
128	Harshika Kumari
129	Siddharth Harshit
130	Harshit Sharma
131	Harsh Maheshwari
132	Hemant Kumar Atal
133	Hemant Yogi
134	Himanshi Sharma
135	Himanshu Kumawat
136	Himanshu Patni
137	Himanshu Sharma
138	Isha Sharma
139	Ishita Vyas
140	Ankit Kumar
141	Jagrati Meena
142	Vaibhav Jain
143	Gaurang Jain
144	Abhishek Jain
145	Jash Jain
146	Mahi Jain
147	Tanisha Jain
148	Jayesh Mour
149	Jayesh Vashishtha
150	Rishi Jain
151	Jayesh Chhawachharia
152	Kanika Paliwal
153	Kanika Singhal
154	Kanishk Pratap Singh Rathore
155	Karan Sharma
156	Karan Soni

205	Mitali Sharma
206	Mumal Bhati
207	Muskan Meena
208	Muskan Tailor
209	Gaurav Namdev
210	Naman Jain
211	Aditya Narayan
212	Harsh Singh Narooka
213	Navdeep Choudhary
214	Navneet Singh
215	Navneet Tanwar
216	Neeraj Derwal
217	Nikit Lamror
218	Nilesh Suthar
219	Niramay Vyas
220	Nishita Mathur
221	Nitesh Kumar Mishra
222	Nitin Agrawal
223	Akash Agarwal
224	Ansh Pancholi
225	Harshit Parwani
226	Pawan Pareek
227	Piyush Baldwa
228	Keshav Pareek
229	Kushmay Porwal
230	Prafull Bhadauria
231	Pragya Gaggar
232	Prakhar Pareek
233	Abhay Pratap Singh
234	Praveen Sukhwal
235	Priya Gupta
236	Puneet Kumawat
237	Lakshya Purohit
238	Rachi Khandelwal
239	Rahul Meemrot
240	Rahul Meena
241	Riaz Ahmed
242	Nihal Singh Chawla
243	Rajdev Dhakar
244	Ranjan Kumar Tiwari
245	Niharika Rathore
246	Rahul Choudhary
247	Rintam Singh
248	Rishi Prakash Sharma
249	Rishi Bhargav
250	Ritik Sharma
251	Rohit Kumar
252	Rohit Lamba

157	Kartik Sharma
158	Kashish Arora
159	Kashish Karamchandani
160	Kashish Sharma
161	Vishal Katariya
162	Aman Sharma
163	Dhiraj Kumar
164	Kaushal
165	Jayesh Khatri
166	Khushal
167	Khushi
168	Khushi Punia
169	Khushi Kakkad
170	Kirti Jaiswal
171	Prashansha Khandelwal
172	Krati Lakhani
173	Kuldeep Sharma
174	Anshit Kumar
175	Vaibhav Kunal
176	Dhiraj Kumar
177	Kushal Sharma
178	Kushagra Mundra
179	Karan Vashishth
180	Lakshya Methi
181	Lalit Sharma
182	Lalit Soni
183	R S Laxman Meena
184	Lovenesh
185	Madhav Kankani
186	Rakshita Jadoun
187	Manan Sharma
188	Manisha Kukna
189	Manish Kumar Dhanwant
190	Manish Sattavan
191	Manjeet Bijarniya
192	Mayank Gupta
193	Mayank Lalwani
194	Prashant Meena
195	Anurag Agrawal
196	Mayank Mittal
197	Mohit Agarwal
198	Mohit Sharma
199	Mohit Chahar
200	Mohit Choudhary
201	Saurabh Garg
202	Monil Goyal
203	Chirag Moud
204	Jayant Yadav

253	Rudraksh Agarwal
254	Saijal Gulyani
255	Saksham Gupta
256	Sakshi Anil Barge
257	Sakshi Sharma
258	Sambhav Jain
259	Samridhi
260	Sanskar Rana
261	Saransh Sharma
262	Satyanand Kandela
263	Sachin Meena
264	Yogendra Singh
265	Ashish Sharma
266	Shashank Verma
267	Shivam Singhal
268	Shivangi Koul Naqib
269	Shouryaraj Singh
270	Shray Rathore
271	Srishti Ajmera
272	Shubham Gundaliya
273	Shubham Gupta
274	Shubham Singh
275	Ayuh Singhal
276	Sakshi Jain
277	Shubham Jain
278	Soham Sharma
279	Somik Choudhary
280	Udit Kumar Soni
281	Sooraj Pachouri
282	Soumya Agarwal
283	Soheb Balkhi
284	Srishti Kulshrestha
285	Akhil Upadhyay
286	Surishti Raj
287	Suryansh Gahlot
288	Tarav Vijay
289	Tarun Prakash Saini
290	Tisha Gupta
291	Akash Kumar
292	Akansh Kuntal
293	Abhinav Mathur
294	Abhishek Singh Chandel
295	Ritik Sharma
296	Sakshi Anil Barge
297	Akash Rawat
298	Sachin Meena
299	Shreya Pandey
300	R S Laxman Meena

301	Chakshit Gunidia
302	Natasha Kaushik
303	Mukul Gupta
304	Aditya Narayan
305	Divya Chachlani
306	Yuvraj Choudhary
307	Abhishek Singh
308	Ujjwal Mantri
309	Unnati Kumawat
310	Hiren Vaishnav
311	Vansh Choudhary
312	Vanshika Gupta
313	Varun Kumar Meena
314	Kush Vasaniya
315	Akshay Verma
316	Harshit Verma
317	Tushar Kumar Verma
318	Vijayshree Meena
319	Vijay Thakur
320	Vikas Aechara
321	Vikas Singh Khinchi
322	Vinit Kumar Shah
323	Vinod Kumar Meena
324	Virendra Singh Chhapola
325	Vishnu Banjara
326	Vivek Choudhary
327	Vijay Kumar Bijarniya
328	Yash Saini
329	Yash Jindal
330	Yash Jangid
331	Yathartha Solanki
332	Yatin Meena
333	Yash Jain
334	Divyansh Sharma
335	Yuvraj Singh Naruka

Course: Programming, Data Structures and Algorithms Using Python

Course Code: noc21-cs67

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 : Informal introduction to programming, algorithms and data structures via gcd, Downloading and installing Python, gcd in Python: variables, operations, control flow - assignments, condition-als, loops, functions.

Week 02 : Python: types, expressions, strings, lists, tuples | Python memory model: names, mutable and immutable values | List operations: slices etc| Binary search | Inductive function definitions: numerical and structural induction | Elementary inductive sorting: selection and insertion sort | In-place sorting.

Week 03 : Basic algorithmic analysis: input size, asymptotic, complexity,O() notation | Arrays vs lists | Merge sort |Quicksort | Stable sorting.

Week 04 : Dictionaries | More on Python functions: optional arguments, default values | Passing functions as arguments | Higher order functions on lists: map, lter, list comprehension.

Week 05 : Exception handling | Basic input/output | Handling files | String processing.

Week 06 : Backtracking: N Queens, recording all solutions | Scope in Python: local, global, nonlocal names | Nested functions | Data structures: stack, queue | Heaps.

Week 07 : Abstract datatypes | Classes and objects in Python | "Linked" lists: find, insert, delete | Binary search trees: find, insert, delete | Height-balanced binary search trees.

Week 08 : Efficient evaluation of recursive definitions: memoization | Dynamic programming: examples | Other programming languages: C and manual memory management | Other programming paradigms: functional programming

List of students Enrolled

S.No	Name of Student
1	Arpita Sharma
2	Bhanu Pratap Singh
3	Harsh Kumar
4	Shekhar Sharma
5	Aditya Mishra
6	Akshat Gupta

7	Akshi Jain
8	Aman Bhargava
9	Amey Vijaywargiya
10	Anagh Kumar
11	Anshita Raghuvanshi
12	Anshu Verma
13	Archita Gocher
14	Arun Singh
15	Aryan
16	Ashish Agrawal
17	Ashutosh Tiwari
18	Avinash Mittal
19	Ayush Jangir
20	Ayush Maheshwari
21	Bhanupriya Panwar
22	Yogesh Sharma
23	Shivam Saxena
24	Charu Tiwari
25	Cherrisha Sharma
26	Chhavi Jangid
27	Chirag Bhayana
28	Ritik Soni
29	Deepanshu Maheshwari
30	Somu Dey
31	Dhairya Gupta
32	Dhruv Nirwan
33	Divyansha Jain
34	Divya Bharadwaj
35	Divyansh Sharma
36	Darshika Maheshwari
37	Gaurav Mehta
38	Harshit Khandelwal
39	Harshit Mittal
40	Harsh Kumar Sahu
41	Harsh Vardhan Goel
42	Shubham Jain
43	Yukti Yadav
44	Vaibhav Jain
45	Jaspreet Kaur
46	Jayesh Soni
47	Jitendra Agrawal
48	Kaushal
49	Khushi Garg
50	Gaurav Sharma
51	Kushal Rawat
52	Lakshya Verma
53	Lakshya Methi
54	Laxita Singh

55	Lokendra Singh Tanwar
56	Mahendra Netwal
57	Mahima Dariyani
58	Manali Sharma
59	Mohit Chahar
60	Monay Chhattani
61	Tanisha Choudhary
62	Nicky Lakhisarani
63	Nidhi Yadav
64	Nikhil Chopra
65	Nishita Mathur
66	Noorjabeen
67	Akshat Pareek
68	Aditya Rawat
69	Ayush Podar
70	Prafull Bhargava
71	Pratiksha Sharma
72	Rishabh Panchal
73	Ritik Khandelwal
74	Rohit Kumar
75	Ritesh Sharma
76	Aman Saini
77	Sanskar Rana
78	Yogendra Singh
79	Aayushi Sharma
80	Jagrati Sharma
81	Shray Mathur
82	Shubham Soni
83	Somil Jain
84	Sneha Khandelwal
85	Surabhi Somai
86	Sonu Saini
87	Ritik Sharma
88	Suraj Sharma
89	Sumit Gupta
90	Yash Dubey
91	Manmath Narain Tiwari
92	Vinit Kumar Shah
93	Vishal Bothra
94	Anurag Yadav
95	Yash Saini
96	Ritu Yadav

Course: Programming in Java

Course Code: noc21-cs56

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: 25% of Assignment score + 50% of Online exam score (Proctored) + 25% of Programming exam (Unproctored)

Curriculum of the Course:

Week 1 : Overview of Object-Oriented Programming and Java

Week 2 : Java Programming Elements

Week 3 : Input-Output Handling in Java

Week 4 : Encapsulation

Week 5 : Inheritance

Week 6 : Exception Handling

Week 7 : Multithreaded Programming

Week 8 : Java Applets and Servlets

Week 9 : Java Swing and Abstract Windowing Toolkit (AWT)

Week 10 : Networking with Java

Week 11: Java Object Database Connectivity (ODBC)

Week 12: Interface and Packages for Software Development

List of Students Enrolled

S.No	Name of Student
1	Aman Porwal
2	Aditya Baghela
3	Abdul Rahman
4	Abhay Mangal
5	Abhishek Garg
6	Akshita Patidar
7	Aman Singh
8	Anagh Kumar
9	Anjali Singh
10	Ankit Saini
11	Ankit Mathur
12	Ankush Joshi
13	Anosh Field
14	Anshita Raghuvanshi

15	Anshuman Singh Naruka
16	Anuj Sharma
17	Anush Upadhyay
18	Apoorva Khandelwal
19	Archika Dixit
20	Archit Bajpai
21	Arihant Jain
22	Arihant Pokharna
23	Arnav Pareek
24	Arpita Dubey
25	Arun Singh
26	Aryan Sharma
27	Ashutosh Tiwari
28	Atishay Jain
29	Atishay Harsola
30	Avinash Mittal
31	Bhanupriya Panwar
32	Yogesh Sharma
33	Nayan Gupta
34	Shivam Thakkar
35	Yuvraj Gakkhar
36	Chestha Gautam
37	Kshitize Singh
38	Chitwan Agarwal
39	Ritik Soni
40	Darshan Parsoliya
41	Devansh Pareek
42	Devanshu Soni
43	Mansi Kanwar
44	Devkinandan Sharma
45	Divyansh Sharma
46	Kartikeya Dixit
47	Gauranshu Mathur
48	Gaurav Jindal
49	Gaurav Jangid
50	Keshav Gautam
51	Shreya Jindal
52	Rahul Goyal
53	Palak Gupta
54	Harshit Rajan
55	Harshit Sukhwal
56	Harshit Mittal
57	Harshit Totuka

58	Harsh Jain
59	Himanshu Kalal
60	Ronak Gupta
61	Isha Tripathi
62	Yukti Yadav
63	Vaibhav Jain
64	Aayush Jain
65	Lavanya Jain
66	Manthan Jain
67	Shreyansh Jain
68	Jatin Vedwal
69	Jayesh Vashishtha
70	Sharad Sourabh Jha
71	Jitendra Kumar Prajapt
72	Tarun Jain
73	Harsh Sharma
74	Karan Sabnani
75	Kartik Khandelwal
76	Kashish Sharma
77	Keshav Gaur
78	Kaushal
79	Khushi
80	Khushi Khandelwal
81	Kartik Kabra
82	Komal Jha
83	Kritika Surana
84	Kunal Shringi
85	Kushagra Mundra
86	Kusum Sharma
87	Lakshya Sharma
88	Lalit Choudhary
89	Shreya Maheshwari
90	Bhavya Mathur
91	Mishu Jain
92	Mayank Mittal
93	Mohammed Arshad
94	Monay Chhattani
95	Chetesh Sharma
96	Mukul Palol
97	Nakshatra Garg
98	Aditya Narayan
99	Niharika Goyal
100	Nikunj Singh Gehlot

101	Nishita Mathur
102	Nitin Jain
103	Nupur Mathur
104	Vivek Panwar
105	Paras Malhotra
106	Piyushi Agarwal
107	Prafull Bhargava
108	Prasoon Khandelwal
109	Prateek Somani
110	Pratiksha Sharma
111	Prerna Mehta
112	Pulkit Bansal
113	Puneet Tanwar
114	Dhruv Raj Naruka
115	Rakshanda Kucheria
116	Rakshita Agarwal
117	Rakshita Jadoun
118	Reet Jain
119	Richa
120	Rishabh Panchal
121	Rishabh Shrivastava
122	Rishi Bhargav
123	Ritik Chourasiya
124	Ritik Kumawat
125	Ritik Khandelwal
126	Ritwik Sharma
127	Mihir Pandiya
128	Ritesh Sharma
129	Sakshi Agarwal
130	Samyak Pagariya
131	Sanskar Rana
132	Saransh Sharma
133	Sarthak Agarwal
134	Saurabh Nahata
135	Yogendra Singh
136	Deep Shah
137	Jagrati Sharma
138	Shray Mathur
139	Shubham Agarwal
140	Ayuh Singhal
141	Mohit Singhal
142	Somil Jain
143	Manasvini Sharma

144	Sneha Khandelwal
145	Nikunj Sahu
146	Swapnil Kashyap
147	Sonali Kumawat
148	Sourav Shandilya
149	Vansh Pradeep Singh Rathore
150	Sujal Somani
151	Sunil Sharma
152	Suryansh Johari
153	Tanmay Shah
154	Kartikeya Dixit
155	Chakshit Gunidia
156	Ujjwal Mishra
157	Umang Mathur
158	Shashank Varshney
159	Vikalp Jain
160	Vimal Sharma
161	Vinay Bansal
162	Vinit Kumar Shah
163	Vishal Prajapat
164	Yashwardhan Gaur

Course: Introduction to Operating Systems

Course Code: noc21-cs72

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction
Week 2 : Memory Management
Week 3 : Processes
Week 4 : Interrupts and Context Switching
Week 5 : Scheduling
Week 6 : Synchronization
Week 7 : Deadlocks
Week 8 : Operating System Security

List of students enrolled

S.no	Name
1	Abhishek Goyal
2	Abhishek Garg
3	Ritika Agarwal
4	Amisha Aggarwal
5	Ankit Mathur
6	Anshshikha agarwal
7	Piyush Arora
8	Arpit Tyagi
9	Aryan Sharma
10	ASHUTOSH TIWARI
11	Chhavi Jangid
12	Chirag Bhayana
13	Chitwan Agarwal
14	Divyansh Sharma
15	FAIZAN KHAN
16	Farhan Rehman
17	Garvit Jaiswal
18	Gaurav Vijayvergiya
19	Gaurav Bhandari
20	Palak gupta
21	Ashima Gupta

22	Harsh Modi
23	Harshikesh Kumar
24	Harshit Gupta
25	Harsh Vardhan Goel
26	JAYANT GUPTA
27	Kalpana Modi
28	Kartik Sharma
29	Khushboo rathore
30	Kirti Soni
31	Lalit kumawat
32	Kushal Rawat
33	Mohit jain
34	Mohit Agarwal
35	mohit jain
36	Mohit kumar pamnani
37	Nishita Mathur
38	Palak gupta
39	Ayush Podar
40	Prafull bhadauria
41	Prafull Bhargava
42	Pragya Gaggar
43	Nagendra Singh
44	Rajat Malik
45	Nihal Singh Chawla
46	Riya Agarwal
47	Robins Kumar
48	Rohit-Verma
49	Ritesh Sharma
50	Sushil Kumar Sadhnani
51	Saijal Gulyani
52	sakshi khandelwal
53	Shivam Todwal
54	Shiv Maheshwari
55	pranaya vashistha
56	Vivek Choudhary
57	Yash Gupta

Course: Design and analysis of algorithms

Course Code: noc21-cs68

Session:2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Module 1: Introduction
- Module 2: Examples and motivation
- Module 3: Examples and motivation
- Module 4: Asymptotic complexity: informal concepts
- Module 5: Asymptotic complexity: formal notation
- Module 6: Asymptotic complexity: examples
- Assignments MCQ/Fill in blanks (unique answer)

Week 2:

- Module 1: Searching in list: binary search
- Module 2: Sorting: insertion sort
- Module 3: Sorting: selection sort
- Module 4: Sorting: merge sort
- Module 5: Sorting: quicksort
- Module 6: Sorting: stability and other issues
- Assignments MCQ/Fill in blanks
- programming assignment

Week 3:

- Module 1: Graphs: Motivation
- Module 2: Graph exploration: BFS
- Module 3: Graph exploration: DFS
- Module 4: DFS numbering and applications
- Module 5: Directed acyclic graphs
- Module 6: Directed acyclic graphs
- Assignments MCQ/Fill in blanks
- programming assignment

Week 4:

- Module 1: Shortest paths: unweighted and weighted
- Module 2: Single source shortest paths: Dijkstra
- Module 3: Single source shortest paths: Dijkstra
- Module 4: Minimum cost spanning trees: Prim's algorithm
- Module 5: Minimum cost spanning trees: Kruskal's Algorithm
- Module 6: Union-Find data structure
- Assignments MCQ/Fill in blanks
- programming assignment

Week 5:

- Module 1: Divide and conquer: counting inversions
- Module 2: Divide and conquer: nearest pair of points
- Module 3: Priority queues, heaps
- Module 4: Priority queues, heaps
- Module 5: Dijstra/Prims revisited using heaps
- Module 6: Search Trees: Introduction
- Assignments MCQ/Fill in blanks
- programming assignment

Week 6:

- Module 1: Search Trees: Traversals, insertions, deletions
- Module 2: Search Trees: Balancing
- Module 3: Greedy : Interval scheduling
- Module 4: Greedy : Proof strategies
- Module 5: Greedy : Huffman coding
- Module 6: Dynamic Programming: weighted interval scheduling
- Assignments MCQ/Fill in blanks
- programming assignment

Week 7:

- Module 1: Dynamic Programming: memoization
- Module 2: Dynamic Programming: edit distance
- Module 3: Dynamic Programming: longest ascending subsequence
- Module 4: Dynamic Programming: matrix multiplication
- Module 5: Dynamic Programming: shortest paths: Bellman Ford
- Module 6: Dynamic Programming: shortest paths: Floyd Warshall
- Assignments MCQ/Fill in blanks,
- programming assignment

Week 8:

- Module 1: Intractability: NP completeness
- Module 2: Intractability: reductions
- Module 3: Intractability: examples
- Module 4: Intractability: more examples
- Module 5: Misc topics
- Module 6: Misc topics
- Assignments MCQ/Fill in blanks

List of students enrolled

S.no	Name
1	Abhishek Garg
2	Archika Dixit
3	Aryan Sharma
4	Avinash Mittal
5	Bhavya Anand
6	Abhinav Parakh
7	Chhavi Sharma
8	FAIZAN KHAN

9	Garvit Jaiswal
10	Harshit Gupta
11	Brijesh Sharma Jangid
12	Komal jha
13	Lalit kumawat
14	Kushal Rawat
15	mohit choudhary
16	Gitesh khatri
17	Prasoon Khandelwal
18	Rishabh Panchal
19	ritik chourasiya
20	Sushil Kumar Sadhnani
21	Shubham Soni
22	AYUH SINGHAL
23	Suraj sharma
24	sudeep shukla
25	suhani wadhwa
26	Garvit Tamra
27	pranaya vashistha
28	Vinit Kumar Shah

Course: Introduction to Internet of Things

Course Code: noc21-cs63

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to IoT: Part I, Part II, Sensing, Actuation, Basics of Networking: Part-I

Week 2: Basics of Networking: Part-II, Part III, Part IV, Communication Protocols: Part I, Part II

Week 3: Communication Protocols: Part III, Part IV, Part V, Sensor Networks: Part I, Part II

Week 4: Sensor Networks: Part III, Part IV, Part V, Part VI, Machine-to-Machine Communications

Week 5: Interoperability in IoT, Introduction to Arduino Programming: Part I, Part II, Integration of Sensors and Actuators with Arduino: Part I, Part II

Week 6: Introduction to Python programming, Introduction to Raspberry Pi, Implementation of IoT with Raspberry Pi

Week 7: Implementation of IoT with Raspberry Pi (contd), Introduction to SDN, SDN for IoT

Week 8: SDN for IoT (contd), Data Handling and Analytics, Cloud Computing

Week 9: Cloud Computing(contd), Sensor-Cloud

Week 10: Fog Computing, Smart Cities and Smart Homes

Week 11: Connected Vehicles, Smart Grid, Industrial IoT

Week 12: Industrial IoT (contd), Case Study: Agriculture, Healthcare, Activity Monitoring

List of students Enrolled

S.No	Name of Student
1	Abdul Rahman
2	Aman Deep Singh Sandhu
3	Anshul Sisodiya
4	Arun Singh
5	Ashutosh Tiwari
6	Avinash Mittal
7	Avni Jain
8	Abhinav Parakh
9	Naval Tripathi

10	Devesh Shrimal
11	Divya Ramani
12	Gaurav Dubey
13	Gaurav Mishra
14	Hardik Tyagi
15	Hitesh Thadani
16	Neeraj Jain
17	Jitendra Agrawal
18	Jyoti Sharma
19	Jyoti Agrawal
20	Deepak Kumar Yadav
21	Kashish Sharma
22	Yash Khandelwal
23	Krishan Kumawat
24	Kushal Rawat
25	Manali Sharma
26	Mukul Palol
27	Naman Joshi
28	Nikhil Singh
29	Nishita Mathur
30	Vivek Panwar
31	Divyansh Modi
32	Priyanshu Suhalka
33	Richa
34	Rishi Bhargav
35	Ritika Jain
36	Ritik Khandelwal
37	Aman Saini
38	Samridhi
39	Saransh Sharma
40	Hidanshu Sikri
41	Simmi Jain
42	Sneha Khandelwal
43	Sonia Devi
44	Suraj Sharma
45	Tanmay Jaiswal
46	Harsh Tulsani
47	Harsh Tulsani
48	Poorvaja Verma
49	Vishwanath Hosmane

Course: Introduction to Machine Learning - IITM

Course Code: noc21-cs70

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 0: Probability Theory, Linear Algebra, Convex Optimization - (Recap)

Week 1: Introduction: Statistical Decision Theory - Regression, Classification, Bias Variance

Week 2: Linear Regression, Multivariate Regression, Subset Selection, Shrinkage Methods, Principal Component Regression, Partial Least squares

Week 3: Linear Classification, Logistic Regression, Linear Discriminant Analysis

Week 4: Perceptron, Support Vector Machines

Week 5: Neural Networks - Introduction, Early Models, Perceptron Learning, Backpropagation, Initialization, Training & Validation, Parameter Estimation - MLE, MAP, Bayesian Estimation

Week 6: Decision Trees, Regression Trees, Stopping Criterion & Pruning loss functions, Categorical Attributes, Multiway Splits, Missing Values, Decision Trees - Instability Evaluation Measures

Week 7: Bootstrapping & Cross Validation, Class Evaluation Measures, ROC curve, MDL, Ensemble Methods - Bagging, Committee Machines and Stacking, Boosting

Week 8: Gradient Boosting, Random Forests, Multi-class Classification, Naive Bayes, Bayesian Networks

Week 9: Undirected Graphical Models, HMM, Variable Elimination, Belief Propagation

Week 10: Partitional Clustering, Hierarchical Clustering, Birch Algorithm, CURE Algorithm, Density-based Clustering

Week 11: Gaussian Mixture Models, Expectation Maximization

Week 12: Learning Theory, Introduction to Reinforcement Learning, Optional videos (RL framework, TD learning, Solution Methods, Applications)

List of students enrolled

S.NO	Name
1	Arpita sharma
2	Aditya Baghela
3	Abhay mangal
4	Abhishek Sharma
5	Akshi Jain
6	Anagh Kumar
7	Anjali Singh
8	Ankit Saini
9	ANUSH UPADHYAY
10	Arihant

	pokharna
11	Arun Singh
12	ASHUTOSH TIWARI
13	Avinash Mittal
14	Ritik soni
15	Divya Ramani
16	HARSH GOYAL
17	Harshit Sukhwal
18	Hiten jain
19	Aastha Jain
20	Manthan jain
21	Kaushal
22	Yash Khandelwal
23	Prateek Kumawat
24	Bhavya Mathur
25	Tanisha choudhary
26	Nishita Mathur
27	Nitesh Jangid
28	Rahul Kumar
29	Richa
30	Ritik khandelwal
31	Aman Saini
32	SARANSH SHARMA
33	Shagun Agarwal
34	Shreshth Singh
35	Shubham Soni
36	Simmi Jain
37	AYUH SINGHAL
38	Sneha khandelwal
39	Sonia Devi
40	AKHIL UPADHYAY
41	Ayush Singh tomar
42	Poorvaja Verma

Course: Programming in C++

Course Code: noc21-cs55

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: 25% of Assignment score + 50% of Online exam score (Proctored) + 25% of Programming exam (Unproctored)

Curriculum of the Course:

WEEK 1: Programming in C++ is Fun : Build and execute a C program in C++, Write equivalent programs in C++

WEEK 2: C++ as Better C : Procedural Extensions of C

WEEK 3: Overview of OOP in C++ : Classes and basic Object-Oriented features (encapsulation)

WEEK 4: Overview of OOP in C++ : More OO features, overloading, namespace and using struct and union

WEEK 5: Inheritance : Generalization / Specialization of Object Modeling in C++

WEEK 6: Polymorphism : Static and Dynamic Binding

WEEK 7: Type Casting & Exceptions : C++ cast operators; C++ Exceptions & standard exception classes

WEEK 8: Templates & STL – Function and Class templates and using STL like containers, algorithms

List of students Enrolled

1	Aryan Sharma
2	Gulshan Sharma
3	Nagendra Singh
4	Lavi Kumar Goyal
5	Vishnu Gupta
6	Aakash Dadhich
7	Arpit Agarwal
8	Aashish Jain
9	Abhay Mangal
10	Abhishek Garg
11	Aditi Agarwal
12	Aditya Shri Shri Mal
13	Ajay Kumar Sharma
14	Akshat Jaiman
15	Akshat Surana
16	Akshi Jain
17	Alpesh Gupta

18	Aman Bhargava
19	Amey Vijaywargiya
20	Amit Kumar
21	Anagh Kumar
22	Ananya Mathur
23	Ankit Sharma
24	Anmol Kashyap
25	Anshika Goyal
26	Archika Dixit
27	Archita Gocher
28	Arun Singh
29	Aryan
30	Ayush Soni
31	Ayushi Agrawal
32	Ashutosh Tiwari
33	Atishayee Singh
34	Avinash Mittal
35	Kartik Choudhary
36	Ankur Yadav
37	Badal Singh Rathore
38	Bhanupriya Panwar
39	Bharat Kumar
40	Pratha Bhardwaj
41	Rishika Arora
42	Akhilesh Chaturvedi
43	Chhavi Sharma
44	Chirag Bhayana
45	Chirag Kumar Sharma
46	Chitwan Agarwal
47	Harshit Sen
48	Tanishq Goyal
49	Lakshay Dadhich
50	Deepanshu Mehta
51	Deepesh Khandelwal
52	Devansh Pareek
53	Yatin Parmar
54	Devesh Gupta
55	Somu Dey
56	Dharmi Kapadiya
57	Dhruv Mittal
58	Divya Dulani
59	Divya Jain
60	Divyansh Gupta
61	Divyanshi Bhardwaj

62	Divyanshi Khandelwal
63	Divyansh Vijay
64	Divyansh Jaitlia
65	Dev Gupta
66	Bharat Doodi
67	Chinmay Pareek
68	Parth Dwivedi
69	Darshika Maheshwari
70	Farhan Rehman
71	Garvit Jain
72	Garvit Mathur
73	Gauranshu Mathur
74	Gaurav Kumar
75	Gaurav Vijayvergiya
76	Gaurav Dubey
77	Shagun Kumar Gauttam
78	Geetanshikha Gautam
79	Geetika Mathur
80	Giritra Saraswat
81	Shreya Jindal
82	Naman Goyal
83	Harsh Goyal
84	Preeti Gurjar
85	Bajrang Singh Shekhawat
86	Hari Kumar Addania
87	Harsh Soni
88	Harshit Sharma
89	Harshita Dadhich
90	Harshita Paliwal
91	Harshit Mittal
92	Harsh Kumawat
93	Harsh Shringi
94	Harsh Vardhan Goel
95	Himanshi Sharma
96	Himanshu Patni
97	Anshul Gora
98	Isha Sharma
99	Isha Tripathi
100	Aayush Jain
101	Abhishek Jain
102	Gautam Kumar Jain
103	Hardik Jain
104	Jash Jain
105	Shreyansh Jain

106	Sanidhya Bhardwaj
107	Kanak Sharma
108	Jatin Yadav
109	Jayesh Gupta
110	Krishna Rathi
111	Jitendra Singh
112	Lakshita Natani
113	Tarun Jain
114	Jyoti Agrawal
115	Kanishk Agarwal
116	Kasish Agarwal
117	Ayush Kumar
118	Vishal Katariya
119	Keshav Gaur
120	Kaushal
121	Shubhiksha Khandelwal
122	Jayesh Khatri
123	Khushi Agarwal
124	Khushi
125	Kirti Jaiswal
126	Pawan Kumar
127	Kanishk Sharma
128	Kriti Garg
129	Kuldeep Joshi
130	Kul Pratap Singh
131	Lalit Kumawat
132	Kushagra Sharma
133	Kushal Sharma
134	Kusum Sharma
135	Lalit Soni
136	Atul Pancharia
137	Mohit Agrawal
138	Manali Sharma
139	Mansi Jain
140	Riya Mehta
141	Naman Mittal
142	Raksha Modi
143	Mohit Agarwal
144	Mohit Singh
145	Monay Chhattani
146	Mitali Sharma
147	Chetesh Sharma
148	Tanisha Choudhary
149	Mudit Choudhary

150	Sakshi Nagpal
151	Nakshatra Garg
152	Naman Porwal
153	Aditya Narayan
154	Naveen Yadav
155	Navneet Tanwar
156	Nishant Bharwani
157	Nicky Lakhisarani
158	Nidhi Yadav
159	Nikita Gupta
160	Nikunj Singh Gehlot
161	Nishita Mathur
162	Vivek Panwar
163	Akshat Pareek
164	Aditya Rawat
165	Piyushi Agarwal
166	Keshav Pareek
167	Pradeep Singh
168	Prafull Bhadauria
169	Prafull Bhargava
170	Agrawal Pranjal Pankaj
171	Prasoon Khandelwal
172	Prateek Sharma
173	Prateek Somani
174	Pratiksha Sharma
175	Pratyush Chhipa
176	Rahul Jain
177	Piyush Agrawal
178	Priyal Khandelwal
179	Priyansh Lavadia
180	Priyanshu Suhalka
181	Lakshya Purohit
182	Rahul Meemrot
183	Rahul Suthar
184	Dhruv Raj Naruka
185	Rakshita Jadoun
186	Rakshit
187	Rishabh Panchal
188	Rishabh Shrivastava
189	Ritik Chourasiya
190	Ritik Sharma
191	Mihir Pandiya
192	Rounak Mathur
193	Ruchika Jain

194	Saijal Gulyani
195	Saksham Jain
196	Sakshi Anil Barge
197	Samyak Jain
198	Samyak Pagariya
199	Sanyam Jain
200	Saransh Sharma
201	Sarthak Maheshwari
202	Satyam Sharma
203	Yogendra Singh
204	Sharma Sharma
205	Aayush Sharma
206	Aayushi Sharma
207	Kartikey Sharma
208	Shivam Sharma
209	Shray Mathur
210	Shubham Gundaliya
211	Shubham Gupta
212	Sukhleen Singh
213	Jigyasa Singh
214	Manjeet Singh
215	Saurabh Singh Parihar
216	Shailendra Singh
217	Sanjana Saxena
218	Surabhi Somai
219	Somik Choudhary
220	Sonu Kumar
221	Sourbh Saharan
222	Sudeep Shukla
223	Sunidhi Sharma
224	Lavanya Talwar
225	Tanishk Goyal
226	Tanisha Mudgal
227	Tanisha Garg
228	Ayush Singh Tomar
229	Yash Dubey
230	Arvind Yadav
231	Mukul Gupta
232	Ankit Yadav
233	Tushar Sanadhya
234	Umang Mathur
235	Unnati Sharma
236	Unnati Kumawat
237	Vaibhav Bairathi

238	Shashank Varshney
239	Akshay Verma
240	Tanya Verma
241	Vijay Thakur
242	Vinit Kumar Shah
243	Vipul Kaushik
244	Vishal Kumawat
245	Vishal Bansiwal
246	Vishal Moud
247	Vishwanath Hosmane
248	Yuvraj Singh Naruka

Course: Data Science for Engineers

Course Code: noc21-cs69

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:
- Course philosophy and introduction to R

Week 2:
- Linear algebra for data science

Week 3:
- Statistics

Week 4:
- Optimization

Week 5:
- Typology of data science problems and a solution framework

Week 6:
- Simple linear regression and verifying assumptions used in linear regression
- Multivariate linear regression
- model assessment
- assessing importance of different variables
- subset selection

Week 7:
- Classification using logistic regression

Week 8:
- Classification using kNN and k-means clustering

List of students enrolled

S.no	Name
1	Arpita sharma
2	Shekhar Sharma
3	Aditya Baghela
4	Abdul Rahman
5	Akash Kumar
6	Akshi Jain

7	Arun Singh
8	Avinash Mittal
9	Chaitanya Sharma
10	Deepika Kerwal
11	Rishika Jain
12	Kaushal
13	Khushi Garg
14	Yash Khandelwal
15	Khushi Malasiya
16	Manan Jain
17	Mansi jain
18	Mukul Palol
19	Naman Joshi
20	Nishant Kumar
21	Ansh Pancholi
22	Keshav Pareek
23	PRERNA VERMA
24	Priyanshu Lohar
25	Sarthak Sharma
26	Sarthak Agarwal
27	Shubham Soni
28	SUKHLEEN SINGH
29	Shubham Udsaria
30	Poorvaja Verma

Course: Software Engineering

Course Code: noc21-cs65

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 01 : Introduction
Week 02 : Life Cycle Models I
Week 03 : Life Cycle Models II
Week 04 : Requirements analysis and specification
Week 05 : Basics of software design
Week 06 : Procedural design methodology
Week 07 : Object-oriented concepts
Week 08 : Introduction to UML: Class and Interaction Diagrams
Week 09 : Object-oriented analysis and design
Week 10 : Testing I
Week 11 : Testing II
Week 12 : Testing III

List of students Enrolled

S.No	Name of Student
1	Ankit Saini
2	Ashutosh Tiwari
3	Ashvani Khandelwal
4	Yogesh Sharma
5	Chinmay Jain
6	Divyansh Gupta
7	Kartikeya Dixit
8	Darshika Maheshwari
9	Garvit Mathur
10	Geetika Mathur
11	Rahul Goyal
12	Harshikesh Kumar
13	Siddharth Harshit

14	Himanshi Sharma
15	Shubham Jain
16	Jayant Gupta
17	Sharad Sourabh Jha
18	Tarun Jain
19	Jyoti Agrawal
20	Kaushal
21	Madhur Khandelwal
22	Kuldeep Nagar
23	Nakshatra Garg
24	Nishita Mathur
25	Vivek Panwar
26	Prafull Bhargava
27	Prateek Goyal
28	Rajesh Pareek
29	Ritik Khandelwal
30	Sarthak Sharma
31	Vidhi Sukhnani
32	Shubham Gupta
33	Somil Jain
34	Sneha Khandelwal
35	Soumya Agarwal
36	Sourabh Singh
37	Srishti Kulshrestha
38	Suryansh Johari
39	Tanisha Jain
40	Tisha Gupta
41	Yashwardhan Gaur

Course: Data Base Management System

Course Code: noc21-cs58

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Course Overview. Introduction to RDBMS

Week 2: Structured Query Language (SQL)

Week 3: Relational Algebra. Entity-Relationship Model

Week 4: Relational Database Design

Week 5: Application Development. Case Studies. Storage and File Structure

Week 6: Indexing and Hashing. Query Processing

Week 7: Query Optimization. Transactions (Serializability and Recoverability)

Week 8: Concurrency Control. Recovery Systems. Course Summarization.

List of students Enrolled

S.No	Name of Student
1	Aman Porwal
2	Akshita Singhvi
3	Chirag Jain
4	Aditya Baghela
5	Aashish Jain
6	Aashna Puri
7	Abdul Rahman
8	Abhishek Garg
9	Adarsh Dixit
10	Aditi Sharma
11	Aditya Nehra
12	Akshat Nama
13	Akshi Jain
14	Aman Bhargava
15	Aman Singh
16	Amisha Aggarwal
17	Amishi Gupta
18	Anagh Kumar
19	Anchal Gupta

20	Aniket Rathi
21	Ankit Saini
22	Anosh Field
23	Anshita Raghuvanshi
24	Anuj Sharma
25	Anush Upadhyay
26	Apoorva Khandelwal
27	Archika Dixit
28	Arihant Jain
29	Arpita Dubey
30	Arun Singh
31	Aryan Sharma
32	Ashutosh Tiwari
33	Atishay Jain
34	Atishay Harsola
35	Avinash Mittal
36	Abhishek Yadav
37	Bhanu Pratap Singh Rathore
38	Bhomesh Razdan
39	Bilal Hussain
40	Aniket Chaturvedi
41	Chestha Gautam
42	Kshitize Singh
43	Devanshu Soni
44	Mansi Kanwar
45	Faizan Khan
46	Garvit Jaiswal
47	Gaurav Jangid
48	Gautam Tinker
49	Kartik Gupta
50	Harshikesh Kumar
51	Harshit Rajan
52	Harshit Sukhwal
53	Harshit Gupta
54	Harshit Kumar Sevkani
55	Harsh Jain
56	Himanshu Kalal
57	Ishika Agarwal
58	Vaibhav Jain
59	Aayush Jain
60	Lavanya Jain
61	Manthan Jain
62	Virendra Singh Rathore
63	Jayesh Soni

64	Jitendra Kumar Prajapt
65	Khushi Jain
66	Harsh Sharma
67	Karan Sabnani
68	Kartik Khandelwal
69	Kartik Sharma
70	Khushi Garg
71	Khushboo Rathore
72	Jitisha Gupta
73	Khushi Khandelwal
74	Kartik Kabra
75	Komal Jha
76	Krishan Kumawat
77	Kritika Surana
78	Lalit Kumawat
79	Kunal Sharma
80	Kushal Rawat
81	Lokendra Singh Tanwar
82	Madhur Khandelwal
83	Shubham Maheshwari
84	Khushi Malasiya
85	Mansi Jain
86	Bhavya Mathur
87	Mishu Jain
88	Mehul Modi
89	Mohammed Arshad
90	Mohit Jain
91	Mukul Jangid
92	Mukul Palol
93	Muskan Tailor
94	Neha Maheshwari
95	Neha
96	Nidhi Yadav
97	Nishita Mathur
98	Piyushi Agarwal
99	Prafull Bhargava
100	Prateek Agrawal
101	Prerna Mehta
102	Nagendra Singh
103	Dhruv Raj Naruka
104	Rishabh Panchal
105	Ritik Chourasiya
106	Ritwik Sharma
107	Robins Kumar

108	Sagar Alwani
109	Ashik Saini
110	Sajal Birla
111	Sakshi Agarwal
112	Saloni Chhaparwal
113	Samridhi Arya
114	Samyak Pagariya
115	Jagrati Sharma
116	Shubham Nagar
117	Shubham Soni
118	Hidanshu Sikri
119	Mohit Singhal
120	Manasvini Sharma
121	Nikunj Sahu
122	Sonali Kumawat
123	Jayesh Soni
124	Komal Soni
125	Sourabh Sharma
126	Ritik Sharma
127	Shubham Udsaria
128	Sujal Somani
129	Garvit Tamra
130	Tanisha Dhemla
131	Tanya Khandelwal
132	Raghav Sharma
133	Ujala Jhanwar
134	Vikalp Jain
135	Vimal Sharma
136	Vinit Kumar Shah
137	Vishal Bothra
138	Vishnu Sharma
139	Vikas Kumar Prasad
140	Yashvir Singh Nathawat
141	Yashwardhan Gaur
142	Yash Goyal

Course: Cloud computing

Course Code: noc21-cs62

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Cloud Computing

Week 2: Cloud Computing Architecture

Week 3: Service Management in Cloud Computing

Week 4: Data Management in Cloud Computing

Week 5: Resource Management in Cloud

Week 6: Cloud Security

Week 7: Open Source and Commercial Clouds, Cloud Simulator

Week 8: Research trend in Cloud Computing, Fog Computing

List of students Enrolled

S.No	Name of Student
1	Abdul Rahman
2	Aditi Jain
3	Aditya Sharma
4	Akshat Sharma
5	Anjali Singh
6	Anjali Mukherji
7	Ankit Pareek
8	Anmol Kumar
9	Anshita Yadav
10	Anushka Jain
11	Arun Singh
12	Ashutosh Tiwari
13	Avinash Mittal
14	Ayush Kumar Jajodia
15	Bhavya Anand
16	Yatharth Varshney
17	Chhavi Jangid
18	Chirag Bhayana
19	Chitwan Agarwal

20	Deepika Kerwal
21	Divam Pareek
22	Divyansh Sharma
23	Dev Gupta
24	Farhan Rehman
25	Garvit Mathur
26	Gaurav Vijayvergiya
27	Shagun Kumar Gauttam
28	Harshikesh Kumar
29	Harshit Jain
30	Harshit Gupta
31	Harsh Vardhan Goel
32	Mahak Hussain
33	Isha Tripathi
34	Rishika Jain
35	Kanak Agrawal
36	Harsh Kanojia
37	Keshav Hinger
38	Kaushal
39	Khushboo Rathore
40	Jitisha Gupta
41	Khushi
42	Khushi Khandelwal
43	Kshitij Kumawat
44	Lakshya Vilas
45	Manoj Garg
46	Aayushman Mishra
47	Mehul Sharma
48	Mumal Bhati
49	Naman Bachlas
50	Neha
51	Ayush Podar
52	Pragya Gaggar
53	Pranav Parashar
54	Rahul Jain
55	Prerna Verma
56	Priyansh Dadheech
57	Priyansh Soni
58	Rahul Kumar Balai
59	Parikshit Rathore
60	Rishabh Shrivastava
61	Ritik Kala
62	Adarsh Sain

63	Aman Saini
64	Saransh Sharma
65	Cmaune Sharma
66	Sangeeta Sharma
67	Himanshu Shekhar
68	Shubhnesh Sharma
69	Ayuh Singhal
70	Swapnil Kashyap
71	Suraj Sharma
72	Vikas Kumar Prasad

Course: Computer Architecture and Organization

Course Code: noc21-cs61

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Evolution of Computer Systems

Week 2: Instruction Set Architecture

Week 3: Quantitative Principles of Computer Design

Week 4: Control Unit Design

Week 5: Memory System Design

Week 6: Design of Cache Memory Systems

Week 7: Design of Arithmetic Unit

Week 8: Design of Arithmetic Unit (contd.)

Week 9: Input-Output System Design

Week 10: Input-Output System Design (contd.)

Week 11: Instruction Set Pipelining

Week 12: Parallel Processing Architectures

List of students Enrolled

S.No	Name of Student
1	Vishnu Gupta
2	Abhishek Kumar Sarang
3	Hansika Agarwal
4	Aman Baheti
5	Ankit Yadav
6	Archika Dixit
7	Arun Singh
8	Ashima Mehta
9	Ashish Maheshwari
10	Ashwani Malav
11	Devendra Kaur
12	Harshit Gupta
13	Jigyasa Karodiwal
14	Kushal Rawat
15	Mahima Dariyani

16	Manali Sharma
17	Pranjal Mathur
18	Moin Ali
19	Neha Maheshwari
20	Prakhar Jain
21	Prateek Goyal
22	Purva Agarwal
23	Raghav Agarwal
24	Parikshit Rathore
25	Rishi Bhargav
26	Rajeev Sharma
27	Rupesh Kumar Yadav
28	Aman Saini
29	Saloni Chhaparwal
30	Yash Saxena
31	Sangeeta Sharma
32	Siddhi Saxena
33	Shubham Udsaria
34	Sachin Yadav
35	Ujala Jhanwar
36	Vidushi Pareek
37	Vikas Mittal
38	Vishal Dandia
39	Yash

Course: Introduction to Algorithms and Analysis

Course Code: noc21-cs89

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Sorting problem, time complexity, asymptotic analysis.
Week 2: Solving recurrence, Divide-and-Conquer.
Week 3: Quicksort and Heap Sort, Decision Tree.
Week 4: Linear time Sorting, Order Statistics.
Week 5: Hash Function, Binary Search Tree (BST) Sort.
Week 6: Randomly build BST, Red Black Tree, Augmentation of data structure.
Week 7: Van Emde Boas, Amortized analysis, Computational Geometry.
Week 8: Dynamic Programming, Graphs, Prim's Algorithms.
Week 9: BFS & DFS, Shortest path problem, Dijktra, Bellman Ford.
Week 10: All pairs shortest path, Floyd-Warshall, Johnson Algorithm.
Week 11: More amortized analysis, disjoint set data structure.
Week 12: Network flow, computational complexity

List of students enrolled

S. No	Name of Student
1	Akshat Gadodia
2	Akshi Jain
3	Akshita sharma
4	Aman Bhargava
5	Ankit Saini
6	Aditi Praveen Gupta
7	Avinash Mittal
8	Bhanupriya Panwar
9	Chhavi Sharma
10	Chitwan Agarwal
11	VIJAY CHOUDHARY
12	Disha Garg
13	Divyanshi Khandelwal
14	Darshika Maheshwari
15	Rahul Goyal
16	Harsh Modi
17	Harshit Gupta
18	Harshit khandelwal
19	Harshit Mittal

20	Harsh kumar sahu
21	Jyoti agrawal
22	Kalpana Modi
23	Kanika Singhal
24	kanishk agarwal
25	Kirti Soni
26	MANALI SHARMA
27	Mehul mehta
28	Monay Chhattani
29	Niramay Vyas
30	Pragya Gaggar
31	Prerna Mehta
32	Riya Agarwal
33	Sushil Kumar Sadhnani
34	Saijal Gulyani
35	SHIVANGI KOUL NAQIB
36	Shubham Soni
37	Suraj sharma
38	Lavanya Talwar
39	Vipul kaushik
40	Anurag yadav

Course: Computer Graphics

Course Code: noc21-cs97

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction - historical evolution, issues and challenges, graphics pipeline, hardware and software basics
Week 2: Object representation - boundary representation, splines, space partitioning
Week 3: Modelling transformations - matrix representation, homogeneous coordinate system, composition, 3D transformations
Week 4: Illumination and shading - background, simple lighting model, shading models, intensity representation, color models, texture synthesis
Week 5: 3D viewing - viewing pipeline, view coordinate system, viewing transformation, projection, window-viewport transformation
Week 6: Clipping and hidden surface removal - clipping in 2D. 3D clipping algorithms, hidden surface removal
Week 7: Rendering - scan conversion of line, circle, fill-area and characters, anti-aliasing
Week 8: Graphics hardware and software - generic architecture, I/O, GPU, Shader programming, graphics software (openGL)

List of students enrolled

S. No	Name of Student
1	akshita singhvi
2	AASHISH JAIN
3	Aayush sharma
4	Abdul Rahman
5	Abhishek Goyal
6	Abhishek Garg
7	Abhishek Rajora
8	Amishi Gupta
9	Anchal Gupta
10	Ankit Mathur
11	Anshita Yadav
12	Avinash Mittal
13	Ayushi Bansal
14	Bhavya Patni
15	Brijesh Nenwani
16	Abhinav Parakh
17	Chestha Gautam
18	Divyanshu pareek

19	Garvit Jaiswal
20	gauranshu mathur
21	Palak gupta
22	Ashima Gupta
23	Harsh Modi
24	Isha Tripathi
25	Manthan jain
26	Jatin Vedwal
27	Kalpana Modi
28	Kanika Singhal
29	Khushboo rathore
30	Khushi
31	Kirti Soni
32	Komal jha
33	KSHITIJ KUMAWAT
34	Kushal Rawat
35	Mansi Pareek
36	Bhavya Mathur
37	Mayank MIttal
38	Mudit Choudhary
39	Mukul Palol
40	Nishita Mathur
41	Piyushi agarwal
42	Prafull bhadauria
43	Richa
44	Robins Kumar
45	Saijal Gulyani
46	Sakshi Agarwal
47	Samyak Pagariya
48	AAYUSHI SHARMA
49	Shruti Mehta
50	Shubham Agarwal
51	Dhananjay Nathawat
52	Manasvini Sharma
53	Simran rathore
54	Garvit Tamra
55	Kartikeya Dixit
56	Vaibhav Bairathi
57	Yashwardhan Gaur

Course: Getting Started with Competitive Programming

Course Code: noc21-cs99

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Sorting and Searching Algorithms
Week 2: Greedy Algorithms - I
Week 3: Greedy Algorithms - II
Week 4: Disjoint Set Union with Path Compression
Week 5: Minimum Spanning Tree
Week 6: Shortest Paths: Dijkstra and Beyond
Week 7: Network Flows - I
Week 8: Network Flows - II, Divide and Conquer
Week 9: Dynamic programming - I
Week 10: Dynamic programming - II
Week 11: Dynamic programming - III
Week 12: Dynamic programming - IV

List of students enrolled

S. No	Name of Student
1	Arpita sharma
2	Akshat Gadodia
3	Amisha Aggarwal
4	Anjali sharma
5	Anmol Kashyap
6	Arihant pokharna
7	Arpita Dubey
8	Aryan Mishra
9	ASHUTOSH TIWARI
10	Avinash Mittal
11	Abhishek Yadav
12	chirag kumar sharma
13	DIVYANSH GUPTA
14	Preeti Gurjar
15	Harshikesh Kumar
16	Harsh kumar sahu
17	Jahanvi Rathi
18	kanishk agarwal
19	Khushi Garg
20	Yash Khandelwal

21	Lalit kumawat
22	Kushal Rawat
23	Mukul jangid
24	Naman Joshi
25	Aditya narayan
26	Nishant Kumar
27	Prafull Bhargava
28	Pranav Parashar
29	Prerit Goyal
30	Priyanshu Suhalka
31	Rishang Tiwari
32	Ritesh Lavti
33	Sushil Kumar Sadhnani
34	Sagar Alwani
35	Ashik Saini
36	Sajal birla
37	Samyak Pagariya
38	Sarthak Maheshwari
39	AAYUSHI SHARMA
40	Jagrati Sharma
41	Shruti Dubey
42	JAYESH SONI
43	Suraj sharma
44	ujjwal bansal

Course: Data Analytics with Python

Course Code: noc22-cs08

Session: 2022-23

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1	:	Introduction to data analytics and Python fundamentals
Week 2	:	Introduction to probability
Week 3	:	Sampling and sampling distributions
Week 4	:	Hypothesis testing
Week 5	:	Two sample testing and introduction to ANOVA
Week 6	:	Two way ANOVA and linear regression
Week 7	:	Linear regression and multiple regression
Week 8	:	Concepts of MLE and Logistic regression
Week 9	:	ROC and Regression Analysis Model Building
Week 10	:	c^2 Test and introduction to cluster analysis
Week 11	:	Clustering analysis
Week 12	:	Classification and Regression Trees (CART)

List of students enrolled

S. No	Name of Student
1	Ankit Yadav
2	Akhil Sharma
3	akshat sharma
4	Akshat Jain
5	ANKIT YADAV
6	Abhay Raj
7	Arihant pokharna
8	ASHUTOSH TIWARI
9	Ashwani Malav
10	Avinash Mittal
11	Rochit Ujjainwal
12	Bhoomika Bulchandani
13	Tejpal Choudhary
14	Dipesh Goyal
15	DIVYANSH CHATURVEDI
16	Divij Karwasara
17	Gaurav jain
18	Govind Pandey
19	Drishti Gupta
20	Manuraditya Singh Hada

21	Rohan jain
22	Virendra singh rathore
23	Saurav Kumar jha
24	Koopar Vijay
25	lokendra singh tanwar
26	Mahima Sharma
27	Mukul jangid
28	Muskan Tailor
29	Purva Agarwal
30	Rajkumar Sain
31	Ritik sharma
32	Ritik Verma
33	Aman Saini
34	Sakshi Gurbani
35	Yogendra Singh
36	Shalin Devpura
37	Shubham Nagar
38	Shreshtha Suri
39	JAYESH SONI
40	sonu saini
41	Vansh Pradeep Singh Rathore
42	Tanushree gupta
43	Sainyali trivedi
44	Akshay Verma
45	Vipul Gupta
46	YAYATI
47	Jatin Kumar Yadav

Course: Compiler Design

Course Code: noc22-cs14

Session: 2022-23

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week1: Introduction

Week2: Lexical Analysis

Week3: Lexical Analysis(cont.)

Week4: Parser

Week5: Parser(Cont.)

Week6: Parser(Cont.)

Week7: Latch and Flip – Flops

Week8: Registers

Week9: Symbol Table

Week10: Runtime Environment

Week11: Intermediate Code Generation

Week12: Intermediate Code Generation(Cont.)

List of students enrolled

S. No	Name of Student
1	Aditya Misra
2	Akshat Gadodia
3	Ankit Saini
4	Arpita Dubey
5	Himanshu kalal
6	Ishika agarwal
7	JAYANT GUPTA
8	jitendra kumar prajapt
9	Jyoti agrawal

10	Karan Sabnani
11	Mishu Jain
12	Naman Mittal
13	Nishita Mathur
14	Sakshi Agarwal
15	sakshi khandelwal
16	Samridhi arya
17	Jagrati Sharma
18	Shubham Nagar
19	Sneha khandelwal
20	Nikunj sahu
21	JAYESH SONI
22	Yash Saini
23	Yashwardhan Gaur

Course: Advanced Graph Theory.

Course Code: noc22-cs17

Session: 2022-23

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week1:

- Introduction
- Path, Cycles and Trails
- Eulerian Circuits, Vertex Degrees

Week2:

- The Chinese Postman Problem and Sequences
- Trees and Distance
- Spanning Trees and Enumeration

Week3:

- Matching and Covers
- Independent Sets, Covers and Maximum Bipartite Matching
- Weighted Bipartite Matching

Week4:

- Stable Matchings and Faster Bipartite Matching
- Factors and Perfect Matching in General Graphs
- Matching in General Graphs

Week5:

- Connectivity and Paths
- K-Connected Graphs
- Network Flow Problems

Week6:

- Vertex Colouring and Upper Bounds
- Colour Critical Graphs
- Counting Proper Colouring

Week7:

- Planar Graphs
- Characterization of Planar Graphs

Week8:

- Line Graphs and Edge Colouring
- Hamiltonian Graph, Travelling Salesman Problem and NP Completeness
- Connected Dominating Sets

List of students enrolled

S. No	Name of Student
1	Ritin yadav
2	Raghav Agarwal
3	Tanmay Mudgal
4	Vaibhav sahu
5	Vipul kaushik

Course: Theory of Computation

Course Code: noc21-cs83

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Final score = Final score = Average assignment score + Exam score

Average assignment score = 25% of average of best 6 assignments out of the total 8 assignments given in the course.
Exam score = 75% of the proctored certification exam score out of 100

Curriculum of the Course:

Week 1: Finite Automata – deterministic and nondeterministic, regular operations
Week 2: Regular Expression, Equivalence of DFA, NFA and REs, closure properties
Week 3: Non regular languages and pumping lemma, DFA Minimization,
Week 4: CFGs, Chomsky Normal Form
Week 5: Non CFLs and pumping lemma for CFLs, PDAs, Equivalence of PDA and CFG
Week 6: Properties of CFLs, DCFLs, Turing Machines and its variants
Week 7: Configuration graph, closure properties of decidable languages, decidability properties of regular languages and CFLs
Week 8: Undesirability, reductions, Rice's Theorem, introduction to complexity theory

List of students enrolled

S.no	Name
1	Abdul Rahman
2	Ritika Agarwal
3	Anshita Yadav
4	Arpita Dubey
5	Harsh Modi
6	Harshit Gupta
7	HARSH JAIN
8	Himanshu kalal
9	JAYANT GUPTA
10	jitendra kumar prajapt
11	Kalpana Modi
12	khushi khandelwal

13	Komal jha
14	Nishita Mathur
15	Puneet Tanwar
16	Sakshi Agarwal
17	Jagrati Sharma
18	Nikunj sahu
19	Sonali kumawat
20	Vinit Kumar Shah

Course: Software Testing

Course Code: noc22-cs12

Session: 2021-22

Duration: 4 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to software testing and test process
Week 2: Black box testing
Week 3: White box testing
Week 4: Integration, regression and system testing, test automation

List of students enrolled

S. No	Name of Student
1	Kunal Mamodiya
2	Aakash Dadhich
3	Abdul Rahman
4	Abhishek khandelwal
5	Adarsh Dixit
6	Aditya Chaturvedi
7	Ajay gupta
8	Akshat Jain
9	Aman Kuntal
10	Amit kumar
11	AYUSHI SHARMA
12	Dev sharma
13	drishti jain
14	vrinda garg
15	Gaurav Mehta
16	Harsh garg
17	Harsh Khandelwal
18	Krity jain
19	Himanshu Sharma
20	ishita mathur
21	Lavanya jain
22	JAYANT JAIN
23	KESHAV KUMAR SHARMA
24	Muskan Kumari
25	Ashutosh Maheshwari
26	Mohan nainani
27	nitesh goyal

28	Nisha jain
29	Prachi Behl
30	Ranu Goyal
31	Ritika Jalewa
32	Sakshi Agarwal
33	Mayank Saxena
34	Pankaj Sharma
35	Shruti Gupta
36	Saloni kumari
37	Dinesh Soni
38	NILESH RAWAT
39	Tarun Sharma
40	Rahul Chandnani
41	Tushar Saxena
42	Uma agarwal
43	Vinay vyas
44	Vishesh
45	Yashwardhan Gaur

Course: Computer Architecture

Course Code: noc22-cs15

Session: 2022-23

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Computer Architecture
Week 2: Assembly Language
Week 3 : Assembly Language - II
Week 4 : ARM – Assembly Language
Week 5 : x86 – Assembly Language
Week 6 : A Primer on Digital Logic - I
Week 7 : Computer Architecture
Week 8 : Computer Architecture – II
Week9: Processor Design
Week10: Principles of Pipelining
Week11: Principles of Pipelining-II
Week12: Memory Systems

List of students enrolled

S. No	Name of Student
1	Hansika agarwal
2	Anuj Sharma
3	Arpita Dubey
4	ASHUTOSH TIWARI
5	Garvit Jaiswal
6	Vaibhav Jain
7	MANALI SHARMA
8	Meghanshi mathur
9	Mukul Palol
10	Nishi Chouhan
11	Nishita Mathur
12	Himanshu chaudhary
13	Rohit-Verma
14	Sakshi Agarwal
15	Shantanu
16	Jagrati Sharma
17	Nikunj sahu
18	JAYESH SONI
19	Vansh Pradeep Singh Rathore
20	suhani wadhwa

21	Yashwardhan Gaur

Course: Data Mining

Course Code: noc22-cs11

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week1:

- Introduction, Knowledge Discovery Process
- Data Preprocessing – I
- Data Preprocessing - II
- Association Rules
- Apriori Algorithm

Week2:

- Rule generation
- Classification
- Decision Tree – I
- Decision Tree – II
- Decision Tree – III
- Decision Tree – IV

Week 3:

- Bayes Classifier – I
- Bayes Classifier – II
- Bayes Classifier – III
- Bayes Classifier – IV
- Bayes Classifier – V

Week 4:

- K Nearest Neighbour – I
- K Nearest Neighbour – II
- K Nearest Neighbour – III
- K Nearest Neighbour – IV
- K Nearest Neighbour – V

Week 5:

- Support Vector Machine – I
- Support Vector Machine - II
- Support Vector Machine - III
- Support Vector Machine - IV
- Support Vector Machine - V

Week 6:

- Kernel Machines
- Artificial Neural Network – I
- Artificial Neural Network – II
- Artificial Neural Network – III
- Artificial Neural Network – IV

Week 7:

- Clustering – I
- Clustering – II
- Clustering – III
- Clustering – IV
- Clustering – I

Week 8:

- Regression – I
- Regression - II
- Regression - III
- Regression - IV
- Dimensionality Reduction – I
- Dimensionality Reduction – II

List of students enrolled

S. No	Name of Student
1	Avadhesh Chasta
2	Bhoomika Bulchandani
3	GARV SHARMA
4	Rohan jain
5	Virendra singh rathore
6	MANAN PUROHIT
7	Laxita Singh
8	Atul Pancharia
9	Mansi Pareek
10	Aman Saini
11	Yash Saxena
12	Shantanu
13	sonu saini
14	Srishti Kulshrestha

Course: Discrete Mathematics

Course Code: noc21-cs80

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Final score = Average assignment score+ Unproctored Exam Score + Exam score

Curriculum of the Course:

Week 1: Counting

Week 2: Set Theory

Week 3: Logic

Week 4: Relations

Week 5: Functions

Week 6: Mathematical Induction and Pegionhole Principle

Week 7: Graph Theory – 01

Week 8: Graph Theory - 02

Week 9: Graph Theory - 03 and Generating Functions

Week 10: Principle of Inclusion-Exclusion

Week 11: Recurrence relations Week 12: Advanced Topics

List of students enrolled

S.no	Name
1	Arpita sharma
2	Chirag Jain
3	AKASH YADAV
4	Akshi Jain
5	Ankit Pareek
6	Ashwani Malav
7	Ayush jangir
8	Bhanu Pratap Singh Rathore
9	Abhishek sharma
10	mahak hussain
11	Shubham jain
12	Kanak Agrawal
13	Keshav Hinger
14	Khushi Garg
15	Khushal Singh Panwar

16	Jitisha Gupta
17	Kunika Khandelwal
18	Mohit sunda
19	NEHA
20	Prafull Bhargava
21	PRERNA VERMA
22	Rintam Singh
23	Ritik Kala
24	Aman Saini
25	Sarthak Bhatia
26	Vansh Pradeep Singh Rathore
27	Shubham Udsaria
28	Manmath Narain Tiwari

Course: Operating System Fundamentals

Course Code: noc21-cs88

Session: 2021-22

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction
Week 2: Processes and Threads – Part I
Week 3: Processes and Threads – Part II
Week 4: Interprocess Communication
Week 5: Concurrency and Synchronization – Part I
Week 6: Concurrency and Synchronization – Part II
Week 7: Deadlock
Week 8: CPU Scheduling
Week 9: Memory Management
Week 10: Virtual Memory – Part I
Week 11: Virtual Memory – Part II
Week 12: File System Processes and Threads – Part I

List of students enrolled

S.no	Name
1	Abhishek Goyal
2	Abhishek Garg
3	Abhishek Rajora
4	aman singh
5	Anshita Raghuvanshi
6	Anshu Verma
7	Apurv kumar
8	Apurv kumar
9	Archika Dixit
10	Aryan Sharma
11	ASHUTOSH TIWARI
12	Bhavya Patni
13	Abhinav Parakh
14	Amrit Singh Rajawat
15	Chitwan Agarwal
16	Dhruv mittal
17	Garvit Jaiswal
18	Ashima Gupta
19	Harshit Jain

20	Harshit Kumar Sevkani
21	Kalpana Modi
22	Ayush Kumar
23	Arishma Khan
24	Khushboo rathore
25	Kirti Soni
26	KSHITIJ KUMAWAT
27	KUNAL SHRINGI
28	Kushal Rawat
29	SHUBHAM MAHESHWARI
30	Mehul Nandwana
31	Mohit jain
32	Nishita Mathur
33	Prafull Bhargava
34	Pragya Gaggar
35	Prateek Goyal
36	Rishabh Panchal
37	ritik chourasiya
38	Ritesh Sharma
39	Sushil Kumar Sadhnani
40	Shubham Nagar
41	Dhananjay Nathawat
42	suhani wadhwa
43	sachin yadav
44	Vishal Bothra

Course: Big Data Computing

Course Code: noc21-cs86

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Average assignment score = 25% of average of best 6 assignments out of the total 8 assignments given in the course.
Exam score = 75% of the proctored certification exam score out of 100

Final score = Average assignment score + Exam score

Curriculum of the Course:

Week 1 : Introduction to Big Data
Week 2 : Introduction to Enabling Technologies for Big Data
Week 3 : Introduction to Big Data Platforms
Week 4 : Introduction to Big Data Storage Platforms for Large Scale Data Storage
Week 5 : Introduction to Big Data Streaming Platforms for Fast Data
Week 6 : Introduction to Big Data Applications (Machine Learning)
Week 7 : Introduction of Big data Machine learning with Spark
Week 8 : Introduction to Big Data Applications (Graph Processing)

List of students enrolled

S.no	Name
1	AASHISH JAIN
2	Abdul Rahman
3	Abhay mangal
4	Adarsh Dixit
5	Anjali Singh
6	aparna maleti
7	Abhishek Yadav
8	Cherrisha Sharma
9	Chhavi Jangid
10	devang agrawal
11	Durvish Paliwal
12	gauranshu mathur
13	Harsh Vardhan Goel
14	Shubham jain
15	khushi khandelwal
16	KRISHAN KUMAWAT
17	Monalisa
18	Mudeet Jain
19	Naman Joshi
20	naman bachlas
21	Nishant Kumar
22	Nishita Mathur

23	Ayush Podar
24	Prafull bhadauria
25	prajjwal sharma
26	Pranav Parashar
27	priyansh dadheech
28	Rahul Kumar Balai
29	Rishabh Shrivastava
30	ritik chourasiya
31	Ritika Singh
32	Aman Saini
33	Shruti Dubey
34	Shruti Mehta
35	Shubham Soni
36	Suraj sharma
37	Vinay vyas
38	Yashvir Singh Nathawat

Course: Ethical Hacking

Course Code: noc22-cs13

Session: 2022-23

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to ethical hacking. Fundamentals of computer networking. TCP/IP protocols stack.
Week 2: IP addressing and routing. TCP and UDP. IP subnets.
Week 3: Routing protocols. IP version 6.
Week-4: Installation of attacker and victim system. Information gathering using advanced Google search, archive.org, netcraft, whois, host, dig, dnsenum and NMAP tool.
Week-5: Vulnerability scanning using NMAP and Nessus. Creating a secure hacking environment. System Hacking: password cracking, privilege escalation, application execution. Malware and Virus. ARP spoofing and MAC attack.
Week 6: Introduction to cryptography, private-key encryption, public-key encryption.
Week 7: Cryptographic hash functions, digital signature and certificate, applications.
Week 8: Steganography, biometric authentication, network-based attacks, DNS and Email security.
Week-9: Packet sniffing using wireshark and burpsuite, password attack using burp suite. Social engineering attacks and Denial of service attacks.
Week 10: Elements of hardware security: side-channel attacks, physical inclinable functions, hardware trojans.
Week-11: Different types of attacks using Metasploit framework: password cracking, privilege escalation, remote code execution, etc.Attack on web servers: password attack, SQL injection, cross site scripting.
Week 12: Case studies: various attacks scenarios and their remedies.

List of students enrolled

S. No	Name of Student
1	Aakash Dadhich
2	AJAY KUMAR SHARMA
3	Vagya Gupta
4	ASHUTOSH TIWARI
5	RISHABH DHAYAL
6	Arun Singh
7	Harsh Vardhan
8	Pranshul Singh
9	Arjit Jain
10	Diwakar
11	Sachin Meena
12	Palak garg

13	ASHLESH SINGH CHOUHAN
14	Ishika patni
15	Tarun Saini
16	SHREYANSH MEENA
17	Ravi kumar meena
18	Jashan
19	Khushi Kaur Anand
20	EKTA GUPTA
21	Darshika Maheshwari
22	Garvit mathodia
23	Ayush Gurjar
24	HARSHITA PALIWAL
25	Isha sharma
26	Jatin Sinwaria
27	Karan Sabnani
28	Khushi Jain
29	KIRTI JAISWAL
30	Kirti Sagar
31	Vaibhav Sharma
32	Lalit kumawat
33	Kushal sharma
34	Laveena goyal
35	Manu Mahawar
36	KULDEEP NAGAR
37	Nishita Mathur
38	Pari Manoj Saraswat
39	Rahul Jain
40	Rajkumar gangwar
41	Ritesh saini
42	Ronak Kumar
43	Rudraksh Agarwal
44	Saksham Sharma
45	Yogendra Singh
46	Shantanu
47	KARTIKEY SHARMA
48	Sangeeta Sharma
49	Shorya pathak
50	Shreshtha Suri
51	Simran Udhani
52	Somik choudhary
53	Deepak Meena
54	Vansh Pradeep Singh Rathore

55	AKHIL UPADHYAY
56	Sumit Gupta
57	Suryansh Johari
58	Ujjwal Tak
59	Tanishk Gupta
60	Harsh Tulsani
61	Harsh Tulsani
62	Yash Gupta
63	yash mina

Course: Ecology and Environment

Course Code: noc21-ge16

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Dr. B.S. Murty -Introduction (1),Sustainability Definition / Goals, Climate Change (2),Case Studies (3) (Eg: Dams, Chemicals, e-waste, IOT, Landfill siting etc)

Week 2 : Dr. Sudhir Chella Rajan-Sustainability and Economics (3),Sustainability and Ethics (3)

Week 3 : Dr. Ligy Philip-(Water Quality/ Waste Management),Water Quality and Treatment (3),Waste Management and Treatment (3)

Week 4 : Dr. B. S. Murty (Water Management/ Resources),Urban Drainage,Water Resource Management,Impact of Climate Change

Week 5 : Dr. Srinivas Jayanti (Energy)-Energy Demand / Resources (1),Pollution from Energy generation (1),Energy and Climate Change (Global Warming) (1),Energy and Sustainability (1),Long Range and Short Range Solutions (1)(Global vs. India)

Week 6 : Dr. R. Ravi Krishna-Risk Assessment Definition (1),Pollutant Pathways / Safety/ Exposure (1),Liability /Examples (1),Life Cycle Assessment (2),Environmental Management and LCA (1)

Week 7 : Dr. Sudhir Chella Rajan-Urban Planning / Sprawl (1),Challenges in Urban Planning,Transport (1),Energy (Smart Grid) (1),Waste (1),Governance (1)

Week 8 : Dr. Susy Varughese / Dr. Parag Ravindran-Ecology – definitions / Systems (1),Biodiversity (1),Examples of Historical Impact of economy on Ecology,Restoration / Ecological Engineering

Week 9 : Dr. Ligy Philip / Dr. Ravi Krishna -Solid Waste Management,Hazardous Waste Management

List of students enrolled

1	Ayush Choudhary
2	Devanshu Soni
3	Kartikeya Dixit
4	Darshika Maheshwari
5	Rahul Goyal
6	Chinmay Gupta
7	Harshit Mittal
8	Harsh Kumar Sahu
9	Hemant Yogi
10	Jalaj Gupta
11	Tarun Jain
12	Jyoti Agrawal
13	Kanishk Agarwal
14	Rakshit Khandelwal
15	Nakshatra Garg
16	Naman Joshi
17	Nishant Kumar
18	Priyansh Indoria
19	Puneet Kumawat
20	Sindhoor Singh
21	Rishabh Shrivastava
22	Rohit Mehta
23	Suryansh Johari
24	Lavanya Talwar
25	Kartikeya Dixit

Course: Consumer Psychology

Course Code: noc21-hs64

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Consumer Psychology
Week 2: Overview of foundation of consumer behavior.
Week 3 : Consumer Decision Making
Week 4 : Purchase process and consumption; Consumer learning and brand loyalty
Week 5 : Low involvement decision making; Situational influences.
Week 6 : The Individual Consumer; Consumer perceptions; Consumer information processing and acquisition
Week 7 : Attitudes; Attitude reinforcement and change
Week 8 : Marketing Communications.

List of students enrolled

Anshul kumar jain	anshuljain1809@gmail.com
ayush singh rathore	ayushsingh226@gmail.com
Chhavi Sharma	chhavisharma3007@gmail.com
Devendra sharma	devensharma1003@gmail.com
Jayesh Singh	jayeshsingh001@gmail.com
Kanishk Pratap Singh Rathore	kanishkrathore777@gmail.com
LALIT MEENA	l.k.palsavat310@gmail.com
Naman Joshi	naman.vinayak.joshi@gmail.com
Nishant Kumar	nishantkumar995547@gmail.com
Yashvir Singh Nathawat	yashveer.nathawat@gmail.com

Course: Cloud Computing and Distributed Systems

Course Code: noc22-cs18

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Introduction to Clouds, Virtualization and Virtual Machine
Week 2: Network Virtualization and Geo-distributed Clouds
Week 3: Leader Election in Cloud, Distributed Systems and Industry Systems
Week 4: Classical Distributed Algorithms and the Industry Systems
Week 5: Consensus, Paxos and Recovery in Clouds
Week 6: Cloud Storage: Key-value stores/NoSQL
Week 7: P2P Systems and their use in Industry Systems
Week 8: Cloud Applications: MapReduce, Spark and Apache Kafka

List of students enrolled

ADITYA SHARMA	adidoraj@gmail.com
Anshita Yadav	anshita13yadav@gmail.com
ASHUTOSH TIWARI	ashutosh19002@gmail.com
FAIZAN KHAN	faizankhan6116@gmail.com
Garvit Jaiswal	garvit.jpr1@gmail.com
Mansi Pareek	mansipareek1@gmail.com
Mukul Palol	mukulpalol@gmail.com
Pranav Parashar	pranav.parashar2012@gmail.com
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Course: Entrepreneurship and IP Strategy

Course Code: noc21-hs102

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to entrepreneurship and intellectual property: Definition, concepts

1. Introduction
2. What is an entrepreneurship?
3. What do you understand by IP?
4. Whether entrepreneurship and IP related? What is role of IP strategy in entrepreneurship?
5. Case study I – IT industry

Week 2 : Innovation and entrepreneurship :

1. Innovation, invention and creativity
2. Types of innovation
3. Innovation, market and IP
4. Open innovation and IP
5. Case Study II - Biotechnology

Week 3 : IPR: Trademark and entrepreneurship :

1. Trademark-Definition
2. Trademark-Types
3. Trademark-Registration
4. Trademark infringement
5. Case study III - Textile industry

Week 4 : IPR: Patent and entrepreneurship :

1. Patent-introduction
2. Patent infringement
3. Patent strategies- I
4. Patent strategies- II
5. Capsule version

Week 5 : IPR: Copyright and entrepreneurship :

1. Copyright – Definition and subject matter
2. Copyright and related rights
3. Copyright registration and entrepreneurship
4. Copyright infringement
5. Case study IV – Film industry

Week 6 : IPR: Industrial design and entrepreneurship:

1. Industrial Design- Definition, concept
2. Industrial Designs Act - Key features
3. Industrial Design-Business
4. Industrial Design infringement

5. Case study V - Automobile industry

Week 7 : IP strategy & entrepreneurship :

1. IP strategy for start-up and MSME
2. IP transaction - introduction
3. IP valuation, bank loan, insurance
4. Success story and business model of a few start-ups
5. Case Study VI – Pharma industry and Agriculture

Week 8 : Entrepreneurship & IP - Government initiates :

1. Incubators, research parks
2. Various Government policies
3. Integrative approach – Entrepreneurship & IP strategy
4. Capsule revision
5. Am I ready to venture my start up? (Course applicability)

List of students enrolled

1	Ayush Agarwal
2	Nikhil Bhatia
3	Bhomesh Razdan
4	Gourav Pooniya
5	Khushboo Rathore
6	Khushi Khandelwal
7	Kshitij Kumawat
8	Navdeep Choudhary
9	Ritin Agarwal
10	Shagun Agarwal
11	Aayush Sharma
12	Sangeeta Sharma
13	Shyam Agarwal
14	Sourav Soni
15	Suryapratapsingh
16	Yashvir Singh Nathawat

Course: Developing Soft Skills and Personality

Course Code: noc21-hs57

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Lecture 1: Introduction: A New Approach To Learning
Lecture 2: Planning And Goal-Setting
Lecture 3: Human Perceptions: Understanding People
Lecture 4: Types Of Soft Skills: Self-Management Skills
Lecture 5: Aiming For Excellence: Developing Potential And Self-Actualisation
Lecture 6: Need Achievement And Spiritual Intelligence

Week 2: Lecture 7: Conflict Resolution Skills: Seeking Win-Win Solution
Lecture 8: Inter-Personal Conflicts: Two Examples
Lecture 9: Inter-Personal Conflicts: Two Solutions
Lecture 10: Types Of Conflicts: Becoming A Conflict Resolution Expert
Lecture 11: Types Of Stress: Self-Awareness About Stress
Lecture 12: Regulating Stress: Making The Best Out Of Stress

Week 3: Lecture 13: Habits: Guiding Principles
Lecture 14: Habits: Identifying Good And Bad Habits
Lecture 15: Habits: Habit Cycle
Lecture 16: Breaking Bad Habits
Lecture 17: Using The Zeigarnik Effect For Productivity And Personal Growth
Lecture 18: Forming Habits Of Success

Week 4: Lecture 19: Communication: Significance Of Listening
Lecture 20:Communication: Active Listening
Lecture 21:Communication: Barriers To Active Listening
Lecture 22:Telephone Communication: Basic Telephone Skills
Lecture 23:Telephone Communication: Advanced Telephone Skills
Lecture 24: Telephone Communication: Essential Telephone Skills

Week 5: Lecture 25: Technology And Communication: Technological Personality
Lecture 26: Technology And Communication: Mobile Personality?
Lecture 27: Topic: Technology And Communication: E-Mail Principles
Lecture 28: Technology And Communication: How Not To Send E-Mails!
Lecture 29: Technology And Communication: Netiquette
Lecture 30: Technology And Communication: E-Mail Etiquette

Week 6: Lecture 31: Communication Skills: Effective Communication

Lecture 32: Barriers To Communication: Arising Out Of Sender/Receiver's Personality
Lecture 33: Barriers To Communication: Interpersonal Transactions
Lecture 34: Barriers To Communication: Miscommunication
Lecture 35: Non-Verbal Communication: Pre-Thinking Assessment-1
Lecture 36: Non-Verbal Communication: Pre-Thinking Assessment-2

Week 7: Lecture 37: Nonverbal Communication: Introduction And Importance
Lecture 38: Non-Verbal Communication: Issues And Types
Lecture 39: Non-Verbal Communication: Basics And Universals
Lecture 40: Non-Verbal Communication: Interpreting Non-Verbal Cues
Lecture 41: Body Language: For Interviews
Lecture 42: Body Language: For Group Discussions

Week 8: Lecture 43: Presentation Skills: Overcoming Fear
Lecture 44: Presentation Skills: Becoming A Professional
Lecture 45: Presentation Skills: The Role Of Body Language
Lecture 46: Presentation Skills: Using Visuals
Lecture 47: Reading Skills: Effective Reading
Lecture 48: Human Relations: Developing Trust And Integrity

List of students enrolled

1	Arpita Sharma
2	Lavanya Sharma
3	Abhishek Sharma
4	Aashna Puri
5	Adarsh Dixit
6	Aditi Goyal
7	Aditi Sharma
8	Aditya Kumar Sharma
9	Rakshita Agarwal
10	Aishwarya Kumari Sharma
11	Akash Sharma
12	Akshat Jaiman
13	Akshat Jain
14	Akshat Nama
15	Akshita Sharma
16	Amir Khan
17	Amisha Aggarwal
18	Amit Kumar
19	Amit Mehra
20	Amit Kumar

21	Anish Choudhary
22	Ankit Sharma
23	Ankit Yadav
24	Anshita Raghuvanshi
25	Anshshikha Agarwal
26	Aditi Praveen Gupta
27	Archita Gocher
28	Archit Bajpai
29	Arihant Pokharna
30	Arnav Pareek
31	Simran Arora
32	Arushi Arora
33	Arpit Somani
34	Arpit Gothwal
35	Arun Kumar Jharwal
36	Asheesh Verma
37	Ashtami Tak
38	Atishayee Singh
39	Manan Sharma
40	Anupam Meena

41	Rahul Meemrot
42	Abhinandan Sharma
43	Amol Kumari
44	Pratha Bhardwaj
45	Nikhil Bhatia
46	Bhomesh Razdan
47	Arvind Kumawat
48	V Vighnesh Rajan
49	Devendra Meena
50	Chirag Bohra
51	Deependra Singh Sisodiya
52	Devansh Pareek
53	Yatin Parmar
54	Somu Dey
55	Dilkhush Meena
56	Disha Garg
57	Divik Mathur
58	Gagandeep Singh
59	Gaurav Jangid
60	Gaurav Meena
61	Anil Godara
62	Gourav Pooniya
63	Rahul Goyal
64	Gungun Wadhwa
65	Gunjan Khandelwal
66	Gyanendra Jyoti
67	Harsh Modi
68	Hemant Yogi
69	Himanshu Sharma
70	Hiten Jain
71	Ishita Vyas
72	Priya Agarwal
73	Manav Jain
74	Tanisha Jain
75	Sanidhya Bhardwaj
76	Hemant Jangid
77	Megha Jangid
78	Jayesh Singh
79	Jitendra Singh

80	Lakshita Natani
81	Kalpana Modi
82	Kanishk Pratap Singh Rathore
83	Kanishk Sharma
84	Harsh Sharma
85	Kashyap
86	Karan Sharma
87	Kasish Agarwal
88	Shivam Khandelwal
89	Khushboo Rathore
90	Khushi Agarwal
91	Khushi
92	Khushi Punia
93	Khushi Kakkad
94	Khushi Khandelwal
95	Kirti Jaiswal
96	Lav Kumar
97	Komal Kanwar Korawat
98	Kumari Ridhi
99	Kanishk Sharma
100	Kriti Garg
101	Keshav Singh
102	Kshitij Kumawat
103	Kuldeep Joshi
104	Anshit Kumar
105	Chandan Kumar
106	Kumari Sidhi
107	Kushagra Sharma
108	Kushagra Mundra
109	Karan Vashishth
110	Lalit Meena
111	R S Laxman Meena
112	Luckey Sharma
113	Maahi Kaur Disanj
114	Madhav Kankani
115	Manali Sharma
116	Manan Sharma
117	Mansi Pareek
118	Mayank Lalwani

119	Ashok Meena
120	Avdesh Meena
121	Pooja Kumari Meena
122	Riya Mehta
123	Mohit Agarwal
124	Mohit Agarwal
125	Mohit Singh
126	Chetesh Sharma
127	Mumal Bhati
128	Muskan Rangrej
129	Kuldeep Nagar
130	Naisha Gupta
131	Naman Joshi
132	Navya Gupta
133	Neha Maheshwari
134	Nicky Lakhisarani
135	Nidhi Yadav
136	Nikita Gupta
137	Nikshay Khandelwal
138	Nishita Tolani
139	Nitish Kumar Mishra
140	Nitya Singh
141	Pawani Bhardwaj
142	Keshav Pareek
143	Pradeep Singh
144	Prateek Sharma
145	Prateek Somani
146	Pratiksha Sharma
147	Priyal Khandelwal
148	Priyansh Soni
149	Priya Gupta
150	Puneet Kumawat
151	Lakshya Purohit
152	Rachi Khandelwal
153	Rahul
154	Rahul Meemrot
155	Rahul Meena
156	Priyanka Sharma
157	Niharika Rathore
158	Rishabh Shrivastava
159	Ritik Sharma
160	Rohit Kumar Meerwal
161	Ruchika Jain
162	Saksham Jain
163	Sakshi Agarwal
164	Sakshi Anil Barge
165	Yogendra Singh
166	Shagun Agarwal
167	Deep Shah
168	Shivam Singhal
169	Shruti Dubey
170	Shubham Agarwal
171	Shubham Gundaliya
172	Jigyasa Singh
173	Nitu Singh
174	Aarsh Raghav
175	Udit Kumar Soni
176	Sonu Kumar
177	Sneha Sharma
178	Suraj Sharma
179	Suryapratapsingh
180	Swati Aggarwal
181	Sachin Yadav
182	Tanishk Goyal
183	Tanmay Mudgal
184	Tanya Khandelwal
185	Kriishnanshu Bhargava
186	Sakshi Anil Barge
187	Amit Kumar
188	Pulkit Gupta
189	Umang Mathur
190	Hitesh Mishra
191	Vaibhav Sahu
192	Varun Kumar Meena
193	Kush Vasaniya
194	Akshay Verma
195	Tushar Kumar Verma
196	Vikas Singh Khinchi

197	Vinayak Bhati
198	Vinay Bansal
199	Vinay Vyas
200	Vinit Kumar Shah
201	Vipul Jain
202	Vishal Sharma
203	Vishal

204	Vishal Verma
205	Vishal Moud
206	Vishal Singh Chouhan
207	Vishnu Kumar
208	Yash Jain
209	Yashvardhan Singh
210	Yuvraj Singh Naruka

Course: Fundamentals Of Artificial Intelligence

Course Code: noc21-ge20

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: AI and Problem Solving by Search
Week 2: Problem Solving by search
Week 3: Problem Solving by search (contd)
Week 4: Knowledge Representation and Reasoning
Week 5: Knowledge Representation and Reasoning (Contd)
Week 6: Knowledge Representation and Reasoning (contd)
Week 7: Reasoning under uncertainty
Week 8: Planning
Week 9: Planning, Decision Making
Week 10:Decision Making Week
11: Machine Learning
Week 12: Machine Learning (contd)

List of students enrolled

Abhishek Sharma	abhish22075@gmail.com
AMAN DEEP SINGH SANDHU	amandeepsinghsandhu0702@gmail.com
Ankita	ankitasheoran522@gmail.com
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Poorvaja Verma	twoveee@gmail.com

Course: THE PSYCHOLOGY OF LANGUAGE

Course Code: noc21-hs65

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Communication and Language

Week 2: The Science of Language

Week 3: Speech Perception

Week 4: Speech Production

Week 5: Words

Week 6: Sentences

Week 7: Discourse

Week 8: Reading and Writing

List of students enrolled

1	Abhishek Moond
2	Akanksha Foujdar
3	Akshat Jain
4	Akshat Gupta
5	Anshita Yadav
6	Ayush Singh Rathore
7	Devanshu Soni
8	Devendra Sharma
9	Dharmi Kapadiya
10	Garvit Mathur
11	Geetika Mathur
12	Himanshu Patni
13	Isha Tripathi
14	Jahanvi Rathi
15	Jayesh Singh
16	Vishal Katariya
17	Mansi Pareek
18	Neha Maheshwari
19	Akshat Pareek
20	Pulkit Vashishth
21	Sanskar Rana
22	Vinay Vyas
23	Vishnu Kumar

Course: Short Fiction in Indian Literature

Course Code: noc21-hs66

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Sivasankaran Pillai "In the Flood"
Week 2 : Kamala Das "Summer Vacation"
Week 3 : Rabindranath Tagore "Cabulliwallah"
Week 4 : Khushwant Singh "Karma"
Week 5 : Sundara Ramaswamy "Reowering"
Week 6 : Premchand "The Chess Players"
Week 7 : Premchand "The Shroud"
Week 8 : Ambai, "A Kitchen in the Corner of the House"
Week 9 : Mulk Raj Anand "The Price of Bananas"
Week 10 : Ruskin Bond "The Blue Umbrella"
Week 11 : R.K. Narayan "A Horse and Two Goats"
Week 12 : Anita Desai "Games at Twilight

List of students enrolled

Anshita Yadav	anshita13yadav@gmail.com
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Sneha Sharma	ss280801@gmail.com
TANYA KHANDELWAL	tanya.khandelwal2001@gmail.com
Tisha Gupta	tishagupta2018@gmail.com

Course: Educational leadership

Course Code: noc21-hs61

Session: 2021-22

Duration: 8 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1: Educational Management & Leadership: Issues & challenges
Week 2: Professional Development & the Reflective Practitioner
Week 3: Professional Ethics & Values in Teaching
Week 4: Key Challenges for Educational Leaders: Grooming Capable & Authentic Educational Leaders
Week 5: Emotional Intelligence & Educational Leadership
Week 6: Leadership for Managing Diversity & Inclusion in Education
Week 7: Educational Leadership in a changing World : 21st Century Challenges
Week 8: Innovative Pedagogy ,Technology & Turnaround Leadership : The Stakeholders' Perspectives

List of students enrolled

AASHNA PURI	aashnapuri53@gmail.com
Archit Bajpai	architbajpai2@gmail.com
Nikhil Bhatia	bhatianikhilbn@gmail.com
Nishkarsh Goyal	goyalnishkarsh2@gmail.com
Kushal Rawat	kushrwt19@gmail.com
Arpit Jain	rpitfootsteps@gmail.com

Computer Networks and Internet Protocol

Course Code: noc22-cs19

Session: 2021-22

Duration: 12 Week

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1 : Introduction to Computer Networks History, Circuit Switching and Packet Switching

Week 2 : TCP/IP Protocol Stack – Basic Overview

Week 3 : Application Layer Services (HTTP, FTP, Email, DNS)

Week 4 : Transport Layer Primitives – Connection Establishment and Closure

Week 5 : Flow Control and Congestion Control at the Transport Layer

Week 6 : Transmission Control Protocol – Basic Features, TCP Congestion Control

Week 7 : Network Layer Primitives – IP Addressing

Week 8 : IP Routing – Intra Domain Routing Protocols, Inter Domain Routing Protocols (BGP)

Week 9 : IP Services – SNMP, ARP

Week 10 : Data Link Layer Service Primitives – Forwarding, Flow Control, Error Control

Week 11 : Media Access Control - Channel Access Protocols, Framing

Week 12 : End to End Principles of Computer Networks

List of students enrolled

1	Lavanya Sharma
2	Priyansh Singh
3	Aakash Dadhich
4	Aditya Gupta
5	Adish Jain
6	Rakshita Agarwal
7	Paritosh Ajmera
8	Akshat Gadodia
9	Akshita Patidar
10	Ankit Saini
11	Archit Bajpai
12	Piyush Sharma
13	Arzoo Jalendra
14	Ashutosh Tiwari
15	Avadhesh Chasta
16	Megha Jangid
17	Manan Sharma
18	Bhomesh Razdan
19	Amit Kumar
20	Arzoo Jalendra
21	Manoviraj Singh Shekhawat
22	Charu Tiwari
23	Chirag Kumar Sharma
24	Neetu Choudhary
25	Debopam
26	Deepanshu Mehta
27	Chinmay Pareek
28	Tanu Gambhir
29	Harshit Agarwal
30	Himanshu Patni
31	Ishaan Khandelwal
32	Gautam Kumar Jain
33	Tanisha Jain
34	Jayesh Gupta
35	Jayesh Vashishtha
36	Jigyasa Karodiwal
37	Kanika Singhal
38	Kartik Sharma
39	Vishal Katariya
40	Sanskruti Khandelwal
41	Khushi
42	Rashi Kinra
43	Kunika Khandelwal
44	Kusum Sharma
45	Lakshya Verma
46	Manisha Balani
47	Manoj Garg
48	Mansha Modi
49	Sheetal Jhanwar
50	Nilesh Dadheech
51	Nilesh Suthar
52	Nishita Mathur
53	Payal Singh
54	Piyush Gupta
55	Prakhar Kataria
56	Pratiksha Sharma
57	Rahul Kumar Balai
58	Rajdev Dhakar
59	Rajat Khandelwal
60	Roshan Suthar
61	Arpit Jain
62	Sakshi Sharma
63	Kartikey Sharma
64	Saurabh Sharma
65	Shubham Soni
66	Nikunj Sahu
67	Somik Choudhary
68	Harshit Agarwal
69	Ujjwal Bansal
70	Harshit Verma
71	Yash Gupta
72	Yash Soni
73	Yogesh Dabodiya

Course: Compiler Design

Course Code: noc22-cs14

Session: 2022-23

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week1: Introduction

Week2: Lexical Analysis

Week3: Lexical Analysis(cont.)

Week4: Parser

Week5: Parser(Cont.)

Week6: Parser(Cont.)

Week7: Latch and Flip – Flops

Week8: Registers

Week9: Symbol Table

Week10: Runtime Environment

Week11: Intermediate Code Generation

Week12: Intermediate Code Generation(Cont.)

List of students enrolled

S. No	Name Of Student
1	Aditya Misra
2	Akshat Gadodia
3	Ankit Saini
4	Arpita Dubey
5	Himanshu Kalal
6	Ishika Agarwal
7	Jayant Gupta
8	Jitendra Kumar Prajapt
9	Jyoti Agrawal
10	Karan Sabnani
11	Mishu Jain
12	Naman Mittal
13	Nishita Mathur
14	Sakshi Agarwal
15	Sakshi Khandelwal
16	Samridhi Arya
17	Jagrati Sharma
18	Shubham Nagar
19	Sneha Khandelwal
20	Nikunj Sahu
21	Jayesh Soni
22	Yash Saini
23	Yashwardhan Gaur

Course: Python for Data Science

Course Code: noc21-cs78

Session: 2021-22

Duration: 4 Weeks

Assessment procedures: Final score = Average assignment score+ Unproctored Exam Score + Exam score **Curriculum of the Course:**

Week 1:

•BASICS OF PYTHON SPYDER (TOOL)

- Introduction Spyder
- Setting working Directory
- Creating and saving a script file
- File execution, clearing console, removing variables from environment, clearing environment
- Commenting script files
- Variable creation
- Arithmetic and logical operators
- Data types and associated operations

Week 2:

Sequence data types and associated operations

- Strings
- Lists
- Arrays
- Tuples
- Dictionary
- Sets
- Range

NumPy

- ndArray

Week 3:

•Pandas dataframe and dataframe related operations on Toyota Corolla dataset

1. Reading files
2. Exploratory data analysis
3. Data preparation and preprocessing

•Data visualization on Toyoto Corolla dataset using matplotlib and seaborn libraries

1. Scatter plot
2. Line plot
3. Bar plot
4. Histogram
5. Box plot

6. Pair plot

•Control structures using Toyota Corolla dataset

1. if-else family
2. for loop
3. for loop with if break
4. while loop

•Functions

Week 4: CASE STUDY

•Regression

1. Predicting price of pre-owned cars

•Classification

1. Classifying personal income

List of students enrolled

S.No	Name
1	Arpita Sharma
2	Chirag Jain
3	Akash Yadav
4	Akshi Jain
5	Ankit Pareek
6	Ashwani Malav
7	Ayush Jangir
8	Bhanu Pratap Singh Rathore
9	Abhishek Sharma
10	Mahak Hussain
11	Shubham Jain
12	Kanak Agrawal
13	Keshav Hinger
14	Khushi Garg
15	Khushal Singh Panwar
16	Jitisha Gupta
17	Kunika Khandelwal
18	Mohit Sunda
19	Neha
20	Prafull Bhargava
21	Prerna Verma
22	Rintam Singh
23	Ritik Kala
24	Aman Saini
25	Sarthak Bhatia
26	Vansh Pradeep Singh Rathore
27	Shubham Udsaria
28	Manmath Narain Tiwari

Course: Linux

Course Code: Linux

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

1. Ubuntu desktop
    - Ubuntu Desktop
    - Main Menu
    - System Tray
    - Trash Bin icon (RHS corner)
    - Desktop icon (LHS corner), pen-drive
2. Synaptic package manager
    - Synaptic Package Manager
    - How to install packages
3. Ubuntu software system
    - Ubuntu-Software-Center
    - Installing softwares through Ubuntu Software Center
4. Basic Commands
    - Commands with example
    - Command interpreter
    - Shell
    - Using man
    - Apropos
    - Whatis
    - Using --help option
5. General Purpose Utilities in Linux
    - echo
    - uname
    - who
    - passwd
    - date
    - cal
    - Brief overview on Files and directories
    - pwd
    - ls
    - cat
6. File System
    - File
    - Directory
    - File Inode
    - Types of Files
    - Home directory and Current directory

- Change Directory(cd)
- mkdir,rmdir

7. Working with Regular Files
   - cat
   - rm
   - cp
   - mv
   - cmp
   - wc
8. File Attributes
   - chown, chmod, chmod -R, displaying files with ls -l
   - chmod u+, chmod a-w, chmod g+w, chmod -r, chgrp
   - inode, hard link, symbolic link
9. Redirection Pipes
   - Input,output and error stream
   - Redirection : > and >>
   - Pipes : |
10. Working with Linux Process
    - Process
    - Shell process
    - Process spawning - parent and child process
    - Process attributes - pid, ppid
    - Init Process
    - User process & System process
    - ps with options
11. The Linux Environment
    - Environment variable vs Local variables
    - set command
    - env command
    - SHELL, HOME, PATH, LOGNAME, PS1, PS2
    - history
    - ! and ~
    - alias
12. Basics of System Administration
    - Root login-su
    - User management - UID, GID, useradd, usermod, userdel
    - Discs – Du, df
13. Simple filters
    - Head
    - tail
    - sort
    - cut
    - paste

Introduction to Linux - Intermediate

1. The grep command
    - To see the content of a file
    - To list the entries of a particular stream
    - To ignore cases
    - Lines that do not match the pattern
    - To list the line numbers with the entries
    - To store the result in another file
    - To know the count
2. More on grep command
    - Search using grep
    - To match more than one pattern
    - To check a word that has different spelling
    - Character class
    - The use of *
    - To match any one character using dot
    - To match a pattern at the beginning of the file
    - To match a pattern at the end of the file
3. The sed command
    - sed
    - To print using sed
    - Line Addressing
    - Context Addressing
4. More on sed command
    - substitute
    - insert
    - delete

Details of Student enrolled

1	Abheet Yadav
2	Abhishek Garg
3	Abhishek Pandey
4	Aditya Agarwal
5	AdityaShri Shrimal
6	Akshat Jaiman
7	Akshat Jain
8	Akshat Kumar Lakhara
9	Akshat Sharma
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11	Anirudh Shekhawat
12	Ankit Sharma
13	Anshul Sharma

14	Anshuman Singh
15	Anu Kumari
16	Arun Sharma
17	Arup Majumder
18	Ashvani Khandelwal
19	Atishayee Singh
20	Ayush Ranjan
21	Ayush Singhal
22	Ayushi Agrawal
23	Badal Singh Rathore
24	Charu Tiwari
25	Chirag Moud
26	Deepanshu Deepanshu

27	Deepanshu Mehta
28	Dhairya Upadhyay
29	Disha Tyagi
30	Dishank Agrawal
31	Divyanshi Paliwal
32	Gaurav Jangid
33	Geetam Geetam
34	Giritra Saraswat
35	Gungun Wadhwa
36	Harsh Jain
37	Harshit Gupta
38	Harshit Sen
39	Harshit Sharma
40	Himanshi Sharma
41	Himanshu Sharma
42	Isha Agarwal
43	Isha Sharma
44	Ishita Vyas
45	Jayesh Sharma
46	Kapish Nandwana
47	Karan Sharma
48	Kashish Gupta
49	Kirti Jaiswal
50	Kunal Sharma
51	Kushal Sharma
52	Madhav Kankani
53	Manan Khandelwal
54	Manan Sharma
55	Manav Jain
56	Mayank Gupta
57	Mayank Jhajharia
58	Mehul Sharma
59	Mitali Sharma
60	Mohit Singh
61	Nakul Sarva
62	Naman Bansal
63	Navneet Tanwar
64	Neetu Choudhary
65	Nilesh Suthar
66	NitishKumar Mishra
67	Payal Singh
68	Piyush Sharma
69	Prakhar Kataria
70	Prateek Suthar
71	Praveen Sukhwal
72	Priyansh Singh
73	Puneet Garg
74	Rachi Khandelwal
75	Rajat Khandelwal
76	Rajdev Dhakar
77	Rishi Jain
78	Ronak Kumawat
79	Ruchit Sharma
80	Rudraksh Agarwal
81	SakshiAnil Barge
82	Sakshi Gurbani
83	Sakshi Sharma
84	Sandeep Kapoor
85	Sanskar Rana
86	Sanskriti Kaushal
87	Shray Rathore
88	Shresth Bhardwaj
89	Shreyansh Vijayvargiya
90	Shubham Gundaliya
91	Shubham Gupta
92	Shubham Singh
93	Sohail Gull
94	Srishti Ajmera
95	Tanisha Jain
96	Udit Vashishth
97	Ujjwal Mantri
98	Vanshika Gupta
99	Vivek Kumar
100	Yash Gupta
101	Aanchal Yadav
102	Lavish Sharma
103	Aryan Sharma

Course: PHP & MySQL

Course Code: PHP & MySQL

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

PHP Basics: Level 1

Installing a Webserver with PHP and MySQL (XAMPP)

1. XAMPP in Windows

- Installing XAMPP in Windows
- XAMPP is a cumulative package consisting of Apache, PHP and MySQL Packages is available for Windows
- In this tutorial the XAMPP will be installed and the default Webserver directory will be **"htdocs"**.

2. XAMPP in Linux

- Installing XAMPP in Linux
- XAMPP is a cumulative package consisting of Apache, PHP and MySQL Packages is available for Linux
- In this tutorial the XAMPP will be installed, and the default Webserver directory will be **"opt"**.

Echo PHP Function, PHP Variables, If and Switch Statements

3. Echo Function

- The echo() function outputs one or more strings.
- Syntax: echo(strings);
- Ex. echo "Hello World!";

4. Variables in PHP

- Variables are used for storing values, like text strings, numbers or arrays.
- When a variable is declared, it can be used over and over again in your script.
- All variables in PHP start with a $ sign symbol.
- The correct way of declaring a variable in PHP: $var_name = value;

5. If Statement

- if statement - use this statement to execute some code only if a specified condition is true.

- if...else statement - use this statement to execute some code if a condition is true and another code if the condition is false.
- if...elseif....else statement - use this statement to select one of several blocks of code to be executed.

6. Switch Statement

- switch statement - use this statement to select one of many blocks of code to be executed

PHP Operators

7. Arithmatic Operators

- Ex. +,-,*,/,%,++,--

8. Comparison Operators

- Ex. ==,!=,<>,>,<,>=,<=

9. Logical Operators

- Ex. && (AND),|| (OR),! (NOT)

Arrays in PHP

10. Arrays

- An array stores multiple values in one single variable.
- Numeric array - An array with a numeric index.
- Associative array - An array where each ID key is associated with a value.
- Ex. Numeric Array: $fruits=array("Apple","Mango","Banana","Grapes");

11. Multi-Dimensional Arrays

- In a multidimensional array, each element in the main array can also be an array. And each element in the sub-array can be an array, and so on.

Loops in PHP

- Loops execute a block of code a specified number of times, or while a specified condition is true.

12. Loops - While Statement

- The while loop executes a block of code while a condition is true.

```
while (condition)
{
code to be executed;
}
```

13. Loops - Do-While Statement

- The do...while statement will always execute the block of code once, it will then check the condition, and repeat the loop while the condition is true.

```
do
{
code to be executed;
}while (condition);
```

14. Loops - For Statement
    - The for loop is used when you know in advance how many times the script should run.
    - Syntax:

```
for (init; condition; increment)
{
code to be executed;
}
```

15. Loops - Foreach Statement
    - The foreach loop is used to loop through arrays.

```
foreach ($array as $value)
{
code to be executed;
}
```

16.
17. **Functions in PHP**
18. Functions (Basic)
- To keep the script from being executed when the page loads, you can put it into a function.
- A function will be executed by a call to the function.
- You may call a function from anywhere within a page.
- Syntax:

```
function functionName()
{
code to be executed;
}
```

19. Functions (Advanced)
- We can also pass parameters to functions during both the declaration and calling time.
- function functionName($param1,$param2); //during function call.
- function functionName($param1,$param2)

```
{
```

code to be executed

}

20.

21. **PHP Special Variables**

22. GET Variable

- The built-in $_GET function is used to collect values from a form sent with method="get".
- Information sent from a form with the GET method is visible to everyone (it will be displayed in the browser's address bar)
- It has limits on the amount of information to send.

23. POST Variable

- The built-in $_POST function is used to collect values from a form sent with method="post".
- Information sent from a form with the POST method is invisible to others and has no limits on the amount of information to send.

PHP and HTML

24. Embedding PHP

- We can embed our PHP code anywhere in the webpage, by enclosing our script within the <?php..... //SCRIPT.....?>

25. Common Way to Display HTML

- We can also use the HTML Code within the PHP Script. Almost each of the HTML Tags can be used within a PHP Script.

Common Errors

- The PHP Engine in the webserver also displays the user the error in case there is something wrong in the code along with the tentative line number where the fault may have occurred. Thus, in this way we can eradicate errors.

26. Common Errors (Part 1)

- Learn how to spot errors and how to fix them
- Common Parse errors
- Parse errors due to missing comma or semicolon
- Parse errors due to not ending single or double quotes correctly

27. Common Errors (Part 2)

- Parse error due to missing or extra brackets
- Matching brackets during complex mathematical operations
- Purpose and usefulness of correct indentation
- Errors due to missing or extra characters
- Undefined variable and undefined index errors

28. Common Errors (Part 3)

- "Cannot modify header information - headers already sent by..." errors when using header() function
- Using ob_start() to turn on output buffering
- "Failed to open stream; no such file or directory in..." errors when including a invalid file
- Using a @ symbol to suppress errors

MYSQL Tutorials: Level 2

MySQL is a Relational Database Management System (RDBMS) that runs as a server providing multiuser access to a number of databases. A third party open source software "phpMyAdmin" will be used as a web-based front end for managing MySQL databases easily and efficiently. It is widely installed by Web hosts worldwide, since it is developed in PHP and is included in the convenient LAMP stack, MAMP, and WAMP software bundle installers.

1. MySQL (Part 1)

- An Introduction to the PHPMyAdmin Interface.
- Creating a New Database
- Creating a new Table and entering the value of the field with the requisite datatype.
- SQL Query displayed in the PHPMyAdmin window.

2. MySQL (Part 2)

- Connecting to the database and inserting dummy data into the database.
- mysql_connect("server_addr", "username", "password") - Connect to the Database Server with the authorised user and password.
- mysql_select_db("database_name") - Selecting a database within a connected database server.

3. MySQL (Part 3)

- Writing some data into the database (INSERT and UPDATE Queries).
- mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - This function is used to run specific queries on our database.
- INSERT QUERY - INSERT into *table* values ('att1', 'att2' , 'att3', 'att4' ,'att5') //Inserts Data into the table
- UPDATE QUERY - UPDATE *table_name* SET att1='xyz' //Updates the Existing values stored in the table of the database.

4. MySQL (Part 4)

- Getting data from the database table and displaying it.
- SELECT QUERY - SELECT * FROM table_name WHERE att1='abc' // Query returns the value from the database where att1 = abc
- mysql_num_rows() - Gives us the number of rows there are in the query we have just given out.
- ORDER BY - Helps to order the output result as when selecting the values form the database. {Use of DESC for Descending ordering / ASC for Ascending ordering}

5. MySQL (Part 5)

- mysql_fetch_assoc — Fetch a result row as an associative array.
- array mysql_fetch_assoc (resource $result) //Returns an associative array that corresponds to the fetched row and moves the internal data pointer ahead. mysql_fetch_assoc() is equivalent to calling mysql_fetch_array() with MYSQL_ASSOC for the optional second parameter. It only returns an associative array.

6. MySQL (Part 6)

- Getting data from the database with the help of an HTML form.
- Creating a FORM where a user can specify a name and selecting the appropriate value from the database.

7. MySQL (Part 7)

- Changing the existing values of the databse table using HTML Forms.
- Update unique records using the id than individual values.

8. MySQL (Part 8)

- DELETE QUERY - To Delete the specific or all the entries of the Database.
- DELETE FROM table_name WHERE field='xyz' // Deletes the entry from the database where the field = xyz.

PHP Advanced: Level 3

1. Name Splitter(Part 1)

- We Input a fullname into a form and then splitting it into firstname and lastname
- Use of : strlen(string) - This function counts total no of characters, including numbers and white spaces in the string
- Use of: mb_substr(string,starting_position,no_of_characters) - This function takes a specific character from a string and a range of no of characters preceeding it.

2. Name Splitter(Part 2)

- Divided the string into 2 halves through searching space, first half is stored as firstname and second half as lastname.
- Use of : substn(string,starting_position,length) - This function results a substring starting from specified position to no of characters required.

3. PHP Dynamic Pages (Part 1)

- We learn to create website with standard template and when on clicking the link changes only the content of page ,new page is not loaded.
- Use of : include(variable) - This function is used to brought up all the content of variable page onto the current page.So that by changing the variable content of the website can be altered without reloading a similar page content everytime.

4. PHP Dynamic Pages (Part 2)

- Making the dynamic linking user-friendly in case an error is obtained by include() function, i.e. checking if the file connected exists or not.
- Use of : file_exists(variable) ->This function is results boolean value true(1) if the file exists and false(0) if not.

5. Simple Visitor Counter

- Counts how many users have viewed your page as per count of refresh button clicked
- fopen("file_name","parameter") opens a file (Creates it if not exists).parameter assigns the mode, w for writting mode, a for append mode
- file_get_contents("file_name")- This function is used to obtain content from the file.
- fwrite("file_name",variable) - This function writes into the file value present in variable.

6. Unique Visitor Counter (Part 1)

- Counts how many users visiting based on their IP addresses. It obtains IP addresses stored in ip-file to match with user's IP
- count() - This function is used to count no of lines in the file.
- $_SERVER[] - *This is an array containing information such as headers, paths and script locations.*
- $_SERVER['REMOTE_ADDR'] - It informs about the IP address from which the user is viewing the current page.

7. Unique Visitor Counter (Part 2)

- Retrieves IP addresses stored and compares them with IP of user viewing the current page.
- fopen("file_name","parameter") opens a file (Creates it if not exists).parameter assigns the mode, w for writing mode, a for append mode
- fwrite("file_name",variable) - This function writes into the file value present in variable.
- intval(string) -This function converts an string value into a integer value.

8. Unique Visitor Counter (Part 3)

- In this video errors have been corrected. Here counter keeps on increases

9. PHP String Functions (Part 1)
    - strlen(string) - This function counts total no of characters, including numbers and white spaces in the string
    - mb_substr(string,starting_position,no_of_characters) - This function takes a specific character from a string and a range of no of characters preceeding it.
    - explode("delimiter",string) -This function breaks down the string into a array. Delimiter is used to know from where to break string.
    - implode(string,"delimiter") -This function joins the array into a string. Delimiter is used to know how to join array elements.

- nl2br() -This function prints the content in exactly same form as written. Used in case for breaking lines.

10. PHP String Functions (Part 2)
    - strrev(string) -This function is used to reverse the inputed string
    - strtolower(string) -This function is used to convert all alphabatic characters in string to thier small/lower case form.
    - strtoupper(string) -This function is used to convert all alphabatic characters in string to thier capital/upper case form.
    - substr_count(string,sub_string,) -This counts the no of substrings matching the particular value in string. It retuns an integer value.
    - substr_replace(original_string,string_to_replace) -This function replaces the cuntent of substring into original string.
11. Basic PHP Proxy
    - Providing the proxy to our page of a url.
    - foreach() - this loop looks through a block of code for each element in an array.
    - erag_replace(current_content, altered content,page) - This function is used to manipulate content of a proxy page.
12. Basic Advert Rotation (Part 1)
13. Basic Advert Rotation (Part 2)
14. Find and Replace
15. Date and Time (Part 1)
16. Date and Time (Part 2)
17. Creating Images with PHP
18. File Upload (Part 1)
    - Setup html form for file uploading
    - Upload file and get file related information like file name, file size, etc
    - Check for error messages after uploading file
19. File Upload (Part 2)
    - Move file from temporary area to user specified location
    - Restrict uploading to only specific file type
    - Restrict uploading to a maximum file size
20. Cookies (Part 1)
    - What are cookies
    - Set cookies using setcookie function

- Understaing how to set expiry time of cookies
- Read and print values from existing cookies
- Print every cookie that we have stored

21. Cookies (Part 2)
    - Check if a cookie exists or not using isset
    - Unset a cookie when no longer required
    - Change the value of a existing cookie
22. Sessions
    - A PHP session variable is used to store information about, or change settings for a user session.
    - Session variables hold information about one single user, and are available to all pages in one application.
    - session_start() - Starting a PHP Session
    - $_SESSION['variable_name']=value - Stores the value in the Session variable.
    - session_stop() - Stopping a PHP Session
23. Search Engine Crawler Detection
24. Swear Word Filter (Part 1)
25. Swear Word Filter (Part 2)
26. Rename Function
27. SQL Injection (Part 1)
28. SQL Injection (Part 2)
29. MD5 Encryption
    - Calculates the MD5 hash of str using the RSA Data Security, Inc.'s MD5 Message-Digest Algorithm, and returns that hash (Its a one way encrypting technique).
    - Syntax : string md5 (string $str [, bool $raw_output = false])
    - Used in encrypting passwords and storing them in a database.
30. Sending Email (Part 1)
    - Create HTML form for getting email subject and message from the user
    - Using the mail() function to send email
31. Sending Email (Part 2)
    - Validating whether the name and message have been entered by the user
    - Check the length of the string using the strlen() function.

- Set up the to, subject and message field of the mail() function
- Send email and check for any errors

32. Sending Email (Part 3)
    - Fix the "Sendmail from not set in php dot ini" error
    - Create the mail "From:" header
    - Using a local or external mail server to send email
    - Using the ini_set() and ini_get() functions to set and read internal php configuration options respectively
33. Upload an Avatar Profile Image (Part 1)
34. Upload an Avatar Profile Image (Part 2)
35. Upload an Avatar Profile Image (Part 3)
36. Upload an Avatar Profile Image (Part 4)
37. Form Validation(Part 1)
38. Form Validation(Part 2)
39. Admin Only Pages (Part 1)
40. Admin Only Pages (Part 2)
41. Admin Only Pages (Part 3)
42. Create a news Feature (Part 1)
43. Create a news Feature (Part 2)
44. Create a news Feature (Part 3)
45. Display Images from a Directory
    - Using opendir() to open a directory handle
    - Using readdir() to read a directory that is already opened
    - Printing the directory listing
46. Pagination (Part 1)
47. Pagination (Part 2)
48. Language Chooser
49. PHP/ MYSQL Based Project - Basic Register and Login Module

- User Login

1. User Login Part 1

- Collecting information from user in a form & connecting to authorized database.
- mysql_connect("hostname", "username", "password") - Connect to the Database Server with the authorized user and password.

- mysql_select_db("database_name") - This selects a database within a connected database server

2. User Login Part 2

- retrieves information about inputed username and checks whether given password matches with the password in database.
- mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database.Here it collects information from field username from specified table.
- mysql_num_rows('query') - This function is user to counts no of rows retrieved from the query given to the database.
- mysql_fetch_assoc('query')- This function fetches required information from the database in the form of array.

3. User Login Part 3

- Creating session for holding value and destroying that value by destroying session.
- start_session() - Starts session to hold information from one pages to other until the session exists.
- $_SESSION['variable_name']=value - Stores the value in the session variable.
- session_destroy() - destroys the value present in session variable.
- User Password Change

1. User Password Change Part 1

- We learn to obtain old existing password and new password from the user.
- start_session() - Hold information from previous pages to session page.
- $variable_name=$_SESSION['value'] - to retrieve value containing in PHP variable.

2. User Password Change Part 2

- Checking whether encrypted old password matches with the database password and new password is same as confirm password.
- md5("parameter")- encrypts parameter into irreversible logical code.
- mysql_connect("hostname", "username", "password") - Connect to the Database Server with the authorized user and password.
- mysql_select_db("database_name") - This selects a database within a connected database server
- mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database.Here it retrieves password of user logged in.

3. User Password Change Part 3
    - updating the new password in database.
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database. Here it updates new password into database.
        - User Registration
            1. User Registration Part 1
                - Creating a form which allows user to input values in page
            2. User Registration Part 2
    - Striping tags of inputed strings and converting password into md5 encryption.
    - Use of : strip_tags(strigs) - cuts down unnecessary spaces,html tags and queries from string.
3. User Registration Part 3
    - Checking whether the username and password provided meet the required length sizes.
    - Use of : strlen("string") - counts th character length of the string.
4. User Registration Part 4
    - Inserting inputed information from the user into the database table through query.
    - mysql_connect("hostname", "username", "password") - Connect to the Database Server with the authorized user and password.
    - mysql_select_db("database_name") - This selects a database within a connected database server
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - It is used to run specific queries on our database. Here it inserts different fields into the database table.
5. User Registration Part 5
    - Converting the password inputed from user to md5 encrypt form.
    - md5("parameter")- encrypts parameter into irreversible logical code.
6. User Registration Part 6
    - Checking the username provided so that condition for duplicate username can be avoided.
    - mysql_query('TYPE_HERE_YOUR_MYSQL_QUERY') - This is used to run specific queries on our database. Here it checks if username already exists in database.

- mysql_num_rows('query') - This function is used to counts no of rows retieved from the query.
- strtolower(string) - converts all characters of string into lower case.

List of students enrolled

1	Abhishek Khandelwal
2	Acchint Kaur
3	Aditi Joshi
4	Aditya Chaturvedi
5	AdityaKumar Gupta
6	AdityaManu Sharma
7	Ajay Gupta
8	AkhilSingh Khangarot
9	Akshat Jain
10	Akshita Dalmia
11	Aman Kuntal
12	Amit Kumar
13	Anshita Yadav
14	Apoorva Dubey
15	Arishma Khan
16	Ashutosh Maheshwari
17	Ayushi Sharma
18	Dev Sharma
19	Devyanshi Khandelwal
20	Dimpal Gupta
21	Dinesh Soni
22	Disha Nagori
23	Drishti Jain
24	Durvish Paliwal
25	Garima Sinha
26	Gaurav Mehta
27	Harsh Garg
28	Harsh Khandelwal
29	Harshita Shekhawat
30	Himanshu Sharma
31	Ishita Mathur
32	JatinKumar Singhal
33	Jayant Jain
34	Kajol Jain
35	Kartikey Agrawal
36	Kartikeya Bajpai
37	KeshavKumar Sharma
38	Keshav Nama
39	Khushal Sharma
40	Krity Jain

41	Kshitij Agarwal
42	Kunal Mamodiya
43	Mayank Saxena
44	Mishal Gupta
45	Mohan Nainani
46	Muskan Khandelwal
47	NamanKumar Jain
48	Nilesh Rawat
49	Nisha Jain
50	Prachi Behl
51	Nishant Nishant
52	Nishant Kumar
53	Nitesh Goyal
54	Pankaj Sharma
55	Poonam Vijay
56	Prafull Bhadauria
57	Pragya Gaggar
58	Prakriti Agrawal
59	Pranav Parashar
60	Prateek Baheti
61	Rahul Chandnani
62	Rishi Khandelwal
63	Ritik Garg
64	Ritika Jalewa
65	Rohit Singh Foujdar
66	Ronit Gupta
67	Sachin Sharma
68	Saksham Agrawal
69	Saksham Kalavtia
70	Saurabh Gupta
71	Shreyas Satija
72	Vibhor Jain
73	Adarsh Dixit
74	Vinay Vyas
75	Ranu Goyal
76	Vishal Bothra
77	Prachi Munot
78	Bhavika Samdani
79	Uma Agarwal
80	Lakshya Dewani

81	Shruti Dubey
82	Shruti Gupta
83	Shubham Sharma
84	Skand Gupta
85	Tanisha Dhemla
86	Tanmay Bhargava
87	Tanu Mehra
88	Tarun Sharma
89	Tushar Saxena
90	Vibhor Jain
91	Vinay Bansal
92	Vinod Kalwani
93	Vishesh Sharma

Course: Cpp

Course Code: Cpp

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

- 1 Introduction to C
- 2 Basic Level
- 3 Intermediate level
- 4 Advanced level

Basic Level

1) **First C Program**

- -Header Files
    - example: #include <stdio.h>
- main()
- Curly braces { }
- printf()
- semicolon ;
- Compiling a C program
    - example: gcc filename.c -o output parameter
- Executing a C program
    - example: ./output parameter
- Errors

2) **First C++ Program**

- Header files
    - --example: #include <iostream>
- main()
- Curly braces { }
- -cout<<
- semicolon ;
- Compiling a C++ program
    - example: g++ filename.cpp -o output parameter
- Executing a C program
    - example: ./output parameter

3) **Tokens in C and C++**

- Data types, constants, identifiers
- Keywords
    - example: if, break, else
- Constants
- Data types
    - example: int, float, char, double

- Format specifiers
    - example: %d, %f, %c, %lf
- Range of data types
- Variables
- Identifier
- Errors

4) **Functions in C and C++**

- What is a function
- Syntax for declaration of a function
- Function with arguments
    - example: return-type function-name(parameter);
- Function without arguments
    - example: return-type function-name;
- Calling a function
- Errors

5) **Scope of Variables in C and C++**

- Introduction
- Syntax of declaring a variable
    - example: data-type var-name;
- Syntax for initializing a variable
    - example: data-type var-name = value;
- Scope of variables
- Global variable
- Local variable
- Error

6) **If And Else If statement in C and C++**

- What are Statements.
- Syntax for if and
- If-else Statement
- Errors

7) **Nested if and switch statement in C and C++**

- Nested if statement.
- Switch statement.
- Syntax for nested-if statement
- Syntax for switch statement
- break statement
- Comparison between nested if-else and switch statement
- Errors

8) **Increment and Decrement Operators in C and C++**

- Increment Operator
    - example: ++

- Postfix increment
    - example: a++
- Prefix increment
    - example: ++a
- Decrement Operator
    - example: --
- Postfix decrement
    - example: a--
- Prefix decrement
    - example: --a
- Typecasting
- Errors

9) **Arithmetic Operators in C and C++**

- Arithmetic Operators
- Addition Operator
    - example: a + b
- Subtraction Operator
    - example: a - b
- Multiplication Operator
    - example: a * b
- Division Operator
    - example: a \ b
- Modulus Operator
    - example: a % b
- Errors

10) **Relational Operators in C and C++**

- Double Equal to
    - example: a == b
- Not Equal to
    - example: a != b
- Greater Than
    - example: a > b
- Less Than
    - example: a < b
- Greater than Equal To
    - example: a >= b
- Less Than Equal To
    - example: a <= b
- Errors

11) **Logical Operators in C and C++**

- And &&
- Or ||
- Not !

- Errors

Intermediate level

12) **Loops in C and C++**

- Loops
- Syntax for while and do-while loop
- Comparison of while and do-while loop
- Syntax for
- for loop
- Errors

13) **Arrays in C and C++**

- What are arrays
- 1-D Arrays
- Syntax for Declaration of arrays
    - example: data type array_name [size];
- Syntax for Initialization of arrays
    - example: data type array_name [size]=value;
- Accepting values from the user
- Errors

14) **Working with 2-D Arrays in C and C++**

- What are 2-D Arrays.
- Range of arrays
- Syntax for Declaration of 2-D arrays
    - example: data type array_name[row][column];
- Syntax for initialization of 2-D arrays
    - example: data type array_name[row][column]=

{
{row-val},{col-val}
};

- Errors

15) **Strings in C and C++**

- What is a string
- Syntax for declaring a string
- Syntax for initializing a string
- To read a string from keyboard
- Errors

16) **String Library Functions in C and C++**

- What are string library functions.
- Types of string library functions
    - Strcpy
    - Strlen
    - Strcmp

- Strcat
- Errors

Advanced level

17) **Working with Structures in C and C++**

- Introduction
- Syntax of structures
- Declaration and initialization
- Declaration of structure variable
- Accessing structure variables

18) **Understanding Pointers in C and C++**

- Introduction
- Syntax of Pointer
  - example: int *iptr;
- Declaration
  - example:

int a; (integer a) int *aptr; (pointer to an integer *aptr) aptr = &a; (aptr set to address of a) Address Pointer

- Errors

19) **Function call in C and C++**

- types of function calls
- function pass by value
- function pass by reference

20) **File Handling in C**

- File handling functions
- Opening a File closing a file
  - example: fopen, fclose
- Reading data from a File

List of Students Enrolled

1	Abheet Yadav
2	Abhishek Garg
3	Abhishek Pandey
4	Aditya Agarwal
5	Aditya Shri Shrimal
6	Akshat Jaiman
7	Akshat Jain
8	Akshat Kumar Lakhara
9	Akshat Sharma
10	Anirudh Sharma
11	Anirudh Shekhawat
12	Ankit Sharma
13	Anshul Sharma
14	Anshuman Singh

15	Anu Kumari
16	Arun Sharma
17	Arup Majumder
18	Ashvani Khandelwal
19	Atishayee Singh
20	Ayush Ranjan
21	Ayush Singhal
22	Ayushi Agrawal
23	BadalSingh Rathore
24	Charu Tiwari
25	Chirag Moud
26	Deepanshu Deepanshu
27	Deepanshu Mehta
28	Dhairya Upadhyay

29	Disha Tyagi
30	Dishank Agrawal
31	Divyanshi Paliwal
32	Gaurav Jangid
33	Geetam Geetam
34	Giritra Saraswat
35	Gungun Wadhwa
36	Harsh Jain
37	Harshit Gupta
38	Harshit Sen
39	Harshit Sharma
40	Himanshi Sharma
41	Himanshu Sharma
42	Isha Agarwal
43	Isha Sharma
44	Ishita Vyas
45	Jayesh Sharma
46	Kamal Manchanda
47	Kapish Nandwana
48	Karan Sharma
49	Kashish Gupta
50	Kirti Jaiswal
51	Kunal Sharma
52	Kushal Sharma
53	Madhav Kankani
54	Manan Khandelwal
55	Manan Sharma
56	Manav Jain
57	Mayank Gupta
58	Mayank Jhajharia
59	Mehul Sharma
60	Mitali Sharma
61	Mohit Singh
62	Nakul Sarva
63	Naman Bansal
64	Navneet Tanwar
65	Neetu Choudhary
66	Nilesh Suthar

67	NitishKumar Mishra
68	Payal Singh
69	Piyush Sharma
70	Prakhar Kataria
71	Prateek Suthar
72	Praveen Sukhwal
73	Priyansh Singh
74	Puneet Garg
75	Rachi Khandelwal
76	Rajat Khandelwal
77	Rajdev Dhakar
78	Rishi Jain
79	Ronak Kumawat
80	Ruchit Sharma
81	Rudraksh Agarwal
82	SakshiAnil Barge
83	Sakshi Gurbani
84	Sakshi Sharma
85	Sandeep Kapoor
86	Sanskar Rana
87	Sanskriti Kaushal
88	Shray Rathore
89	Shresth Bhardwaj
90	Shreyansh Vijayvargiya
91	Shubham Gundaliya
92	Shubham Gupta
93	Shubham Singh
94	Sohail Gull
95	Srishti Ajmera
96	Tanisha Jain
97	Udit Vashishth
98	Ujjwal Mantri
99	Vanshika Gupta
100	Vivek Kumar
101	Yash Gupta
102	Aanchal Yadav
103	Lavish Sharma
104	Aryan Sharma

Course: Latex

Course Code: Latex

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

- 1 Basic Level LaTeX
- 2 Intermediate Level
- 3 Advanced Level

Basic Level LaTeX

1. LaTeX on Windows using TeXworks
    - Installing MikTeX on Windows
    - Writing basic LaTeX document using TeXworks editor
    - Configuring MikTeX to download missing packages
2. Report Writing
    - report style having chapter, section and subsection
    - article style having section, subsection and subsubsection
    - Automatic generation of table of contents
    - toc file to store the information that goes into the table of contents
    - Automatic numbering of section numbers
    - Appendix; its appearance in report and article style
    - exiting from LaTeX when a compilation error occurs
3. Letter Writing
    - Letter document class
    - From address
    - Automatic generation and format of date
    - Starting a new line with double slash
    - To address
    - Starting a new paragraph with a blank line
    - itemize environment for bullet points
    - enumerate environment for numbered points
    - Closing statement
    - Signature
    - Carbon copy
4. Mathematical Typesetting

- $ sign to begin and end mathematical expressions
- Creating alpha, beta, gamma and delta
- Space being used as a terminator of symbols
- Creating spaces in mathematical formulae
- Difference in font of text and formula
- Difference in the minus sign in text and in formula
- frac command to create fractions
- Subscripts and superscripts
- Use of braces {} to demarcate arguments
- Not equal to, greater than or equal to, less than or equal to, much less than
- Right arrow, left arrow, left right arrow, up arrow
- Integral sign, limits of an integral
- Matrices of different rows and columns

5. Equations
   - amsmath package and align and align* environments to create equations
   - Matrix differential equation
   - aligning two equations using &, with and without intervening text
   - Automatic numbering of equations using align
   - Labeling equations with the label command
   - Cross referencing equation numbers through the ref command
   - Inserting text between two aligned equations through the intertext command
   - Automatic generation of equation numbers at run time allows insertion and removal of an equation from a set of equations
   - Labeling sections and subsections for easy and fool-proof cross referencing
   - Breaking an equation into more than one line
   - Suppression of equation numbers in the align environment using the nonumber command
   - Use of backslash (\) to make braces appear as braces
   - left[, right] and also left[. (i.e. left bracking fullstop)
   - Blank lines in the align environment is not permissible
6. Numbering Equations
   - amsmath
   - numbering equations
   - align environment
   - nonumber command
   - labelling equations with the label command

- cross referencing equations with the ref command
- case dependence of variables in label command
- taking help from stackexchange
- learning from ltx-primer.pdf
- typing if-else with cases command

7. Tables and Figures
   - Creating tables and figures in Latex
8. Beamer
   - Creating a presentation using a Beamer
9. Bibliography
   - Creaing Bibliography in Latex

Intermediate Level

1. Feedback diagram with Maths
   - Open the .fig file saved in the feedback control tutorial
   - Put $G(z) = \frac z{z-1}$ in the second block diagram
   - Choose the special flag
   - Save and export it as combined tex and pdf .
   - Show that if "special" is not chosen, we get only text
   - Change /frac into /dfrac
   - Show that at the time of compilation, dfrac unknown error
   - Include \usepackage{amsmath} in the tex file
   - Recompile it and show that the equation is now coming properly
   - Use pdfcrop to trim the pdf file, mention Briss
2. newcommand in LaTeX
   - What is a command?
   - Different types of commands with examples
   - Defining a new command
   - Defining short commands for long repeated input.
   - Commands with parameter
   - Passing parameters to the commands defined
   - Renewcommand
   - Redefining the existing commands to the required output
3. newenvironment in LaTeX
   - What is an environment?
   - Defining a new environment
   - Defining environments with parameters

- Renewenvironment
- Redefining an existing environment to the required output

4. Writing Style Files in LaTeX
    - About LaTeX Styles files.
    - Writing a Style file for LaTeX.
    - Importing a Style file in LaTeX.
    - Defining a standard Style file for LaTeX.
    - newcommand in LateX.newenvironment in LaTeX.
    - RequirePackage command in LaTeX.
    - usepackage command in LaTeX.
    - Style file identification.
    - Preliminary declarations of a Style file.
    - NeedsTeXFormat.
    - ProvidesPackage.
5. Indic Language Typesetting in LaTeX
    - Typeset a document in Indic language using XeLaTeX.
    - Indic language fonts bundle.
    - Installing Indic language Fonts.
    - Installing Nirmala UI Fonts.XeLaTeX Compiler.
    - Using Fontspec package.
    - Using Polyglossia package.
    - Select language command.
    - Set default language in LaTeX.
    - Set other language in LaTeX.

List of Students Enrolled

1	Abhishek Khandelwal
2	Acchint Kaur
3	Aditi Joshi
4	Aditya Chaturvedi
5	Aditya Kumar Gupta
6	Aditya Manu Sharma
7	Ajay Gupta
8	Akhil Singh Khangarot
9	Akshat Jain
10	Akshita Dalmia
11	Aman Kuntal
12	Amit Kumar
13	Anshita Yadav

14	Apoorva Dubey
15	Arishma Khan
16	Ashutosh Maheshwari
17	Ayushi Sharma
18	Dev Sharma
19	Devyanshi Khandelwal
20	Dimpal Gupta
21	Dinesh Soni
22	Disha Nagori
23	Drishti Jain
24	Durvish Paliwal
25	Garima Sinha
26	Gaurav Mehta

27	Harsh Garg
28	Harsh Khandelwal
29	Harshita Shekhawat
30	Himanshu Sharma
31	Ishita Mathur
32	JatinKumar Singhal
33	Jayant Jain
34	Kajol Jain
35	Kartikey Agrawal
36	Kartikeya Bajpai
37	KeshavKumar Sharma
38	Keshav Nama
39	Khushal Sharma
40	Krity Jain
41	Kshitij Agarwal
42	Kunal Mamodiya
43	Mayank Saxena
44	Mishal Gupta
45	Mohan Nainani
46	Muskan Khandelwal
47	NamanKumar Jain
48	Nilesh Rawat
49	Nisha Jain
50	Prachi Behl
51	Nishant Nishant
52	Nishant Kumar
53	Nitesh Goyal
54	Pankaj Sharma
55	Poonam Vijay
56	Prafull Bhadauria
57	Pragya Gaggar
58	Prakriti Agrawal
59	Pranav Parashar
60	Prateek Baheti

61	Rahul Chandnani
62	Rishi Khandelwal
63	Ritik Garg
64	Ritika Jalewa
65	Rohit Singh Foujdar
66	Ronit Gupta
67	Sachin Sharma
68	Saksham Agrawal
69	Saksham Kalavtia
70	Saurabh Gupta
71	Shreyas Satija
72	Vibhor Jain
73	Adarsh Dixit
74	Vinay Vyas
75	Ranu Goyal
76	Vishal Bothra
77	Prachi Munot
78	Bhavika Samdani
79	Uma Agarwal
80	Lakshya Dewani
81	Shruti Dubey
82	Shruti Gupta
83	Shubham Sharma
84	Skand Gupta
85	Tanisha Dhemla
86	Tanmay Bhargava
87	Tanu Mehra
88	Tarun Sharma
89	Tushar Saxena
90	Vibhor Jain
91	Vinay Bansal
92	Vinod Kalwani
93	Vishesh Sharma

Course: Java

Course Code: Java

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

Basic Level

Introduction to Java

1. Getting started with Java – installation
    - Install jdk from Synaptic Package Manager
    - Choose openjdk-6-jdk from the list of packages available
    - Mark it for installation
    - The installation will take a few seconds
    - Verify the installation
    - At the command prompt type java -version, so the version number of the jdk will be displayed
    - Run a simple java program and see if it works
    - Type javac TestProgram.java for compiling the code and java TestProgram for executing the code
2. Java - First program
    - write simple java program
    - print "My First Java Program!" on Console
    - save the file
    - file name given to the java file
    - compile the file
    - run the file
    - correct the errors
    - naming conventions for class
    - naming conventions for method
    - naming conventions for variable

Eclipse

3. Installing Eclipse
    - Install Eclipse on Ubuntu on the Terminal
    - Set up the proxy on the Terminal
    - Then fetch the list of all the available softwares
    - Type sudo apt-get update
    - Then install eclipse on the Terminal
    - Type sudo apt-get install eclipse
    - Verify if Eclipse is installed on the system
    - Installing Eclipse on Debian,Kubuntu,Xubuntu
    - Installing Eclipse on Redhat
    - Installing Eclipse on Fedora,centos and suse linux
4. Getting started with Eclipse
    - Eclipse is an Integrated Development Environment
    - It is a tool on which one can write, debug and run java programs easily
    - Open Dash Home and type Eclipse in the search box.
    - We get Workspace Launcher
    - On clicking on Workbench we get the Eclipse IDE
    - Go to File->New->Project and select Java Project
    - Create a project named EclipseDemo and create a class inside DemoClass
    - Learn about Package Explorer and Editor portlet
5. Hello World Program
    - Open Eclipse
    - Create a Java Project named DemoProject
    - Create a class named DemoClass
    - Class name and file name will be the same
    - Eclipse suggests various possibilities as we type a command
    - Eclipse also completes the parentheses by automatically adding the closing parentheses
    - Include the statement that we want to print
    - Eclipse also completes the quotes by adding the closing quote
    - Compile and execute the program
    - Change the code to print
6. Errors and Debugging
    - When writing a Java Program, here is a list of typical errors:

- Missing semicolon(;)
- Missing double quotes(".")
- Mis-match of filename and classname
- Typing the print statement n lower case
- The line which has the error will be indicated with a red cross mark on the left margin
- The list of errors is displayed by hovering the mouse over the cross mark
- Create a class ErrorFree with Errors, debug the code and run it
- Eclipse also offers intelligent fixes

7. Programming features of Eclipse
    - Auto completion
    - Sets the corresponding closing brace when we open the brace
    - Provides a drop-down list of methods when you start typing the code.
    - Syntax highlighting
    - Classname is highlighted in pink color and method in blue color.
    - Keyboard shortcuts
    - F11 to debug a program and Ctrl plus H to search a specific file.
    - Error highlighting
    - Cross symbol in the program denotes errors
    - Remove semicolon and error details are displayed when mouse is hovered over cross symbol.

Fundamental Programming Structures in Java

8. Numerical datatypes
    - Define datatypes and numerical datatypes
    - int
    - float
    - byte
    - short
    - long
    - double
    - range of each numerical datatypes
    - declaration and initializationof numerical datatypes
    - valid and invalid declaration

9. Arithmetic Operations
    - Define an operator
    - Define arithmetic operators
    - addition
    - subtraction
    - multiplication
    - division
    - modulo
    - simple program to demonstrate arithmetic operators
    - appropriate datatypes for appropriate values
    - save, compile and run the program
10. Strings
    - char datatype
    - letter, digit, punctuation marks, **tab**, or a space are all characters.
    - Program explaining the variable and the character data.
    - Introduction to strings
    - Creating string by Direct Initialization
    - Creating string by using new operator
    - String length()
    - String concat()
    - String toUpperCase()
    - String toLowerCase()
11. Primitive type conversions
    - define type conversion or type casting
    - higher order integer to lower order integer- Explicit type casting
    - program to show explicit type casting
    - common mistake in explicit type casting.
    - program to show common mistake in explicit type casting
    - lower order integer to higher order integer – Implicit type casting
    - program to show implicit type casting
    - char to integer
    - integer to char
    - program to show char to int type casting.

Control flow

12. Relational Operations
    - boolean datatype
    - equal to and not equal to
    - less than and less than or equal to
    - greater than and greater than or equal to
13. Logical Operations
    - use of logical operators
    - and (&&) operator
    - example to explain **and** operator
    - program to demonstrate **and** operator
    - or (||) operator
    - example to explain **or** operator
    - program to demonstrate **or** operator
    - not (!) operator
    - program to demonstrate **or** operator
    - save, compile and run the programs
14. if else construct
    - Conditional Statements and types of Conditional Statements
    - Use of if statement
    - Syntax for if statement
    - Program using if statement
    - Use of if else statement
    - Syntax for if else statement
    - Program using if else statement
    - Use of if else if statement
    - Syntax for if else if statement
    - Program using if else if statement
15. nested if and ternary operator
    - explain nested if
    - nested if syntax
    - program to demonstrate nested if
    - explain the control flow of the program
    - explain ternary operator
    - syntax for ternary operator
    - explain the syntax
    - program to demonstrate ternary operator

- comparison between ternary operator and nested if
- save, compile and run the program

16. switch statement
    - define switch case statement
    - compare switch and nested if
    - switch case syntax
    - working of a switch case statement
    - use of keyword switch
    - valid and invalid use of keyword **case**
    - use of keyword default
    - use of keyword break
    - program to demonstrate switch case statement
    - save, compile and run the program to check the output
17. while loop
    - Loop control statement
    - types of loop control statements
    - Introduction to while loop
    - syntax of while loop
    - Program using while loop
    - Check the output.
    - Introduction to infinite loop
    - loop variable modification
    - Check the output
    - How to terminate the infinite loop
18. for loop
    - syntax
    - introduction to for loop
    - for loop syntax
    - loop vaiable
    - loop condition
    - loop variable increment or decrement
    - loop block
    - flow of loop
    - advantage of using loop
19. do while loop
    - define do while

- do while syntax
- working of do while loop
- example of do while loop
- explain the do while programming
- save, compile and run the program to check the output
- how different is it from the while loop
- program to demonstrate the differences

Arrays

20. Introduction to Arrays
    - About Arrays
    - Declare an Array
    - Initialize an array
    - Intilalization using for loop
    - Index of an array elements
    - change values of an array
    - print the value of an array
    - Advantage of an array.
21. Array operations
    - import java.util.Arrays
    - use methods from class Arrays
    - toString() method
    - sort() method
    - fill() method
    - copyof() method
    - copyofRange() method
    - about parameters for each method.

Classes & Objects

22. Creating class
    - Whatever we can see in this world are all objects
    - Objects can be categorized into groups known as class
    - This is class in real world
    - Human Being is an example of class in real world
    - Class in java is the blue print from which individual objects are created

- Class consists defines a set of properties called variables and a set of behaviors called methods
- Syntax for creating class
- Create a simple class Student using Eclipse
- The Student class can contain properties

23. Creating Object

- An object is an instance of a class
- Each object consist of state and behavior
- Object stores it state in fields or variables
- It exposes its behavior through methods
- Reference variables
- Create a class named TestStudent
- Create an object of the Student class
- Use new operator
- Check what the reference variable contains
- Create one more object of the Student class and check what the reference variable contains

24. Instance fields

- Also known as non-static fields
- Open the TestStudent class which we have created
- Access the fields roll_number and name using dot operator
- See the output
- Initialize the field and see the output
- Change the modifier of the fields to private
- Debug the error that you get
- Change the modifier to protected
- Each object of a class will have unique values
- Create two objects of the Student class

25. Methods

- method definition
- write simple method
- method returning value
- call a method in another method
- flow of the program
- call a static method
- call a method from another class

- method signature
- method body

Constructors

26. Default constructor
    - what is a constructor?
    - what is a default constructor?
    - when is it called?
    - define a constructor
    - initialize the variables
    - call the constructor
    - difference between constructor and method
27. Parameterized constructors
    - What is a parameterized constructor?
    - create constructor without parameter
    - create a constructor with parameter
    - assign values to the variables in the constructor
    - pass arguments during the constructor call
    - working of parameterized constructor
    - show common errors
    - resolve the errors
    - create another parameterized constructor
    - why to use constructor?
28. Using this keyword
    - this is a reference to the current object
    - helps to avoid name conflicts
    - we can use this keyword inside a constructor to call another one
    - the constructors must be in the same class
    - explicit constructor invocation
    - Explain it using the parameterized constructor code
    - Make this statement the last one in the constructor
    - You will get an error
    - this statement should be the first one inside a constructor
29. Non-static block
    - Non-static block
    - Any code written between two curly brackets

- Executed for each object that is created
- Executes before constructor's execution
- can initialize instance member variables of the class
- create a class named NonStaticTest
- Create a non-static block and a constructor inside it
- Check the output
- Include multiple non-static blocks
- they will be executed in the sequence in which they appear in the class
- Check the output
- Non-static block is not a substitute for constructor

30. Constructor Overloading
    - define multiple constructor
    - what is constructor overloading?
    - constructor with different number of parameters.
    - parameters with different datatypes.
    - how is constructor overloaded?
    - flow of overloading process.
    - advantage of constructor overloading.
31. Method Overloading
    - define multiple methods.
    - methods with same name.
    - methods with different number of parameters.
    - methods with different datatypes of parameter.
    - what is method overloading?
    - example for overloadin method
    - how to overload method?
    - advantage of method overloading.
    - error in method overloading.
32. Taking user input in Java
    - What is BufferedReader?
    - Importing three classes from Java.io package
    - How to take the input from the user?
    - Syntax to implement BufferedReader
    - What is InputStreamReader?
    - Create object of InputStreamReader

- Create object of BufferedReader
- About IOException
- About throws keyword
- Typecasting

Intermediate Level

1. Subclassing and Method Overriding
    - Definition of subclassing
    - Demo of subclassing using an Employee and Manager class
    - Single inheritance
    - Use of extends keyword
    - Private members in a super class
    - Definition of method overriding
    - Annotation
    - @Override Annotation
2. Calling methods of the superclass
    - super keyword
    - Call methods of the super class
    - Constructor of the super class
    - Demo of super keyword using an Employee and Manager class
    - Single inheritance
    - Use of extends keyword
    - Private members in a super class
3. Using final keyboard
    - final keyword
    - What is final keyword and its application?
    - Where final keyword can be declared?
    - final variable
    - final static variables
    - static block
    - final variable as parameter
    - final method
    - private final method
    - final class
4. Polymorphism
    - Polymorphism in Java
    - Run-time polymorphism

- Virtual Method Invocation
- Compile-time polymorphism
- Role of JVM
- IS-A test
- Static binding
- Dynamic binding

5. Abstract Classes
    - Abstract Classes in Java
    - What are Abstract Methods
    - What are Concrete Methods
    - Properties of Abstract Methods and Abstract Classes
    - How to use Abstract Methods
6. Java Interfaces
    - Java Interfaces
    - Implementing Interface
    - Implementation Classes
    - Interfaces Vs Abstract classes
    - Implementing Multiple Interfaces
    - Usage of Interfaces with an example
7. Static Variables
    - What is Static Variable in Java?
    - Usage of Static Variables with Example
    - Static Variables Vs Instance Variables
    - Final Static Constants
8. Static Methods
    - What is static method in Java?
    - Static methods Vs Instance methods
    - Usage of static method with example
    - Passing object variables in a static method
9. Static Blocks
    - What is a static block
    - Declaring and defining a static block
    - How static blocks are invoked and executed
10. Exception Handling
    - What is an Exception
    - Types of Exceptions

- Checked Exceptions
- Unchecked Exceptions

- Explaining *ArrayIndexOutOfBoundsException*
- Demonstrating Checked Exceptions with example
- Handling Exceptions using try-catch blocks
- Explaining *ArithmeticException*
- Demonstrating Unchecked Exceptions with example
- Explaining *FileNotFoundException*
- Usage of finally block
- Explaining *NullPointerException*

11. Custom Exceptions

- What is a Custom Exception
- Demonstration of custom exception
- Custom exception example - "Invalid Mark Exception"
- Usage of "throw" keyword
- How to resolve errors in custom exceptions
- Resolve error using "Add throws declaration" option
- Usage of "throws" keyword
- Example for "File Not Found Exception"
- How to handle multiple exceptions
- How to use "surround with try/catch" option

List of Students Enrolled

1	Aashish Jain
2	Aayush Jain
3	Abdul Rahman
4	Aditya Baghela
5	Akshaj Agarwal
6	Aman Jain
7	Aman Porwal
8	Ankit Saini
9	Anosh Field
10	Anuj Sharma
11	Anurag Kashyap
12	Anush Upadhyay
13	Apoorva Khandelwal
14	Archika Archika
15	Arihant Jain
16	Arpita Dubey

17	Aryan Sharma
18	Atishay Harsola
19	Atishay Jain
20	Bhavya Mathur
21	Darshan Parsoliya
22	Devkinandan Sharma
23	DhruvRaj Naruka
24	Divyansh Sharma
25	Gaurav Jangid
26	Harsh Jain
27	Harsh Sharma
28	Harshit Rajan
29	Harshit Sukhwal
30	Ishika Agarwal
31	Jagrati Sharma
32	Jatin Badlani

33	Jayesh Soni
34	Jayesh Soni
35	JitendraKumar Prajapat
36	Karan Sabnani
37	Kartik Kabra
38	Kartik Khandelwal
39	Khushal Agarwal
40	Khushi Jain
41	Khushi Khandelwal
42	Komal Soni
43	KrishanKant Chauhan
44	Kritika Surana
45	Kshitize Singh
46	Kunal Bharagatiya
47	Kunal Goyal
48	Kunal Maheshwari
49	Lavanya Jain
50	Manas Dodiya
51	Manashvini Sharma
52	Mansi Kanwar
53	Manthan Jain
54	Mohammed Arshad
55	Mohit Singhal
56	Mukul Jangid
57	Mukul Palol
58	Naresh Kumar
59	Nayan Gupta
60	Niharika Goyal
61	Nirjhara Sharma
62	Nitin Jain
63	Nupur Mathur
64	Parag Khandelwal
65	Paras Malhotra
66	Prasoon Khandelwal
67	Prerna Mehta

68	Pulkit Bansal
69	Raghav Sharma
70	Rakshanda Kucheria
71	Rakshita Agarwal
72	Reet Jain
73	RishabhDev Singh
74	Rishabh Panchal
75	Rishi Agrawal
76	Rishika Arora
77	Ritik Chourasiya
78	Ritik Kumawat
79	Sakshi Agarwal
80	Samyak Pagariya
81	Saurabh Nahata
82	Shashank Varshney
83	Shivam Thakkar
84	Shreyansh Jain
85	Shubham Agarwal
86	Sneha Khandelwal
87	Sonali Kumawat
88	Sujal Somani
89	Tanisha Garg
90	Tanmay Shah
91	Ujjwal Mishra
92	Vaibhav Jain
93	Vimal Sharma
94	VinitKumar Shah
95	Yashwardhan Gaur
96	Yuvraj Gakkhar
97	Komal Jha
98	Ritwik Sharma
99	Devanshu Soni
100	Anjali Arora
101	MishuPushpendra Jain
102	Chestha Gautam

Course: Python

Course Code: Python

Session: 2021-22

Duration: 4 months

Assessment procedures: Proctored certification Exam (100%)

Curriculum of the Course:

Module 1: Basic Plotting

Getting started with ipython

1. Use Python 3.5.2
2. Use Ipython version 5.1.0
3. IPython is an enhanced interactive Python interpreter.
4. Invoke the IPython interpreter
5. Quit the IPython interpreter
6. Navigate the IPython session history
7. Use tab-completion to work faster.
8. See the documentation of functions using question mark.
9. Interrupt commands using Ctrl + C when we make an error.
10. round command

Using the plot command interactively

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Start IPython with pylab.
4. ImportError if matplotlib is not installed
5. clf() function
6. Use the linspace function to create equally spaced points in a region.
7. Find the length of sequences using len function.
8. Plot mathematical functions using plot.
9. Clear drawing area using clf.
10. Usage of buttons in the UI of the plot window such as - save, zoom, move axis, back and forward and Home

Embellishing a plot

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Modify the attributes of a plot

4. Pass additional keyword arguments to plot command
5. Add title to a plot using 'title' command.
6. Incorporate LaTeX style formatting by adding a $ sign before and after the string.
7. Label x and y axes using xlabel() and ylabel() commands.
8. Add annotations to a plot using annotate() command.
9. Get the limits of axes using xlim() and ylim() commands.
10. Set the limits of axes using xlim() and ylim() commands.

Saving plots

1. Use Python 3.4.3
2. Use Ipython version 5.1.0
3. Save plots using the savefig() function.
4. Save the plots in different formats like
    - pdf
    - ps
    - png
    - svg
    - eps

Multiple plots

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Draw multiple plots which are overlaid.
4. Operations on individual plots.
5. Use the figure command.
6. Distinguish between multiple overlaid plots.
7. Use the legend command.
8. Serial number of the plot to select corresponding plot.
9. Switch between the plots
10. Saving individual plots.

Subplots

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Creating subplots
4. Switching between subplots.
5. Subplot command
6. Passing arguments to subplot command.
7. First argument is the number of rows of subplots.

8. Second argument is the number of columns of subplots
9. Third argument specifies the serial number for subplot.

Additional features of IPython

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. Retrieve the history using %history command.
4. View only a part of history by passing argument to %history command.
5. Pass arguments to %history to get particular lines of code
6. Save the required lines of code in required order using '%save' command.
7. Use '%run -i' command to run a saved script.

Module 2: Plotting Experimental Data

loading data from files

1. load data from file
2. single column
3. multiple columns separated by delimiter
4. cat command
5. loadtxt()
6. columns separated by spaces
7. columns separated by semi-colon
8. unpack argument
9. delimiter argument
10. three columns of data

Plotting the data

1. plotting data
2. list
3. list element-wise squaring
4. plot data points
5. clear plots
6. errorbar function
7. dots or filled circles in plot
8. plot with red pluses
9. explore documentation in ipython
10. plot with errorbars
11. using format argument

Other types of plots

1. scatter plot
2. scatter function
3. scatter plot with various arguments
4. logarithmic plot
5. loglog function
6. cat command
7. loadtxt function
8. unpack parameter of loadtxt
9. linspace
10. scatter versus plot

Plotting charts

1. Use Python 3.4.3
2. Use IPython 5.1.0
3. To produce scatter plot
4. Plot a pie chart using pie() function
5. Plot a bar chart using bar() function
6. Access the matplotlib online help
7. Charts with line hatching

Module 4: Handling Large Data Files

Getting started with lists

1. What is a list?
    - Define List
    - List index
2. Create:
    - List with elements
    - Empty list
    - List within a list
3. Find out the list length using len function
    - Access elements using their index numbers
    - Append elements to list using the function append
    - Delete element from list using the del and remove function

Getting started with for

1. For loop syntax
2. Example to use For loop

3. Indentation in for loop
4. Create blocks in python using for
5. Iterate over a list using for loop
6. How to get out of the block
7. use of Range() function
8. Range function in for loop
9. How to use Python interpreter
10. IPython interpreter to specify blocks

Getting started with strings

1. What are strings?
2. How are strings denoted in Python?
3. String concatenation
4. Multiply a string with an integer
5. Accessing individual elements of a string
6. Accessing elements of a string using negative indices
7. Split() function
8. Join() function
9. Define a string in different ways
10. Print a string repeatedly

Getting started with files

1. Open a file
2. Open() function
3. Different Modes of opening a file
4. Read() method
5. Read the content of the file line by line
6. Read the entire content of the file
7. Append the lines of a file to a list
8. Close a file
9. Demonstration using a txt file
10. Splitlines() method

Parsing data

1. What is Parsing data?
2. split function and its syntax
3. What is string tokenizing?
4. How to split a string on whitespace?
5. split function with argument

6. strip function and example
7. Converting string into floats and integers
8. Example to read a huge .txt file line by line and parse each record
9. Perform computations on the .txt file
10. Execute the file using %run command

Statistics

1. Statistical operations in Python
2. Installation of Numpy for mathematical and logical operations
3. Installation of pip to install python libraries
4. loadtxt() function with example
5. Getting the shape of an array
6. Getting the sum of a column in an array
7. How to calculate mean?
8. Calculate mean across each of the axis of the array
9. How to calculate median?
10. How to calculate standard deviation?

Module 5: Arrays and Matrices

Getting started with arrays

1. Overview of array
2. Usage of numpy library
3. How to create arrays
4. How to create two dimensional array
5. arange() method
6. reshape() method
7. How to find the shape of an array?
8. Create a new array with elements of different datatypes
9. Identity matrix
10. Zeros method

Accessing parts of arrays

1. Create a one-dimensional array
2. Create a two-dimensional array
3. Accessing individual elements of an array
4. How to change the value of an array
5. How to change more than one elements at a time
6. Negative indexing of arrays

7. Slicing of an array
8. Striding of an array
9. Access only the odd rows and columns of an array
10. Examples to demonstrate all the manipulations of arrays

Image manipulation using Arrays

1. Read images into arrays
2. How to access parts of an array?
3. imread command
4. imshow command
5. show command
6. How to check the dimensions of an array?
7. Example to access parts of an image
8. How to stride over an array?
9. Example to access an RGB image
10. Slice an image of different dimension

Basic Matrix Operations

1. Create matrices from lists
2. asmatrix method
3. arange and reshape methods
4. Basic matrix operation
5. Addition, subtraction and multiplication of a matrix
6. Determinant of a matrix
7. eye(), allclose() functions
8. Inverse of a matrix
9. eigenvalues and eigenvectors of a matrix
10. diag() function

Advanced Matrix Operations

1. flatten() function
2. Example to convert a multidimensional matrix to single dimension matrix
3. Frobenius norm of a matrix
4. Demonstration of Frobenius norm of a matrix
5. Inverse of a matrix
6. Infinity norm of a matrix
7. norm documentation
8. Singular value decomposition
9. svd() function

10. smat function

Least square fit

1. Generating a Least Square fit line
2. Generating L vs t square
3. loadtxt function
4. Usage of numpy library
5. Plotting L vs t square
6. Steps for least square fit line
7. Matrix formulation tsq=A.p
8. Generating the two matrices tsq and A
9. Finding transpose of a matrix
10. lstsq() function

Module 6: Python Language: Basics

Basic datatypes & operators

1. Data types in Python
2. Demonstration of int, float and complex data types with examples
3. Different functions associated with int data type
4. Complex numbers and their functions
5. Boolean operations with examples
6. Operator precedence with parentheses
7. Different operators available in Python3
8. Modulo operator with examples
9. How to do exponent operation in Python?
10. How to find the square root of a number in Python?

Sequence datatypes

1. List, string and tuple sequence data types with examples
2. How to access a list using index numbers?
3. Access the string elements
4. Access the tuple elements
5. How to add different sequence data types?
6. How to find the length of a variable?
7. Find the sum of a list
8. Convert list to tuple
9. Convert tuple to list
10. Convert string to list and list to string

Input/output

1. Input Output in Python
2. Various output statements
3. Print a string
4. Print a string with newline character
5. How to use format operators?
6. Example for integer format
7. Example for string format
8. Example for float format
9. Getting input from the user using Input()function
10. Display a prompt to get the input
11. Save the script as filename.py and execute using %run command

Conditionals Statements

1. if condition statement
2. Demonstration of if statement with example
3. if/else condition statement with example
4. Importance of indentation in a program
5. Usage of colon in program
6. Condition statement using elif
7. Examples using if/elif/else block
8. Ternary conditional statement
9. Difference between if/else and ternary conditional statements
10. How to use pass statement?

Loops

1. Explanation of while loop
2. Demonstration of while loop with example
3. Print the squares of all the even numbers below 10 using while loop
4. How to use for loop?
5. Print the squares of all the even numbers below 10 using for loop
6. for loop with range function
7. How to use break statement in for loop
8. pass statement in for loop
9. continue statement in for loop
10. Demonstration of pass, break and continue statements

Module 7: Python Language: Datastructures

Manipulating lists

1. Various manipulation in lists
2. Slicing of lists
3. Syntax and demonstration of slicing of lists
4. How to use step value in slicing
5. Striding of list
6. Examples with various parameters in striding of list
7. sort method in list
8. Usage of sorted() built-in function
9. Reverse a list
10. Striding with negative values
11. How to store a new reversed list in another variable

Manipulating strings

1. How to slice a string
2. Various way to get substrings using index
3. Reverse a string
4. How to check if a given string is a palindrome or not
5. Replace characters in a string
6. Convert a string to uppercase
7. Convert a string to lowercase
8. How to use for loop in a list
9. Join method
10. Join list elements to form a string

Getting started with tuples

1. What are tuples?
2. How to declare tuples?
3. Examples to declare tuples
4. Demonstration of creating tuple
5. Accessing tuples by their index positions
6. Iteration over tuples
7. Demonstration of immutability property of tuples
8. How to swap values in tuples
9. Similarities of tuples with lists
10. Tuple packing and unpacking

Dictionaries

1. Overview of dictionaries
2. Creating an empty dictionary
3. Creating a non empty dictionary
4. About key:value pair
5. How to access the dictionary elements
6. Demonstration of wrong key
7. Add, delete and modify an item in a dictionary
8. Usage of method in
9. Retrieve the keys and values by using the methods keys() and values()
10. Iterate over elements of a dictionary using a for loop

Sets in Python

1. What are sets in python?
2. Input sets
3. Create sets
4. How to create empty sets?
5. Operations on sets
6. Add and remove methods
7. Union and intersection methods
8. Difference and symmetric_difference methods
9. Subset and superset
10. Length and containership on sets

Module 8: Python Language: Advanced

Getting started with functions

1. About Functions
2. How to define a function
3. Example for defining a function
4. Calling a function with arguments
5. Calling a function without arguments
6. Return values from a function
7. Indentation in coding
8. Documenting or commenting code
9. How to use docstrings in python function
10. How to write a function circle to return area and perimeter with radius r

Advanced features of functions

1. Functions with default arguments
2. Various examples for default arguments
3. Interchanging the default and non-default arguments
4. Call a function with keyword arguments
5. Call a function without keyword arguments
6. Functions with positional arguments
7. Functions with arbitrary arguments
8. Demonstration of arbitrary arguments
9. Usage of * and ** in defining a function
10. Python built-in-functions

Using python modules

1. Python modules
2. Run a Python script from command line
3. How to import modules in python scripts?
4. How to import required functions from a module?
5. Usage of namespace
6. Advantages of using import functions
7. Using alias to the module
8. Demonstration of import functions
9. Run python scripts in ipython interpreter
10. Python standard library of modules

Writing python scripts

1. About Python modules
2. What is importing?
3. How to write a function and save it as a script
4. Run a python script
5. Import a module
6. Example to import a module
7. usage of __name__ variable
8. Write test condition using the name variable
9. How importing works in new IPython console
10. Different ways of running the Python script

Testing and debugging

1. What is software testing?
2. Write a simple function

3. How to write test cases?
4. Create simple tests for a function
5. Run the script and test the code
6. Automate tests
7. Example for test case fail
8. Coding style
9. How to give meaningful names in coding
10. Python coding standards

Handling Errors and Exceptions

1. Errors in Python
2. Syntax errors and exception
3. Exceptions with example
4. Syntax error with example
5. Demonstration of ValueError exception
6. Demonstration of ZeroDivisionError exception
7. try except clause in Python
8. What is debugging?
9. Using %debug for debugging in ipython
10. try except with else clause

Details of Student enrolled

1	Aashish Jain
2	Aayush Jain
3	Abdul Rahman
4	Aditya Baghela
5	Akshaj Agarwal
6	Aman Jain
7	Aman Porwal
8	Ankit Saini
9	Anosh Field
10	Anuj Sharma
11	Anurag Kashyap
12	Anush Upadhyay
13	Apoorva Khandelwal
14	Archika Archika
15	Arihant Jain
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59	Nayan Gupta
60	Niharika Goyal
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100	Anjali Arora
101	MishuPushpendra Jain
102	Chestha Gautam

Course: Introduction to Smart Grid

Course Code: noc21-ee68

Session: 2021-22

Duration: 8 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction to Smart Grid-II
- Architecture of Smart Grid System
- Standards for Smart Grid System
- Elements and Technologies of Smart Grid System

Week 2:

- Elements and Technologies of Smart Grid System-II
- Distributed Generation Resources-I
- Distributed Generation Resources-II
- Distributed Generation Resources-III
- Distributed Generation Resources-IV

Week 3:

- Wide Area Monitoring Systems-I
- Wide Area Monitoring Systems-II
- Phasor Estimation-I
- Phasor Estimation-II
- Digital relays for Smart Grid Protection

Week 4:

- Islanding Detection Techniques-I
- Islanding Detection Techniques-II
- Islanding Detection Techniques-III
- Islanding Detection Techniques-IV
- Smart Grid Protection-I

Week 5:

- Smart Grid Protection-II
- Smart Grid Protection-III
- Modelling of Storage Devices
- Modelling of DC Smart Grid components
- Operation and control of AC Microgrid-I

Week 6:

- Operation and control of AC Microgrid-II
- Operation and control of DC Microgrid-I
- Operation and control of DC Microgrid-II
- Operation and control of AC-DC hybrid Microgrid-I
- Operation and control of AC-DC hybrid Microgrid-II

Week 7:

- Simulation and Case study of AC Microgrid
- Simulation and Case study of DC Microgrid
- Simulation and Case Study of AC-DC Hybrid Microgrid
- Demand side management. of Smart Grid
- Demand response analysis of Smart Grid

Week 8:

- Energy Management
- Design of Smart grid and Practical Smart Grid case study-I
- Design of Smart grid and Practical Smart Grid case study-II
- System Analysis of AC/DC Smart Grid
- Conclusions

List of students enrolled

S. No	Name of Student
1	Amit soni
2	ayush singh rathore
3	Devendra sharma

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Course: Campus Recruitment Training Program

Course Code: CRT

Session: 2021-22

Duration: 15 Weeks

Assessment procedures: Diagnostic Test

Curriculum of the Course:

Week-1

- CT2101201 - Diagnostic Test
- No.series,analogies + LAHO2101101
- oddman,coding-decoding, LAT2101101
- Numbers + QAHO2101101
- Vocab Basics (RPS approach) -1 + VAHO350655
- ERPV-1 + QAHO2101102

Week-2

- ERPV-2 - QAT2101102
- Number Systems + QAT2101101
- Vocab Basics (RPS approach) -2 VAHO320501
- CT2101102
- Blood Relations LAHO2101102
- Direction Sense

Week-3

- Symbol & Notations + LAT2101102
- Vocabulary-2 + VAHO2101101/02
- Vocabulary-3+ VAHO2101103+
- QE + QAHO2101103 +
- Progressions - QAT2101103
- Profit, percentage & Loss + QAHO2101104

Week-4

- Partnerships + QAT2101104
- Deductions +LAHO2101103
- Connectives - LAT2101103
- Vocab 2 & 3 - VAT2101101/02
- Clocks + LAHO2101104
- Calendars + LAT2101104

Week-5

- Paragraph Forming Questions + VAHO2101109
- Gram # 1 + VAHO2101104/05
- Binary Logic & Puzzles + LAT2101105
- AMA + QAHO2101105

- SI-CI + QAT2101105
- Time & Work - 1 + QAHO2101106

Week-6

- Distribution + LAHO2101105
- Time & Work - 2 + QAT2101106
- Selection, Routes & Networks + LAHO2101106
- Comparison, Arrangement LAT2101106
- Cubes + LAHO2101107

Week-7

- Venn Diagrams + LAT2101107
- Gram # 3 + VAHO2101108
- Gram Exercise - VAT2101103/04
- Time & Distance - 1 + QAHO2101107
- Geometry + QAHO2101108

Week-8

- Gram # 1 + VAHO2101106
- Gram # 2 Part-2 + VAHO2101107
- Time & Distance - 2 + QAT2101107
- Mensuration + QAT2101108
- Non Verbal Reasoning 1 + LAHO2101108

Week-9

- Non Verbal Reasoning - 2 + LAT2101108
- P & C + QAHO2101109
- Probability + QAT2101109
- Data Interpretation -1 + QAHO2101110
- Reading Comprehension + RCHO2101101
- Data Sufficiency + QAHO210111

Week-10

- Data Interpretation exercise + QAT2101110
- Data Sufficiency exercise + QAT2101111
- Reading Comprehension Ex+ RCT2101101
- Reading Comprehension Ex + RCT2101102/03
- Logical Reasoning + LRHO2101101
- Logical Reasoning exercise LRT2101101

Week-11

- Quant & Logical Ability Practice Exercise (Infosys & Accenture Model) + PTQ2101101
- Logical Ability Practice Exercise (Infosys & Accenture model)+ PTQ2101101/02
- Logical Ability Practice Exercise + PTQ2101103
- Quant & Logical Ability Practice Exercise (IBM & Wipro Model) + PTQ2101104
- Quant & Logical Ability Practice Exercise (IBM & Wipro Model) + PTQ2101105/06

Week-12

- CT2101103 (T.H.) (Wipro Model)
- CT2101104 (T.H.) (Wipro Model)
- Test Feedback and doubt-solving-1
- Verbal Ability Practice Exercise(Infosys & Wipro Model) + PTV2101101
- Verbal Ability Practice Exercise(Infosys & Wipro Model) PTV2101102

Week-13

- CT2101301 (T.H.) (TCS Model)
- CT2101302 (T.H.) (TCS Model)
- Quant & Logical Ability Practice Exercise (TCS model) + PTQ2101107/08
- Quant & Logical Ability Practice Exercise - CTS Model + PTQ210110910
- Verbal Ability Practice Exercise(CTS) + PTV2101103
- Test Feedback and doubt-solving-2

Week-14

- Verbal Ability Practice Exercise(Accenture Model) + PTV2101104
- Verbal Ability Practice Exercise (General Model) + PTV2101105
- Quant & Logical Ability Practice Exercise General Model + PTQ2101110
- CT2101107 (T.H.) (CTS Model)
- CT2101108 (T.H.) (CTS Model)
- CT2101303 T.H. (Tech Mahindra MODEL

Week-15

- CT2101110 (T.H.) & Accenture Model
- CT2101111 (IBM MODEL)
- CT2101112 (T.H.) General Model)
- GD Basics
- Interview Basics
- Extempore-Self introduction

List of enrolled students

Roll No.	Name of Students
19ESKCE001	Abhay Singh Dhaka
19ESKCE002	Abhijeet Singh Nathawat
19ESKCE003	Abhishek Lodwar
19ESKCE004	Abhishek Meena
19ESKCE005	Abhishek Moond
19ESKCE006	Aditya Choudhary
19ESKCE007	Aditya Raj
19ESKCE008	Aditya Saini
19ESKCE009	Ajay Kumar Meena
19ESKCE011	Akanksha Foujdar
19ESKCE012	Aman Suthar
19ESKCE013	Amit Kumar

19ESKCE014	Amit Kumar Sonwal
19ESKCE015	Anand Joshi
19ESKCE016	Anand Kumar
19ESKCE017	Ankit Mina
19ESKCE018	Anshaj Goyal
19ESKCE019	Anurag Meena
19ESKCE020	Arpit Meena
19ESKCE021	Arpit Mukesh Meena
19ESKCE022	Arvind Kumawat
19ESKCE023	Aryan Khatri
19ESKCE024	Ashish Singh Jadaun
19ESKCE025	Ashok Bairwa
19ESKCE026	Atiba Qureshi

19ESKCE027	Ayush Choudhary
19ESKCE028	Ayush Kumar
19ESKCE029	Banwari Lal Meena
19ESKCE030	Brijesh Jatoliya
19ESKCE031	Chitranshu Meena
19ESKCE032	Deepak Meena
19ESKCE033	Dipak Kumar
19ESKCE034	Divyanshu Jain
19ESKCE036	Harsh Kumawat
19ESKCE037	Harsh Meena
19ESKCE038	Harsh Singhal
19ESKCE039	Harshvardhan Rawat
19ESKCE040	Himanshu Agarwal
19ESKCE041	Himanshu Choudhary
19ESKCE042	Himanshu Vijayvargia
19ESKCE043	Hitesh Kumar Meena
19ESKCE044	Hitesh Sharma
19ESKCE045	Ishant Jogani
19ESKCE046	Jagender Baknad
19ESKCE047	Jatin Meena
19ESKCE048	Jatin Pratap Meena
19ESKCE049	Jatin Vedwal
19ESKCE050	Jay Kumar Bansiwal
19ESKCE051	Jayant Kumar
19ESKCE052	Jenisha Devnani
19ESKCE053	Kahkashan Khanam
19ESKCE055	Kanishka
19ESKCE056	Karan Meena
19ESKCE057	Kartikay Singhal
19ESKCE058	Kavya Kulshrestha
19ESKCE059	Kuldeep Tiwari
19ESKCE060	Kumkum Maurya
19ESKCE061	Lalit Kumar Suwalka
19ESKCE062	Lokesh Mali
19ESKCE063	Luv Kumar Suhag
19ESKCE064	Mahendra Meena
19ESKCE065	Manish Choudhary (R C)
19ESKCE066	Manish Choudhary (S L C)
19ESKCE067	Manish Kumar Meena
19ESKCE068	Manish Rad
19ESKCE069	Mehul Agarwal
19ESKCE070	Mohammad Ramjan
19ESKCE071	Mohd Arif Chowdhary
19ESKCE072	Mohit Meena

19ESKCE073	Mukul Mangal
19ESKCE074	Muskan Meena
19ESKCE075	Naman Singhal
19ESKCE076	Naveen Kumar
19ESKCE077	Nitesh Kumar
19ESKCE078	Nitin Goyal
19ESKCE079	Piyush Jain
19ESKCE080	Pooja Kumari Meena
19ESKCE081	Pradeep Kumar Meena
19ESKCE082	Pravesh Sehra
19ESKCE083	Raghvendra Singh Rathor
19ESKCE084	Rahul Ghorela
19ESKCE085	Rahul Meena
19ESKCE086	Rahul Sharma
19ESKCE087	Rahul Singh Shekhawat
19ESKCE088	Rajat Singh
19ESKCE089	Rakesh Jakhar
19ESKCE090	Rakesh Mina
19ESKCE091	Rakesh Singh
19ESKCE092	Ramesh Choudhary
19ESKCE093	Randheer
19ESKCE094	Reddy Sai Praveen Reddy
19ESKCE095	Ritesh Kumar Maurya
19ESKCE096	Rohit Mehta
19ESKCE097	Sachin Rewadia
19ESKCE099	Sagar Meena
19ESKCE100	Sahi Ram Godara
19ESKCE102	Samyak Jain
19ESKCE103	Sanuj Mohan
19ESKCE104	Satish Saini
19ESKCE105	Saurabh Kumar Meena
19ESKCE107	Shailesh Kumar
19ESKCE108	Shiv Singh Naruka
19ESKCE109	Shivani Meena
19ESKCE110	Shubham Saxena
19ESKCE111	Sonal Meena
19ESKCE112	Sourabh Meena
19ESKCE113	Subhash Sihag
19ESKCE114	Sumit Dangda
19ESKCE115	Tanmay Jaiswal
19ESKCE116	Ujjwal Tripathi
19ESKCE117	Umang Panchal
19ESKCE118	Utkarsh Daukiya
19ESKCE119	Ved Pratap Singh

19ESKCE120	Vikas Aechara
19ESKCE121	Vikash Mahawar
19ESKCE122	Vimal Kumawat
19ESKCE123	Vinod Kumar Meena
19ESKCE124	Vishal Kumar
19ESKCE125	Vishnu Goyal
19ESKCE126	Vishnu Meena
19ESKCE127	Vivek Verma
19ESKCE128	Yash Chaudhary
19ESKCE129	Youvan Jain
19ESKCE300	Nitesh
19ESKCE301	Rishabh
19ESKCE302	Shouryaraj Singh
19ESKCE303	Anush Sharma
20ESKCE200	Aditya Singh Parihar
20ESKCE202	Ashish Verma
20ESKCE203	Chitransh Srivastava
20ESKCE204	Mukul Saini
20ESKCE205	Pankaj Sharma
20ESKCE206	Priyanka Sharma
20ESKCE207	Rahul Saini
20ESKCE208	Rakesh Kumar Meena
20ESKCE209	Shiv Datt Borana
20ESKCE210	Shubham Jain
20ESKCE211	Simran Singh
20ESKCE212	Udit Narayan Avasthi
20ESKCE213	Yash Sarswat
20ESKCE215	Yash Sharma
19ESKCS001	Aakash Sharma
19ESKCS002	Aayush Garg
19ESKCS003	Abhinav Mishra
19ESKCS004	Abhinav Parakh
19ESKCS005	Abhishek Dixit
19ESKCS006	Abhishek Galani
19ESKCS007	Abhishek Garg
19ESKCS008	Abhishek Goyal
19ESKCS009	Abhishek Rajora
19ESKCS010	Abhishek Saraswat
19ESKCS011	Abhishek Sharma
19ESKCS012	Aditi Goyal
19ESKCS013	Aditi Jain
19ESKCS014	Aditi Praveen Gupta
19ESKCS015	Aditya Bhardwaj
19ESKCS016	Aditya Bhargava

19ESKCS017	Aditya Mishra
19ESKCS018	Aditya Nehra
19ESKCS019	Ajay Prajapat
19ESKCS020	Akash Gupta
19ESKCS021	Akshat Gadodia
19ESKCS022	Akshat Khandelwal
19ESKCS023	Akshat Lakhera
19ESKCS024	Akshat Singhal
19ESKCS025	Akshit Shukla
19ESKCS026	Akshita Jain
19ESKCS027	Akshita Sharma
19ESKCS028	Akshita Singhvi
19ESKCS030	Aman Agarwal
19ESKCS031	Aman Bhargava
19ESKCS032	Aman Jain
19ESKCS033	Amishi Gupta
19ESKCS034	Amrit Singh Rajawat
19ESKCS035	Anchal Gupta
19ESKCS036	Anjali Jain
19ESKCS037	Ankit Mathur
19ESKCS038	Anshika Mittal
19ESKCS039	Anshul Jethliya
19ESKCS040	Anshul Mishra
19ESKCS041	Anuj Upadhyay
19ESKCS042	Anurag Sharma
19ESKCS043	Apurv Kumar
19ESKCS044	Arjun Chhipa
19ESKCS045	Arpit Tyagi
19ESKCS046	Arunabh Jain
19ESKCS047	Aryan Sharma
19ESKCS048	Ashima Gupta
19ESKCS049	Avi Jain
19ESKCS050	Ayushi Bansal
19ESKCS051	Ayushi Bisht
19ESKCS052	Bharat Kumar
19ESKCS053	Bhavesh Mamtani
19ESKCS055	Bhavya Patni
19ESKCS056	Bhavya Sharma
19ESKCS057	Brijesh Nenwani
19ESKCS058	Charu Agarwal
19ESKCS059	Chinmay Agrawal
19ESKCS060	Chirag Arora
19ESKCS061	Deep Shah
19ESKCS062	Deepak Jairamani

19ESKCS063	Deepak Kumawat
19ESKCS064	Deepandra Pal Singh Kaba
19ESKCS065	Deepanshu Jain
19ESKCS066	Deepesh Sharma
19ESKCS067	Deepshikha
19ESKCS068	Devansh Pareek
19ESKCS069	Devesh Vijayvargiya
19ESKCS070	Dhananjay Nathawat
19ESKCS071	Dhiren Gupta
19ESKCS072	Disha Garg
19ESKCS073	Divesh Joshi
19ESKCS074	Divyam Mittal
19ESKCS075	Divyansh Alagh
19ESKCS076	Divyansh Mathur
19ESKCS077	Divyanshu Pareek
19ESKCS078	Divyanshu Sharma
19ESKCS079	Faizan Khan
19ESKCS082	Garvit Jaiswal
19ESKCS084	Garvit Tamra
19ESKCS085	Gaurav Bhandari
19ESKCS086	Gaurav Gupta (Akr)
19ESKCS087	Gaurav Gupta (Dg)
19ESKCS088	Gautam Sharma
19ESKCS089	Gautam Tinker
19ESKCS090	Gazal Gupta
19ESKCS091	Harsh Kumar
19ESKCS092	Harsh Mundhra
19ESKCS093	Harshil Nandwana
19ESKCS094	Harshit Kumar Sevkani
19ESKCS095	Harshit Rathi
19ESKCS096	Harshita Gupta
19ESKCS097	Harshita Sharma
19ESKCS098	Hemang Agrawal
19ESKCS099	Himanshu Chouhan
19ESKCS100	Himanshu Kalal
19ESKCS101	Hritik Agrawal
19ESKCS102	Ishika Garg
19ESKCS103	Jatin Mittal
19ESKCS104	Jatin Sharma
19ESKCS105	Jayant Gupta
19ESKCS106	Jitendra Mundel
19ESKCS107	Kalash Jain
19ESKCS108	Kanika Agarwal
19ESKCS109	Karan Kumar Dua

19ESKCS110	Kareena Khanna
19ESKCS111	Karishma Saini
19ESKCS112	Karmveer Singh
19ESKCS113	Kartik Dusad
19ESKCS114	Kartik Gupta
19ESKCS115	Kartik Sharma
19ESKCS116	Kaushik Jain
19ESKCS117	Kaustubh Pareek
19ESKCS118	Khushi Goyal
19ESKCS119	Khyati Chandak
19ESKCS120	Kirti Soni
19ESKCS121	Kshitij Khandelwal
19ESKCS122	Kunal Shringi
19ESKCS123	Kushal Agrawal
19ESKCS124	Kushal Rawat
19ESKCS125	Lalit Choudhary
19ESKCS126	Lalit Kumawat
19ESKCS127	Lokesh Choubisa
19ESKCS128	Madhur Khandelwal
19ESKCS129	Manan Jain
19ESKCS130	Manasvi Khatter
19ESKCS131	Manish
19ESKCS132	Manish Kumar Suthar
19ESKCS133	Manish Vijay
19ESKCS134	Manu Choudhary
19ESKCS135	Manu Pareek
19ESKCS136	Mayank Sharma
19ESKCS137	Meenal Gupta
19ESKCS138	Mehul Mehta
19ESKCS139	Mehul Modi
19ESKCS140	Mehul Nandwana
19ESKCS141	Mitansh Agrawal
19ESKCS142	Mohit Agarwal
19ESKCS143	Mohit Babani
19ESKCS144	Mohit Jain (Sj)
19ESKCS145	Mohit Jain (Vkj)
19ESKCS146	Mohit Kumar Pamnani
19ESKCS147	Mohit Vijay
19ESKCS148	Mudit Fauzdar
19ESKCS149	Mukul Sharma
19ESKCS150	Mukund Sharma
19ESKCS151	Muskan Jain
19ESKCS152	Muskan Tailor
19ESKCS153	Nagender Singh

19ESKCS154	Nagendra Singh Tanwar
19ESKCS155	Naman Bhardwaj
19ESKCS156	Naman Goyal
19ESKCS157	Navdeep Dhakar
19ESKCS158	Nikhil Khandelwal
19ESKCS159	Nikhil Kumar Lamba
19ESKCS160	Nikita Singh
19ESKCS161	Nikunj Sahu
19ESKCS162	Nimish Kapoor
19ESKCS163	Nipun Jain
19ESKCS164	Nishita Mathur
19ESKCS165	Oswin Patrick Rozario
19ESKCS166	Palak Gupta (Dks)
19ESKCS167	Palak Gupta (Ng)
19ESKCS168	Palak Vashishtha
19ESKCS169	Parth Dingliwal
19ESKCS170	Parth Sharma
19ESKCS171	Piyush Arora
19ESKCS172	Piyushi Agarwal
19ESKCS173	Prabhat Gupta
19ESKCS174	Pradeep Dhupar
19ESKCS175	Pragati
19ESKCS176	Pragya Sharma
19ESKCS177	Prakshal Jain
19ESKCS178	Pranaya Vashistha
19ESKCS179	Pranjal Jain
19ESKCS180	Pratik Agrawal
19ESKCS181	Pritisha Jain
19ESKCS182	Priya Singh Raghav
19ESKCS183	Priyanshi Vig
19ESKCS184	Priyanshu Jindal
19ESKCS185	Priyanshu Pareta
19ESKCS186	Priyanshu Shukla
19ESKCS187	Priyul Jain
19ESKCS188	Puneet Tanwar
19ESKCS189	Radhika Ojha
19ESKCS190	Raghav Bhandari
19ESKCS191	Raghav Gupta
19ESKCS192	Rahul Khandelwal
19ESKCS193	Rajat Bandhral
19ESKCS194	Rajat Malik
19ESKCS195	Rajat Vyas
19ESKCS196	Rashika Joshi
19ESKCS197	Rishabh Jain

19ESKCS198	Rishabh Mangal
19ESKCS199	Rishi Sharma
19ESKCS800	Rishi Singhal
19ESKCS801	Rishit Rastogi
19ESKCS802	Ritesh Sharma (Aks)
19ESKCS803	Ritesh Sharma (Nrs)
19ESKCS804	Ritika Agarwal
19ESKCS805	Ritish Khurana
19ESKCS806	Rohit
19ESKCS807	Rohit Verma
19ESKCS808	Ronak Vijayvergia
19ESKCS809	Ronit Jain
19ESKCS811	Saksham Goyal
19ESKCS812	Sakshi Khandelwal
19ESKCS813	Samarth Narain Sharma
19ESKCS814	Samridhi Arya
19ESKCS815	Saurabh Pareek
19ESKCS816	Shahnawaz Choudhary
19ESKCS817	Shayan Qureshi
19ESKCS818	Shikhar Gupta
19ESKCS819	Shiv Maheshwari
19ESKCS820	Shivam Todwal
19ESKCS821	Shivang Yadav
19ESKCS822	Shobhit Jain
19ESKCS823	Shreya Maheshwari
19ESKCS824	Shreyansh Garg
19ESKCS825	Shruti Rander
19ESKCS826	Shruti Rawat
19ESKCS827	Shubham Maheshwari
19ESKCS828	Shubham Nagar
19ESKCS829	Shubham Pareek
19ESKCS830	Shubhi Gupta
19ESKCS831	Simranjeet Singh
19ESKCS832	Sneha Sharma
19ESKCS833	Somesh Kapoor
19ESKCS834	Sourabh Sisodia
19ESKCS836	Suhani Singhal
19ESKCS837	Suhani Wadhwa
19ESKCS838	Sunil Kumar Sharma
19ESKCS839	Sunny Kulshrestha
19ESKCS840	Sushil Kumar Sadhnani
19ESKCS841	Swapnil Kashyap
19ESKCS842	Tanik Jain
19ESKCS843	Tanishq Jindal

19ESKCS844	Tanmay Garg
19ESKCS845	Tanmay Jain
19ESKCS846	Tanmay Sharma
19ESKCS847	Tanushree Gupta
19ESKCS848	Tanya Khandelwal
19ESKCS849	Tapesh Sharma
19ESKCS850	Tarun Jain
19ESKCS851	Tejpal Choudhary
19ESKCS852	Tiwari Rahul
19ESKCS853	Tushar Batra
19ESKCS854	Umang Mishra
19ESKCS855	Utsav Yadav
19ESKCS856	Vadanshi Paliwala
19ESKCS857	Vaibhav Garg
19ESKCS858	Vanshika Agarwal
19ESKCS859	Vanshika Kar
19ESKCS860	Varun Kumar Soni
19ESKCS861	Vikalp Jain
19ESKCS862	Vikas Kumar Prasad
19ESKCS863	Vikesh Kumar Patidar
19ESKCS864	Vinay Bansal
19ESKCS865	Vinay Raj Dhaddha
19ESKCS866	Viral Jain
19ESKCS867	Vishakha Chauhan
19ESKCS868	Vishal Kumar Nama
19ESKCS869	Vivek Choudhary
19ESKCS870	Vivek Jaga
19ESKCS871	Yash Goyal
19ESKCS872	Yash Gupta
19ESKCS873	Yash Janyani
19ESKCS874	Yash Mathur
19ESKCS875	Yash Sharma
19ESKCS876	Yashvir Singh Nathawat
19ESKCS877	Yashwant Singh Rathore
19ESKCS878	Yuvraj Singh
19ESKCS300	Khushi Malasiya
19ESKCS301	Tanu Vijay
19ESKCS302	Preksha Gupta
20ESKCS200	Anuj Sharma
20ESKCS201	Bhawesh Verma
20ESKCS202	Mahendra Netwal
20ESKCS203	Prabuddh Sharma
20ESKCS204	Ritik Soni
20ESKCS205	Saransh Chouhan

20ESKCS206	Shrey Sachdeva
20ESKCS207	Smith Saini
20ESKCS208	Tanishq Paliwal
20ESKCS209	Vaibhav Sharma
19ESKME001	Aayush Vaishnav
19ESKME002	Abhay Raj
19ESKME003	Abhishek Kumar Kushwaha
19ESKME004	Abhishek Pandey
19ESKME005	Abhishek Tiwari
19ESKME006	Aditya Raj Sharma
19ESKME007	Ajay Kumar
19ESKME008	Ajay Kumar Buri
19ESKME009	Ajay Pal Singh
19ESKME010	Ajay Pratap Singh Chauhan
19ESKME011	Akhil Sharma
19ESKME012	Akshansh Khandekar
19ESKME013	Akshat Sharma
19ESKME014	Akshat Singh
19ESKME015	Akshay Singh Shaktawat
19ESKME016	Akshit Kumar Sain
19ESKME017	Akshit Sharma
19ESKME018	Aman Aditya
19ESKME019	Aman Baheti
19ESKME020	Aman Deep Singh Sandhu
19ESKME021	Aman Khan
19ESKME022	Aman Sharma (H S)
19ESKME023	Aman Sharma (S K S)
19ESKME024	Amir Khan
19ESKME025	Amit Dubey
19ESKME026	Amit Mathur
19ESKME027	Amit Pareek
19ESKME028	Anirudh Jangid
19ESKME029	Ankit Sharma
19ESKME030	Ankit Yadav
19ESKME031	Annirudh Singh Shekhawat
19ESKME032	Anuj Tripathi
19ESKME033	Anurag Dadhich
19ESKME035	Aryan Soni
19ESKME036	Ashish Kumar
19ESKME037	Ashvin Singh
19ESKME038	Atul Jain
19ESKME039	Aviral Kumar Sharma
19ESKME040	Bhanu Krishna Chasta
19ESKME041	Bhanu Pratap Singh Chouhan

19ESKME042	Bharat Kumar Sharma
19ESKME043	Bhaskar
19ESKME044	Chaitanya Bhushan Mudgal
19ESKME045	Chetan Gurjar
19ESKME046	Chinmay Jain
19ESKME047	Chitransh Gupta
19ESKME048	Choudhary Sanjay Rataram
19ESKME049	Christy Dipu
19ESKME050	Darshan Jain
19ESKME051	Deepak Kumar Yadav
19ESKME052	Deepak Meena
19ESKME054	Deependra Dhankhar
19ESKME055	Devaksh Narwara
19ESKME057	Devasheesh Sharma
19ESKME058	Devashish Mundra
19ESKME059	Devesh Shrimal
19ESKME060	Dharma Ram Jat
19ESKME061	Dipesh Goyal
19ESKME062	Divya Arora
19ESKME063	Divyansh Chaturvedi
19ESKME064	Gaurav Dubey
19ESKME065	Gaurav Jain
19ESKME066	Gaurav Kumar
19ESKME067	Gaurav Mishra
19ESKME069	Harbeet
19ESKME070	Hari Om Mahiya
19ESKME071	Harsh Maheshwari
19ESKME072	Harsh Sharma
19ESKME073	Harsh Singh Gahlot
19ESKME074	Harshika Kumari
19ESKME075	Hemant Yogi
19ESKME076	Hitesh Thadani
19ESKME077	Jalaj Prakash Gupta
19ESKME078	Jancy C Joshwa
19ESKME079	Jatin Chaudhary
19ESKME080	Jatin Kumar Yadav
19ESKME081	Kaelin
19ESKME082	Kapil Siddhu
19ESKME083	Karan Soni
19ESKME084	Khushank Sharma
19ESKME085	Komal Yadav
19ESKME086	Kshitij Kalra
19ESKME087	Kuldeep Sharma
19ESKME088	Kunal Colin Williams

19ESKME089	Kunal Maniwal
19ESKME090	Kunal Mittal
19ESKME091	Labhansh Sharma
19ESKME092	Lalit Sharma
19ESKME093	Lavanshu Garg
19ESKME094	Liladhar Gadwal
19ESKME095	Lovenash Singhal
19ESKME096	Madhur Kala
19ESKME098	Manuraditya Singh Hada
19ESKME099	Mohd Mateen Joad
19ESKME101	Mohit Ola
19ESKME102	Mukul Dangayach
19ESKME103	Mukul Garg
19ESKME104	Muskan Rangrej
19ESKME106	Naval Tripathi
19ESKME107	Naveen Choudhary
19ESKME108	Nikhil Pandey
19ESKME110	Ojasvee Sharma
19ESKME111	Parth Sharma
19ESKME112	Pawan Pareek
19ESKME113	Pawas Bansal
19ESKME114	Pradeep Kumar Prajapati
19ESKME115	Pradyum Sharma
19ESKME116	Prakhar Gaur
19ESKME117	Prateek Kumawat
19ESKME118	Pratyush Solanki
19ESKME119	Prince Manay Bora
19ESKME120	Pritul Nehra
19ESKME121	Priyanka Chauhan
19ESKME122	Priyanshu Goyal
19ESKME123	Puneet Sankhala
19ESKME124	Punit Kejriwal
19ESKME125	Raghav Bhardwaj
19ESKME127	Raghav Somani
19ESKME128	Rahul Kumar Jangid
19ESKME129	Rahul Kumar Kushwaha
19ESKME130	Rahul Saini
19ESKME131	Raj Goyal
19ESKME132	Rajat Meena
19ESKME133	Rajat Swami
19ESKME134	Rajveer Chopra
19ESKME135	Ranveer Singh
19ESKME136	Raunak Advani
19ESKME138	Ravi Raj

19ESKME139	Richhpal Mehariya
19ESKME140	Ritik Raj Yadav
19ESKME141	Ritik Sharma
19ESKME142	Rohan Jain
19ESKME143	Rohan Sharma
19ESKME144	Rohit Banjara
19ESKME145	Rohit Haridasan
19ESKME146	Rohit Meena
19ESKME147	Sajal Kumar Sharma
19ESKME148	Sakshi Jangid
19ESKME149	Samarth Bhatnagar
19ESKME150	Samarth Jain
19ESKME151	Sameer Singh
19ESKME152	Sandeep Kumar
19ESKME153	Sanskar Gupta
19ESKME154	Shashi Ranjan
19ESKME155	Shatrughan Pandit
19ESKME156	Shivam Rajpurohit
19ESKME157	Shivam Saxena
19ESKME158	Shivam Tank
19ESKME159	Shivani Bhagat
19ESKME161	Shreyansh Agarwal
19ESKME163	Shubham Choudhary
19ESKME164	Shubham Jain
19ESKME165	Shubham Sivasiya
19ESKME166	Shubham Soni
19ESKME167	Sushil Chopra
19ESKME168	Vaibhav Sharma
19ESKME169	Vikas Jat
19ESKME170	Vishal Kumawat
19ESKME171	Vishal Singh Shekhawat
19ESKME173	Yash Mathur
19ESKME174	Yash Vashistha
19ESKME175	Yogendra Singh Shekhawat
19ESKME176	Yogesh Kumar Singh
19ESKME300	Anurag Chaudhary
20ESKME200	Akash Khandal
20ESKME201	Aryman Salvi
20ESKME202	Deepak Sharma
20ESKME203	Dheeraj Sharma
20ESKME205	Kashyap
20ESKME206	Navdeep Singh Rathore
19ESKEE001	Aadesh Gurjar
19ESKEE002	Aarsh Raghav

19ESKEE003	Aashish Kaushik
19ESKEE004	Abhay Kumar Meena
19ESKEE005	Abhinav Goyal
19ESKEE006	Abhishek Kumawat
19ESKEE007	Aditya Kumar
19ESKEE008	Aditya Sharma
19ESKEE009	Aditya Singhal
19ESKEE010	Akash Sharma
19ESKEE011	Akshat Joshi
19ESKEE012	Akshita Sharma
19ESKEE013	Amar Chopra
19ESKEE014	Amit Kumar Sharma
19ESKEE015	Amit Mehra
19ESKEE016	Anchal Bhardwaj
19ESKEE017	Ankit Kumar
19ESKEE018	Ankit Sharma
19ESKEE019	Ankita
19ESKEE021	Anmay Kapoor
19ESKEE022	Anoop Gupta
19ESKEE023	Anshul Kumar Yadav
19ESKEE024	Anshuman (A K)
19ESKEE026	Anshuman Gupta
19ESKEE028	Anurag Singhal
19ESKEE029	Anurag Yadav
19ESKEE030	Anushka Porwal
19ESKEE031	Apoorv Bhatia
19ESKEE032	Archana Jha
19ESKEE033	Arun Prajapati
19ESKEE034	Aryan Banerjee
19ESKEE035	Asheesh Verma
19ESKEE036	Ashok Meena
19ESKEE037	Ashutosh Sharma
19ESKEE038	Ashutosh Soni
19ESKEE039	Astha Gupta
19ESKEE041	Ayush Sen
19ESKEE042	Badal Singh Jaggi
19ESKEE043	Bhavesh Saxena
19ESKEE044	Bhavya Deep Sharma
19ESKEE045	Bhavyanshu Shrimali
19ESKEE046	Bhuvan Sharma
19ESKEE047	Chandan Singh Chauhan
19ESKEE048	Chinmay
19ESKEE049	Chirag Goyal
19ESKEE050	Darshan Ranka

19ESKEE051	Deeksha Choudhary
19ESKEE052	Deekshant Tak
19ESKEE053	Deependra Singh Sisodiya
19ESKEE055	Dhruv Nirwan
19ESKEE056	Divam Pareek
19ESKEE057	Divyansh Raj Sharma
19ESKEE058	Divyanshu Parmar
19ESKEE059	Drishti Gupta
19ESKEE060	Ekta Bhardwaj
19ESKEE061	Gaurav Khandal
19ESKEE063	Gaurav Sain
19ESKEE066	Guru Sharan Kumawat
19ESKEE067	Gyanendra Jyoti
19ESKEE068	Hari Dutt Vyas
19ESKEE069	Harsh Badetiya
19ESKEE070	Harsh Gautam
19ESKEE071	Harsh Kumar Aloria
19ESKEE072	Harshita Sharma
19ESKEE073	Hemlata Prajapat
19ESKEE074	Himanshu Choudhary
19ESKEE075	Himanshu Singh
19ESKEE076	Ishan Shrimali
19ESKEE077	Ishu Sharma
19ESKEE078	Jaivardhan Agarwal
19ESKEE079	Jayant Yadav
19ESKEE080	Jayshree Sharma
19ESKEE081	Juhi Tahiliani
19ESKEE082	Jyotirmaya Sharma
19ESKEE083	Kamal Meena
19ESKEE084	Kavya Jain
19ESKEE085	Kavya Singhal Gupta
19ESKEE086	Khush Sharma
19ESKEE087	Khushboo Meena
19ESKEE088	Krishna Chandra Tiwari
19ESKEE089	Kunal Pareta
19ESKEE090	Lahar
19ESKEE091	Lakshya Bhatra
19ESKEE092	Lakshya Sharma
19ESKEE093	Lokendra Kumar
19ESKEE094	Mahendra Jangid
19ESKEE095	Manish Kumar Gangey
19ESKEE096	Manish Kumawat
19ESKEE097	Mansi Mutreja
19ESKEE098	Manvendra Singh Kardam

19ESKEE099	Mayank Jindal
19ESKEE100	Mayank Ratnakar
19ESKEE101	Mohd Amaan
19ESKEE102	Mohit Bugaliya
19ESKEE103	Mohit Sharma
19ESKEE104	Mukul Anand
19ESKEE105	Mukul Jayswal
19ESKEE106	Naisha Gupta
19ESKEE107	Naveen Jarwal
19ESKEE108	Neeraj Choudhary
19ESKEE109	Neeraj Kumawat
19ESKEE110	Neha Faujdar
19ESKEE111	Nishant Prasad
19ESKEE112	Nishi Chouhan
19ESKEE113	Nitin Bairwa
19ESKEE114	Nitish Singh
19ESKEE115	Nitya Lamba
19ESKEE116	Parikshit Rawat
19ESKEE117	Parineeta Bagra
19ESKEE118	Parul Verma
19ESKEE119	Piyush Choudhary
19ESKEE120	Piyush Jangid
19ESKEE121	Piyush Mathur
19ESKEE122	Prakhar Natani
19ESKEE123	Pranay Prabhat
19ESKEE124	Prateek Sharma
19ESKEE125	Pravar Bhatt
19ESKEE126	Praveen Kumawat
19ESKEE127	Priyag Goyal
19ESKEE128	Priyam Neema
19ESKEE129	Pulkit Punia
19ESKEE130	Pulkit Soni
19ESKEE131	Puneet Shringi
19ESKEE132	Pushpendra Jatav
19ESKEE133	Raghav Saini
19ESKEE134	Rahul
19ESKEE135	Rahul Meena
19ESKEE136	Rahul Nagarwal
19ESKEE137	Rahul Tak
19ESKEE138	Rajat Shivrayan
19ESKEE139	Rajnish Kumar
19ESKEE140	Raju Sharma
19ESKEE141	Rakesh Kumar
19ESKEE142	Ravi Choudhary

19ESKEE143	Ravi Kumar Meena
19ESKEE144	Rinku Yadav
19ESKEE146	Rishabh Sharma
19ESKEE147	Rishabh Yadav
19ESKEE148	Ritek Singh
19ESKEE149	Ritika Singh
19ESKEE150	Rituraj Sain
19ESKEE151	Rohit Kumar Chourasiya
19ESKEE152	Rohit Kumar Meerwal
19ESKEE153	Ronak Vaishnav
19ESKEE155	Sanjay Meena
19ESKEE156	Sanjay Singh
19ESKEE157	Sarjana Borana
19ESKEE159	Saurabh Kumawat
19ESKEE160	Shikhar Audichya
19ESKEE161	Shivam Khandelwal
19ESKEE162	Shobhit Khandelwal
19ESKEE163	Shreya
19ESKEE164	Shriya Sharma
19ESKEE165	Shubham Banshiwal
19ESKEE166	Shubham Singh
19ESKEE167	Shubhnesh Sharma
19ESKEE169	Sneha Agrawal
19ESKEE170	Sonu Choudhary
19ESKEE171	Sourabh Meena
19ESKEE172	Sumit Saini
19ESKEE173	Suraj Kumar
19ESKEE174	Swatanshu Shekhar Singh
19ESKEE175	Sweha Rajora
19ESKEE176	Tanishq Chaturvedi
19ESKEE177	Tanuj
19ESKEE178	Tapish Sharma
19ESKEE179	Tejas Kulothia
19ESKEE180	Tushar Sharma
19ESKEE181	Uday Sankhala
19ESKEE182	Utkarsh Verma
19ESKEE183	Vaibhav Saraswat
19ESKEE184	Vaibhav Talreja
19ESKEE185	Vaishali Jangir
19ESKEE186	Varun Kumawat
19ESKEE187	Vinisha Gurjar
19ESKEE188	Vishal Sharma
19ESKEE189	Vishvajeet Singh Ratnu
19ESKEE190	Yadesh Khajuria

19ESKEE191	Yashovardhan Sharma
19ESKEE192	Yogesh Chandel
19ESKEE300	Radhika Tambi
19ESKEE301	Aryan Mewara
19ESKEE302	Pritish Mathur
20ESKEE200	Ashok Kumar Meena
20ESKEE201	Dilip Kumar Bairwa
20ESKEE202	Mohit Singh
19ESKEC001	Aarush Goyal
19ESKEC002	Abhinav Mishra
19ESKEC003	Abhinav Singh
19ESKEC004	Adish Jain
19ESKEC005	Aditya Garg
19ESKEC006	Aditya Gupta
19ESKEC007	Akshita Patidar
19ESKEC008	Aman Khan
19ESKEC009	Aman Saini
19ESKEC010	Amit Kumar
19ESKEC011	Amit Singh
19ESKEC013	Anjali Sharma
19ESKEC014	Ankit Sharma
19ESKEC015	Ankur Sharma
19ESKEC016	Ansh Gupta
19ESKEC017	Ansh Khandelwal
19ESKEC018	Anshika Khandelwal
19ESKEC019	Anshul Sisodiya
19ESKEC020	Archit Bajpai
19ESKEC021	Arpit Agrawal
19ESKEC022	Arpit Jain
19ESKEC023	Aryaman Chaudhary
19ESKEC024	Aryan
19ESKEC026	Arzoo Jalendra
19ESKEC027	Ashima Mehta
19ESKEC028	Ashish Sharma
19ESKEC030	Avadhesh Chasta
19ESKEC031	Avdhesh Behl
19ESKEC032	Avinash Gupta
19ESKEC033	Bhanu Pratap Singh
19ESKEC034	Bhavesh Ghorela
19ESKEC035	Bhavya Anand
19ESKEC037	Debopam Sinha
19ESKEC038	Deepanshu Maheshwari
19ESKEC039	Deepesh Gupta
19ESKEC040	Devanshi Dadhich

19ESKEC041	Devendra Kaur
19ESKEC042	Divya Ramani
19ESKEC043	Durgesh Mishra
19ESKEC044	Eshita Goyal
19ESKEC045	Garvit Tambi
19ESKEC047	Gaurav Sharma
19ESKEC048	Gitesh Khatri
19ESKEC049	Hansika Agarwal
19ESKEC050	Hanu Singh Kumawat
19ESKEC051	Hardik Tyagi
19ESKEC052	Harsh Kumar
19ESKEC053	Harsh Trivedi
19ESKEC054	Harsh Vardhan
19ESKEC055	Harshit Sharma
19ESKEC056	Harshit Verma
19ESKEC057	Himanshu Vasistha
19ESKEC058	Hiten Jain
19ESKEC059	Jai Veer Singh
19ESKEC060	Jay Shrivastava
19ESKEC061	Jayant Kumar Mehra
19ESKEC062	Jigyasa Karodiwal
19ESKEC063	Kanika Singhal
19ESKEC065	Kartik Sharma
19ESKEC066	Kavish Jaradi
19ESKEC067	Keshav Meena
19ESKEC069	Khushi Sa Rathore
19ESKEC071	Kratik Jamboo Khandelwal
19ESKEC072	Kumari Ridhi
19ESKEC073	Kumari Sidhi
19ESKEC074	Kunal Verma
19ESKEC075	Kusum Sharma
19ESKEC076	Lokesh Patidar
19ESKEC077	Malika Khandelwal
19ESKEC078	Manan Purohit
19ESKEC079	Manish Saini
19ESKEC080	Manisha Balani
19ESKEC081	Manoj Garg
19ESKEC082	Manoviraj Singh Shekhawat
19ESKEC083	Mansha Modi
19ESKEC084	Mansi Sharma
19ESKEC085	Mehak Jain
19ESKEC087	Mohit Agarwal
19ESKEC088	Moin Ali
19ESKEC089	Mudit Dhingra

19ESKEC090	Mulkit Sain
19ESKEC091	Neha Maheshwari (B M)
19ESKEC092	Neha Maheshwari (R M)
19ESKEC093	Nishant Kumar
19ESKEC094	Nitin Sharma
19ESKEC096	Parul Jain
19ESKEC097	Pooja Jangid
19ESKEC098	Prakhar Jain
19ESKEC099	Prateek Tholiya
19ESKEC100	Pratik Singh
19ESKEC102	Priyanshu Lohar
19ESKEC103	Priyanshu Sharma
19ESKEC104	Pulkit Gupta
19ESKEC106	Raghav Agarwal
19ESKEC107	Raghvender Singh Chauhan
19ESKEC108	Rahul Kumar Balai
19ESKEC109	Rajat Gupta
19ESKEC110	Rakshita Agarwal
19ESKEC111	Rashi Kinra
19ESKEC112	Rashi Sharma
19ESKEC113	Ritrik Rohra
19ESKEC115	Roshan Kumar Jha
19ESKEC116	Rudra Pratap Singh
19ESKEC117	Saloni Chhaparwal
19ESKEC118	Samriti Devi
19ESKEC119	Sanjana Jawaria
19ESKEC120	Sanjay Kumar
19ESKEC121	Sarim Ur Rehman
19ESKEC122	Sarthak Bhatia
19ESKEC123	Sarthak Sharma
19ESKEC124	Saurabh Choudhary
19ESKEC125	Saurabh Singh Jat
19ESKEC126	Sharad Sourabh Jha
19ESKEC127	Shiv Pratap Singh Chouhan
19ESKEC128	Shivam Garg
19ESKEC129	Shivansh Dosi
19ESKEC130	Shubham Jain
19ESKEC131	Siddharth Harshit
19ESKEC132	Siddhi Saxena
19ESKEC133	Simran Rathore
19ESKEC134	Somil Jain
19ESKEC135	Sonali Nishad
19ESKEC136	Soumya Agarwal
19ESKEC137	Sourabh Vyas

19ESKEC138	Suhani Jain
19ESKEC139	Sumit Gupta
19ESKEC140	Tanisha Jain
19ESKEC141	Tanu Gambhir
19ESKEC143	Tanvi Nemnani
19ESKEC145	Tushar Mittal
19ESKEC146	Udiesha Gautam
19ESKEC147	Utsav Jain
19ESKEC148	V Vighnesh Rajan
19ESKEC149	Vansh Agrawal
19ESKEC150	Vidhi Sukhnani
19ESKEC151	Vikas Mittal
19ESKEC152	Vinayak Gupta
19ESKEC153	Vishal Dandia
19ESKEC155	Yaman Kumar Malik
19ESKEC156	Yash Dubey
19ESKEC157	Yash Raj Mishra
19ESKEC158	Yatharth Jain
19ESKEC159	Yayati
19ESKEC160	Yogesh Sharma
19ESKEC300	Manish Manohar Chandwani
19ESKEC301	Mohit Kumawat
19ESKEC302	Smriti Sharma
19ESKEC303	Gaurav Kumar
19ESKEC304	Gaurav Singh Chouhan
19ESKIT001	Aashish Jain
19ESKIT002	Aayush Jain
19ESKIT003	Abdul Rahman
19ESKIT004	Aditya Baghela
19ESKIT005	Akshaj Agarwal
19ESKIT007	Aman Jain
19ESKIT008	Aman Porwal
19ESKIT009	Ankit Saini
19ESKIT010	Anosh Field
19ESKIT011	Anuj Sharma
19ESKIT012	Anurag Kashyap
19ESKIT013	Anush Upadhyay
19ESKIT014	Apoorva Khandelwal
19ESKIT015	Archika
19ESKIT016	Arihant Jain
19ESKIT017	Arpita Dubey
19ESKIT018	Aryan Sharma
19ESKIT019	Atishay Harsola
19ESKIT020	Atishay Jain

19ESKIT021	Bhavya Mathur
19ESKIT022	Darshan Parsoliya
19ESKIT023	Devkinandan Sharma
19ESKIT024	Dhruv Raj Naruka
19ESKIT025	Divyansh Sharma
19ESKIT026	Gaurav Jangid
19ESKIT027	Harsh Jain
19ESKIT028	Harsh Sharma
19ESKIT029	Harshit Rajan
19ESKIT030	Harshit Sukhwal
19ESKIT032	Ishika Agarwal
19ESKIT033	Jagrati Sharma
19ESKIT034	Jatin Badlani
19ESKIT035	Jayesh Soni (P S)
19ESKIT036	Jayesh Soni (R K S)
19ESKIT037	Jitendra Kumar Prajapat
19ESKIT038	Karan Sabnani
19ESKIT039	Kartik Kabra
19ESKIT040	Kartik Khandelwal
19ESKIT041	Khushal Agarwal
19ESKIT042	Khushi Jain
19ESKIT043	Khushi Khandelwal
19ESKIT044	Komal Soni
19ESKIT045	Krishan Kant Chauhan
19ESKIT046	Kritika Surana
19ESKIT047	Kshitize Singh
19ESKIT048	Kunal Bharagatiya
19ESKIT049	Kunal Goyal
19ESKIT050	Kunal Maheshwari
19ESKIT051	Lavanya Jain
19ESKIT052	Manas Dodiya
19ESKIT053	Manashvini Sharma
19ESKIT054	Mansi Kanwar
19ESKIT055	Manthan Jain
19ESKIT056	Mohammed Arshad
19ESKIT057	Mohit Singhal
19ESKIT058	Mukul Jangid
19ESKIT059	Mukul Palol
19ESKIT060	Naresh Kumar
19ESKIT061	Nayan Gupta
19ESKIT062	Niharika Goyal
19ESKIT063	Nirjhara Sharma
19ESKIT064	Nitin Jain
19ESKIT065	Nupur Mathur

19ESKIT066	Parag Khandelwal
19ESKIT067	Paras Malhotra
19ESKIT068	Pawan Singh
19ESKIT069	Prasoon Khandelwal
19ESKIT070	Prerna Mehta
19ESKIT072	Pulkit Bansal
19ESKIT073	Raghav Sharma
19ESKIT074	Rakshanda Kucheria
19ESKIT075	Rakshita Agarwal
19ESKIT076	Reet Jain
19ESKIT077	Rishabh Dev Singh
19ESKIT078	Rishabh Panchal
19ESKIT079	Rishi Agrawal
19ESKIT080	Rishika Arora
19ESKIT081	Ritik Chourasiya
19ESKIT082	Ritik Kumawat
19ESKIT083	Sakshi Agarwal
19ESKIT084	Samyak Pagariya
19ESKIT085	Saurabh Nahata
19ESKIT086	Shashank Varshney

19ESKIT087	Shivam Thakkar
19ESKIT088	Shreyansh Jain
19ESKIT089	Shubham Agarwal
19ESKIT090	Sneha Khandelwal
19ESKIT091	Sonali Kumawat
19ESKIT092	Sujal Somani
19ESKIT093	Tanisha Garg
19ESKIT094	Tanmay Shah
19ESKIT095	Ujjwal Mishra
19ESKIT096	Vaibhav Jain
19ESKIT097	Vimal Sharma
19ESKIT098	Vinit Kumar Shah
19ESKIT099	Yashwardhan Gaur
19ESKIT100	Yuvraj Gakkhar
19ESKIT300	Komal Jha
19ESKIT301	Ritwik Sharma
19ESKIT302	Devanshu Soni
19ESKIT303	Anjali Arora
19ESKIT304	Mishu Pushpendra Jain
19ESKIT305	Chestha Gautam