Swami Keshvanand Institute of Technology,
Management & Gramothan

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Affiliated to Rajasthan Technical University, Kota

1.2.2 Summary Sheet of Add-on Courses (Samples (2020-21))

: RAMNAGARIA (JAGATPURA), JAIPUR-302017 (RAJASTHAN), INDIA
: +91-141-3500300, 2752165, 2759609 | : 0141-2759555
: info@skit.ac.in | : www.skit.ac.in

Summary Report of CRT

CRT-

Campus Recruitment training (CRT) at is designed to aid candidates in their preparation for Recruitment through Campuses or outside campuses (i.e., On campus or off campus). Students in their final step of graduation and post-graduation looking for placement in reputed organizations can make use of this training to get trained to deliver their best in the selection processes of organizations.

Student Enrolled: 400 Student

Student Certified: 400 Student

Session: 2020-21

After completion of CRT students will be able to-

1. Understand organizational procedures and policies as related to how the employers process for campus recruitment and employer preferences
2. Use self-assessments to identify strengths, weaknesses, transferable skills, and prime marketable characteristics.
3. Organize and write an effective cover letter and Resume.
4. Exercise judgment and logical decision making in selecting from alternative techniques for Group Discussion & Interview.

Summary of Advanced Machining Processes Course

Session: 2020-21

There is a need for machine tools and processes which can accurately and easily machine the most difficult-to-machine materials and work pieces with intricate and accurate shapes. In order to meet these challenges, a number of newer material removal processes have now been developed to the level of commercial utilization. These newer methods are also called unconventional in the sense that conventional tools are not employed for metal cutting. Instead, energy in its direct form is used to remove the material from the work piece.

Student Enrolled: 40 Students

Certified: 18 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of latest technological developments and research trends in the field of unconventional / non-traditional / modern machining processes and will be able to apply the basic principles to analyse Advanced Machining Processes systems.

Summary of Software Engineering Course(noc20-cs68) 2020-21

Software Engineering: Large scale software development poses special challenges. This course targets to expose the students to the challenges of large scale software development and would expose the students as to how to overcome those. Starting with basic life cycle model concepts, it would discuss requirements specification, design, and testing issues.

Student Enrolled: 94

Student Certified: 27

Outcome of the Course:
Students will learn applications of Software development life cycle. They will be capable of applying their learning in huge application spaces . They will be able to work as an individual and as a component of a multidisciplinary group to create and convey quality software's. They will show a comprehension of and apply current speculations, models, and procedures that give a hat provide a basis for the software lifecycle. They will be able to Exhibit a capacity to utilize the procedures and devices essential for designing practice.

Summary of Introduction to algorithms and analysis NPTEL course (noc20-cs93)(2020-21)

Introduction to algorithms and analysis: An algorithm is the best way to represent the solution of a particular problem in a very simple and efficient way. If we have an algorithm for a specific problem, then we can implement it in any programming language. An efficient algorithm solves a problem in an efficient way using minimum time and space. Analysis of algorithm is the process of analyzing the problem-solving capability of the algorithm in terms of the time and size required. However, the main concern of analysis of algorithms is the required time or performance. If we require an algorithm to run in lesser time, we have to invest in more memory and if we require an algorithm to run with lesser memory, we need to have more time.

Student Enrolled: 82

Student Certified: 25

Outcome of the Course- This course will help to analyze the asymptotic performance of algorithms, write rigorous correctness proofs for algorithms, demonstrate a familiarity with major algorithms and data structures, apply important algorithmic design paradigms and methods of analysis and synthesize efficient algorithms in common engineering design situations. This course also provide an experience in building algorithms and implementing them on clusters and distributed systems, develop proficiency in problem solving and programming and carry out the analysis of various algorithms for mainly time and space complexity.

Summary of Technical English for Engineers Course

The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.

Student Enrolled: 115 Students

Certified: 47 Students

Outcomes of the Course:

After completion of the course, the students will be able to

- Understand professional writing by studying management communication contexts and genres, researching contemporary business topics, analyzing quantifiable data discovered by researching, and constructing finished professional workplace documents.
- Recognize, explain, and use the formal elements of specific genres of organizational communication: white papers, recommendation and analytical reports, proposals, memorandums, web pages, wikis, blogs, business letters, and promotional documents.
- Understand the ethical, international, social, and professional constraints of audience, style, and content for writing situations a.) among managers or co-workers and colleagues of an organization, and b.) between organizations, or between an organization and the public.

Year: 2020-21

Summary of Course "Problem Solving through Programming in C(noc20-cs56)"

2020-21

C is a programming language that is both versatile and popular, allowing it to be used in a vast array of applications and technologies. It can, for example, be used to write the code for operating systems, much more complex programs and everything in between. Its simplicity and flexibility are largely because it can function independently from machines, which has lent itself to becoming one of the foundational programming languages in the industry.

Acquiring an understanding of C will allow to easily learn and use a wide range of other programming languages that use C as their basis by borrowing the features and syntax used in C, such as Java and C++.

No. of Students Enrolled:48

No. of Students Certified:48

Outcome of the Course:

From this course students are enabled to formulate simple algorithms for arithmetic and logical problems and able to translate the algorithms to C programs. One can able to test and execute the programs and correct syntax and logical errors. It helps to implement conditional branching, iteration and recursion and learn use of arrays, pointers and structure to formulate algorithms and programs. One can apply programming to solve matrix addition and multiplication problems and searching and sorting problems and also to solve simple numerical method problems.

Summary of Course "Programming in Java (noc20-cs58)"

Session: 2020-21

With the growth of Information and Communication Technology, there is a need to develop large and complex software. Further, those software should be platform independent, Internet enabled, easy to modify, secure, and robust. To meet this requirement object-oriented paradigm has been developed and based on this paradigm the Java programming language emerges as the best programming environment. Now, Java programming language is being used for mobile programming, Internet programming, and many other applications compatible to distributed systems.

No. of Students Enrolled:34

No. of Students Certified:34

Outcome of the Course:

This course aims to cover the essential topics of Java programming so that the students can improve their skills to cope with the current demand of IT industries and solve many problems in their own filed of studies.

Summary of Automation in Manufacturing Course

Session: 2020-21

Manufacturing industry contributes a major share in the GDP of our country. Application of automated systems is certainly improving the productivity of the manufacturing industry. In view of this, a course on "Automation in Manufacturing" is designed with the primary focus on the design and development of automated systems in the manufacturing. Initially the course introduces various automated systems being used in the manufacturing industry. Then the building blocks of a typical automated system are described. It presents a study on the principle of operation and construction details of sensors/transducers, actuators, drives and mechanisms, hydraulic and pneumatic systems. It also covers up the microprocessor technology, programming and CNC technology. The contents are lucidly presented with real-life examples. Case studies based on manufacturing industry applications are presented.

Student Enrolled: 20 Students

Certified: 05 Students

Outcomes of the Course:

After completion of the course, the students will have in-depth knowledge of sensors, actuators, pneumatic systems, programming and CNC technology.

Summary of Engineering Mathematics-I Course

This course is about the basic mathematics that is fundamental and essential component in all streams of undergraduate studies in sciences and engineering. The course consists of topics in differential calculus, integral calculus, linear algebra and differential equations with applications to various engineering problems. This course will cover the following main topics: Mean Value Theorems; Indeterminate Forms; Taylor's and Maclaurin's Theorems. Partial Derivatives; Differentiability; Taylor's Expansion of Functions of Several Variables. Maxima and Minima. Improper Integrals. Differentiation under Integral Sign (Leibnitz rule). Multiple Integrals and their Properties. Applications of Multiple Integrals. System of Linear Equations. Vector Spaces; Basis and Dimension of a Vector Space. Rank of a Matrix and its Properties. Linear Transformation. Eigenvalues and Eigen vectors. Diagonalization. First Order Differential Equations. Higher Order Differential Equations with Constant Coefficients. Cauchy-Euler Equations.

Student Enrolled: 22 Students

Certified: 4 Students

Course Outcomes:

i) To develop mathematical skill so that students are able to apply mathematical methods & principals in solving problem from Engineering fields.

ii) To make aware students about the importance and symbiosis between Mathematics and Engineering.

Year: 2020-21

Summary of Integrated Waste Management for a Smart City NPTEL Course

A hugh quantity of solid waste is generated across the globe. Integrated Solid Waste Management aspects within the broad subject area of Integrated Waste Management for a Smart City. There are issues of disposal of Municipal Solid Waste (MSW) management, Construction and Demolition (C&D) Waste and Electronic Waste Management. Govt. of India is also taking initiatives such as Swachh Bharat Mission, Smart Cities as well as Make in India.

Students Enrolled: 17 Student

Students Certified: 02 Student

Outcome of the Course:

The student will gain knowledge related to issues of Municipal Solid Waste (MSW) management, Construction and Demolition (C&D) Waste and Electronic Waste Management. Collection, recovery, reuse, recycling, energy-from-waste, and landfilling processes will be understood. The environmental impact of waste management and its relationship on the big picture sustainable development and smart city development will be established. Student will be able to know the challenges of managing these waste streams effectively.

Summary of Fundamentals of Electrical Engineering (noc21-ee68)

This course is mainly for undergraduate First-Year Engineering students from all Specializations. This course will introduce and explain the fundamental concepts of basic electrical engineering. The basic concepts of DC and AC (Single Phase and Three Phase Circuits) network analysis, first order DC transients, steady state and phasor analysis of AC networks, series and parallel resonance and magnetic coupled circuits. This course will also cover Single Phase Transformers, Three Phase Induction Machines and DC Machines. By the end of the course, the students should be able to gather high-quality knowledge of basic electrical engineering.

Student Enrolled: 26 Students

Student Certified: 02 Students

Outcome of the Course:

- The basic concepts of electrical engineering and behavior of electrical and magnetic circuits.
- The generation of alternating voltages & other AC quantities and their supply systems.
- The principle of operation of different electrical machines with their applications.
- The design of digital and analog systems and components.
- The basics of digital communication systems and Instrumentation devices.

Summary of Ethics in Engineering Practice Course

Engineering as a profession is meant to serve the public by strictly adhering to codes of conduct and placing paramount the health, safety and welfare of public. However it raises few conflicting questions like : who is the public? Does it include future generation? Who decides what is best for public? Do engineers have managerial and technical responsibilities? What is the acceptable risk? Do Engineers have responsibilities towards the environment also? Engineering ethics is the study of moral issues and decisions confronting individuals and organizations engaged in engineering and the study of related questions about the moral ideals, character, policies and relationships of people and corporations involved in technological activity. To prepare students for their professional responsibilities as Engineers. To help them recognize and think through ethically significant problem situations that are common in Engineering and to evaluate the existing ethical standards for ENGINEERING Practice.

Student Enrolled: 6 Students

Certified: 2 Students

Outcomes of the Course:

- Distinguish between ethical and non ethical situations.
- Practice moral judgment in conditions of dilemma.
- Relate the code of ethics to social experimentation.
- Develop concepts based on moral issues and enquiry.

Year: 2020-21

Summary of Engineering drawing and computer graphics Course

Session: 2020-21

All phases of manufacturing a product involve expressing basic ideas into graphical format widely known as engineering drawing and design. The present course prepares the students to learn the basics concepts involved in technical drawing skills and computer graphics.

Student Enrolled: 21 Students

Certified: 04 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of understanding of engineering drawings used- computer design and development of 3D objects - exposure to visual aspects of technical drawings.

Summary of Course German-I

Course Code: noc20-hs87

Session: 2020-21

German I is meant to be an introduction to the German language and a basic orientation towards Germany (and to some extent Austria and Switzerland). Learning to understand and articulate oneself in day-to-day real life situations, and to begin to make sense of Germany as a cultural space are the overall objectives of the course. Serious learners should be able to grasp the basic sentence structure and build a good foundational vocabulary through this course.

No. of Students Enrolled: 20

No. of Students Certified: 1

Outcome of the Course:

- Novice High on the ACTFL proficiency scale.
- Acquire basic cultural knowledge of German-speaking countries.
- Basic understanding of foundations of German society

Summary of Constitutional Studies Course

This course aims to introduce the constitutional law of India to students from all walks of life and help them understand the constitutional principles as applied and understood in everyday life. The pedagogy is precise and unique, as per week, the lessons shall be in the form of questions instead of being in pure theoretics. Accompanied with light reading and weekly exercises, the objective of making the Constitution of India, familiar to all students, and not only to law students, but this course also aims and objectifies legal understanding in the simplest of forms.

Student Enrolled: 4 Students

Certified: 1 Students

Year: 2020-21

Summary of Principles of Metal Forming Technology Course

Session: 2020-21

The course focuses on understanding the science and technology of different forming processes. Most of the metallic objects undergo at least one of the metal forming operations, except the cast ones. Understanding basic principles of metal forming and further being applied by engineers and metallurgists directly contribute towards improvement in production in the industries. The concept of stress, deformation and failure, mechanics of metalworking and analysis of different metal working processes will be covered during the whole course. Introduction and working principle of powder metallurgy forging will be presented in the end.

Student Enrolled: 08 Students

Certified: 02 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain principles of metal forming and describe concepts of mechanics of metalworking. The course will enable the students be conversant with working principles so that they can use the knowledge gained towards increasing the productivity of manufacturing industries in the long run.

Summary of Technologies for Clean and Renewable Energy Production Course

The course deals with the production of energy from different fossil fuels through cleaner routes as well as from renewable resources. It is intended to help the young scientific professionals to keep their knowledge upgraded with the current thoughts and newer technology options along with their advances in the field of the utilization of different types of energy resources for cleaner energy production.

Student Enrolled: 6 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to

To utilize different type of energy resources for clean energy production.

To apply various energy sources methods to obtain clean energy.

Year: 2020-21

Summary of Product Design and Development Course

Session: 2020-21

It has been established worldwide that the most successful economies are based on innovation and creativity led entrepreneurship. The government is focusing on putting concerted efforts to produce job creators.

The Product Design and Development course is conceptualized and planned in such a way that it helps both job creators as well as job seekers. The main objective of the course is to acquaint the learners/students with the practical knowledge regarding conceptualization, design, and development of a new product. The need of a new product, the product life cycle, the product design process, the application of Value Engineering principles in product design, various product design tools such as CAD, DFM, DFA and DFMA have been explained with relevant and specific examples/ case studies. The concept of Ergonomics in context of the product design has been explained with the help of case studies. The fundamental concept of Rapid Prototyping as well the working principles of the basic rapid prototyping techniques has also been explained.

Student Enrolled: 04 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Product Design and Development and will be able to apply the basic principles to analyze Product Design and Development systems.

Summary of Design and analysis of algorithms
NPTEL Course(noc20-cs71) (2020-21)

Design and analysis of algorithms: An algorithm is the best way to represent the solution of a particular problem in a very simple and efficient way. If we have an algorithm for a specific problem, then we can implement it in any programming language. An efficient algorithm solves a problem in an efficient way using minimum time and space. Analysis of algorithm is the process of analyzing the problem-solving capability of the algorithm in terms of the time and size required. However, the main concern of analysis of algorithms is the required time or performance. If we require an algorithm to run in lesser time, we have to invest in more memory and if we require an algorithm to run with lesser memory, we need to have more time.

Student Enrolled: 44

Student Certified: 2

Outcome of the Course- This course will help to Analyse the asymptotic performance of algorithms, Write rigorous correctness proofs for algorithms, Demonstrate a familiarity with major algorithms and data structures, Apply important algorithmic design paradigms and methods of analysis and Synthesize efficient algorithms in common engineering design situations. This course also provide an experience in building algorithms and implementing them on clusters and distributed systems, develop proficiency in problem solving and programming and carry out the analysis of various algorithms for mainly time and space complexity.

Summary of Data Science for Engineers

Course (noc20-cs72)
2020-21

Introduction to Data Science for Engineers: Data science is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from structured and unstructured data, and apply knowledge and actionable insights from data across a broad range of application domains.

Student Enrolled: 24

Student Certified: 1

Outcome of the Course:

Learners will be able to describe a flow process for data science problems (Remembering), classify data science problems into standard typology (Comprehension), develop R codes for data science solutions (Application), correlate results to the solution approach followed (Analysis), assess the solution approach (Evaluation), construct use cases to validate approach and identify modifications required (Creating).

Summary of Course Soft Skills for Business Negotiations And Marketing Strategies

Course Code: noc20-mg39

Session: 2020-21

The primary focus of this course is to highlight various categories and applications of soft skills through various cases extracted from the real field and other research case studies. The fundamental concepts and distinctions between Soft Skills and Hard Skills are discussed. The course is tailored very effectively to introduce various Soft skill application examples. This course would be very useful for the students, practicing professionals as well as common people who are voluntarily or involuntarily involved in negotiations and strategies in daily life. The lectures would be supported with illustrative sketches, analysis and demonstrative enactments, in addition to the digital illustrations time to time with various examples. This would facilitate easy comprehension for the students of different level of ability and exposure. Multiple illustrations with case studies would be the strength of this course disseminated with lucid lectures.

No. of Students Enrolled: 14

No. of Students Certified: 4

Outcome of the Course:

- Student will get benifitted as an architect by profession and a professor by occupation

Summary of Course "Body language: Key to professional Success"

Course Code: noc20-hs71

Session: 2020-21

Body language plays a vital role in all formal contexts. The expanding trend of articulating views through vibrant participation in group discussions, power point presentations, team-based tasks, brainstorming and interviews, has made a good command over Body Language a mandatory skill. Whereas technical literacy is essential, it is a confident command over body language which gives an edge in today competitive arena. In all professional interactions, your body language is the only window to your attitudes and feelings; and therefore, it is always as important as your answers. The aim of this course is to impart sensitivity and precision to students understanding of body language so that in professional settings they can regulate their body language can successfully learn to control their hesitation, anxiety, and nervousness to come across as a more confident individual in all formal assessment situations.

No. of Students Enrolled: 46

No. of Students Certified: 1

Outcome of the Course:

- Student will be able to understand the body language to explain things
- Student can understand the certain gestures for more efficient communication.
- Student can understand the important to pay close attention to the effectiveness of your body language relative to what you are concentrating on conveying through it.

Summary of Course "Google Cloud Computing Foundations (noc20-cs96)"

2020-21

Cloud computing is a scalable services consumption and delivery platform that provides on-demand computing service for shared pool of resources, namely servers, storage, networking, software, database, applications etc., over the Internet. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources, which can be rapidly provisioned and released with minimal management effort.

Cloud computing is the on-demand delivery of computations, storage, applications, and other IT resources through a cloud services platform over the internet with pay-as-you-go business model. Today's Cloud computing systems are built using fundamental principles and models of distributed systems. This course provides an in-depth understanding of distributed computing "concepts", distributed algorithms, and the techniques, that underlie today's cloud computing technologies.

No. of Students Enrolled:12

No. of Students Certified:1

Outcome of the Course:

This course will cover cloud computing and distributed systems concepts and models: virtualization, cloud storage: key-value/NoSQL stores, cloud networking, fault-tolerance cloud using PAXOS, peer-to-peer systems, classical distributed algorithms such as leader election, time, ordering in distributed systems, distributed mutual exclusion, distributed algorithms for failures and recovery approaches, emerging areas of big data and many more. Through this course one can gain solid foundation in Google cloud Platform technologies and services.

Summary of Ecology and Environment Course

The objectives of the course is to introduce and sensitize all BTech students to the issue of ecology, environment and sustainability. The lectures are aimed at posing various questions that are relevant for all students of engineering and management to incorporate sustainability and a sensitivity to ecology and environment in their design of products, processes and systems.

Student Enrolled: 10 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to

- Understand methods from ecological and physical sciences and their application in environmental problem solving.
- Understand methods from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
- Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.

Year: 2020-21

Summary of Selection of Nanomaterials for Energy Harvesting and Storage Application Course

Selection of nanomaterials for energy harvesting and storage applications is an interdisciplinary course which deals with selection of nanomaterials and key challenges to improve performance of the energy harvesting and storage devices/techniques. In this course we will be covering different energy harvesting and storage techniques and the parameters that are to be considered in selecting the nanomaterials for the same.

Student Enrolled: 02 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain different energy harvesting and storage techniques and also proper selection of Nanomaterials.

Year: 2020-21

Summary of Discrete Mathematics

The course will be an introduction to Discrete Mathematics which comprises of the essentials for a computer science student to go ahead and study any other topics in the subject. The emphasis will be on problem solving as well as proofs. We will be providing motivational illustrations and applications throughout the course. The course doesn't assume any pre-requisites except for high school level arithmetic and algebra.

Student Enrolled: 39 Students

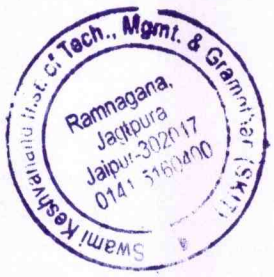
Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to:

- Describe useful standard library functions, create functions, and declare parameters.
- Apply recursive functions and solve recurrence relations.
- Apply basic and advanced principles of counting.

Year: 2020-21



Summary of Introduction to Machine Learning Course (noc20-cs73)

Session: 2020-21

Machine learning (**ML**): ML is the study of computer algorithms that improve automatically through experience and using data. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as "training data", to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks

Student Enrolled: 29

Student Certified: 1

Outcome of the Course:

New techniques in the field are evolving rapidly and expanded the application of machine learning to nearly limitless possibilities. Industries that depend on vast quantities of data—and need a system to analyze it efficiently and accurately, have embraced machine learning as the best way to build models, strategize, and plan. Machine learning models learn, identify patterns, and make decisions with minimal intervention from humans. Ideally, machines increase accuracy and efficiency and remove (or greatly reduce) the possibility of human error.

Summary of Introduction to Embedded System Design

Embedded Systems surround us in the form of gadgets and devices that we use. There is no aspect of human lives, which is untouched by such devices at home or for health diagnostics, transportation, and entertainment. This course teaches embedded system design using a building block approach, which allows one to visualize the requirement of an embedded system and then to design it efficiently. The course will teach embedded system design using a microcontroller, namely Texas Instruments MSP430 low power microcontroller. The course will introduce various interfacing techniques for popular input devices including sensors, output devices and communication protocols. It will teach power supply design for embedded applications. It will also teach effective embedded programming techniques in C and how to maintain code using GIT. It will have a significant practical component, which will be achieved through a MSP430 microcontroller kit.

Student Enrolled: 97

Student Certified: 1

Outcome of the Course:

Learning out Embedded Systems will give the skills to design and manufacture embedded system products of the future which will help participants towards better employability. It provides experience to integrate hardware and software for microcontroller applications systems.

Year – 2020-21

Summary of Rapid Manufacturing Course

In the contemporary dynamic manufacturing era, to produce products that can be easily made and can offer typical competences is of utmost importance. Besides basic manufacturing processes, engineering students and manufacturers needs to bolster their skills in advanced technologies. This course is a step in this direction to make the students to learn design, development, and manufacturing using Rapid Manufacturing technologies. Along with specific Rapid Prototyping techniques, manufacturing concerns such as geometric modelling, design for manufacturing and assembly, developing modular designs, group technology, et cetera are included. Laboratory demonstrations are also induced for practical experience. In the end of this course, students should be able to identify the methods and techniques required to manufacture any model.

Student Enrolled: 01 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain design, development, and manufacturing using Rapid Manufacturing technologies and also select the proper technique for manufacturing the given product.

Year: 2020-21

Summary of Introduction to Operating System Course (noc20-cs75)

Session: **2020-21**

Introduction to Operating System: Operating systems (OS) provide the crucial interface between a computer's hardware and the applications that run on it. It allows us to write programs without bothering much about the hardware. It also ensures that the computer's resources such as its CPU, hard disk, and memory, are appropriately utilized. In this course, we dwell into how the OS manages to do all this in an efficient manner. This is an introductory course, for students with prior knowledge of computer organization. The course is based on an OS called xv6, which in many ways is similar to the Linux operating systems.

Student Enrolled: 68

Student Certified: 3

Outcome of the Course:

Learners will be able to understand the basic components of a computer operating system, and the interactions among the various components. Learner will be made aware of various aspects of operating system that are important for understanding overall functionality of system like scheduling, deadlocks, memory management, synchronization, system calls, and file systems.So this course will help learners in getting more knowledge and job opportunities.

Summary of Geotechnical Engineering Laboratory
NPTEL Course

Geotechnical Engineering: It is an engineering discipline that deals with soil and rock behaviour in an engineering perspective. Geotechnical engineering largely involves defining the soil's strength and deformation properties. In geotechnical testing laboratory, all the index and engineering properties of soil are determined.

Students Enrolled: 20 Student

Students Certified: 02 Student

Outcome of the Course:

After completing this course, students will be able to conduct all the tests done to determine index and engineering parameters of soil. This will help in determining the quality of subgrade soil. Students will be able to categorize the soil on the basis of their properties determined through these tests.

Summary of Developing Soft Skills and Personality Course

The course aims to cause an develop awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality. Hard or technical skills help securing a basic position in one's life and career. But only soft skills can ensure a person retain it, climb further, reach a pinnacle, achieve excellence, and derive fulfilment and supreme joy. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness and effective communication skills. The focus of this course is on interpersonal and management skills.

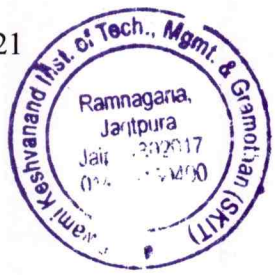
Student Enrolled: 109 Students

Student Certified: 19 Students

Outcome of the Course:

- The course will introduce the basic forms of English language to the students.
- The course will develop the skill to compete the students in competition exam.
- The course will develop reading skill and creative and expressive ability of the students.

Year – 2020-21



Summary of Course Soft Skill

Course Code: noc20-hs60

Session: 2020-21

Soft Skills, a buzz word today has attracted the attention of students, professionals, and entrepreneurs all over the world. Employability, being the major concern today, every individual aims at getting coveted jobs. Employability today is commensurate with proving multiple skills in varied situations in a fast-changing world. Hence, everyone aspiring for jobs today must prove one's mettle in various situations where one requires to be armed with different skills, which, collectively come under Soft Skills. One may be armed with good competence of one's subject, but one cannot compete with his peer groups unless one has the potential of performance. Performance can be ensured with the demonstration of certain abilities that can help a professional communicate, corroborate, convince, evaluate, and investigate the continuing as well as the upcoming trends of the corporate world from time to time. The course aims at creating awareness among the stock holders of the corporate world in which the role of individuals as team players and also as responsible leaders materializes to a great extent. The course will address various challenges of communication as well as behavioural skills faced by individuals at workplace and organizations.

No. of Students Enrolled: 106

No. of Students Certified: 20

Outcome of the Course:

- Effectively communicate through verbal/oral communication and improve the listening skills
- Write precise briefs or reports and technical documents
- Actively participate in group discussion / meetings / interviews and prepare & deliver presentations
- Become more effective individual through goal/target setting, self-motivation and practicing creative thinking.

Summary of "The Joy of Computing using Python" NPTEL Course (noc20-cs83) (2020-21)

Python:

Python is a widely used general-purpose, high level programming language. It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation. It provides code readability, and its syntax allows programmers to express their concepts in fewer lines of code. Python lets you work quickly and integrate systems more efficiently. At present Python is being used in web development, machine learning applications, along with all cutting edge technology in software industry. Python programming language is very well suited for beginners, also for experienced programmers with other programming languages like C++ and Java.

Student Enrolled: 52
Student Certified: 13

Outcome of the Course:

Python programming is a general-purpose, and used in almost all fields like data science, web development, system automation and administration, basic game development, general and application-specific scripting etc. Additionally at present, Python is widely used by a number of big companies like Google, Pinterest, Instagram, Disney, Yahoo!, Nokia, IBM, and many others. The Raspberry Pi, which is a mini computer relies on Python. So this course will help learners in getting more job opportunities.

Summary of Data Structure and algorithms using Java

NPTEL Course(noc20-cs85) (2020-21)

Data Structure and algorithms using Java: Data Structure can be defined as the group of data elements which provides an efficient way of storing and organizing data in the computer so that it can be used efficiently. Examples of Data Structures are arrays, Linked List, Stack, Queue, etc. Data Structures are the main part of many computer science algorithms as they enable the programmers to handle the data in an efficient way. Data structures can be educated using any of the different programming languages available today. Java programmers use data structures to store and organize data, and use algorithms to manipulate the data in those structures. Java is heavily used at the moment for distributed programming or distributed computing like mobile computing network or Internet programming.

Student Enrolled: 37

Student Certified: 2

Outcome of the Course- Java is good for application software development. For designing front end of an application certain programming concept are requires. GUI programming can be obtained using AWT, swing, JavaFX etc. Participants will able to implement linked lists, stack and queue in JAVA, Binary trees, Representation and operations, Variations of binary tree, Binary search tree, Height balanced search tree, Heap tree etc. Participants are able for Java implementation of binary trees and its variations, Graph data Structure, representation and operations, Searching and sorting algorithms, Greedy algorithms, shortest path algorithms etc.

Summary of Course "Cloud Computing (noc20-cs65)"

2020-21

Cloud computing is a scalable services consumption and delivery platform that provides on-demand computing service for shared pool of resources, namely servers, storage, networking, software, database, applications etc., over the Internet. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources, which can be rapidly provisioned and released with minimal management effort.

Cloud computing can be deployed universally in practically no time and offer the most extreme flexibility, agility and cost-sparing IT operations to business for progressively profitable and consistent development. This, thus, is making entrepreneurs change to cloud computing for completing business activities.

No. of Students Enrolled:32

No. of Students Certified:4

Outcome of the Course:

This course will introduce various aspects of cloud computing, including fundamentals, management issues, security challenges and future research trends. This will help students and researchers to use and explore the cloud computing platforms.

Summary of Introduction to internet of things

Course (noc20-cs66)
2020-21

Introduction to internet of things (IoT): An overview of IOTs, design of smart objects that provide collaboration and ubiquitous services will be explored. Design for longevity/energy efficiency will be highlighted. Step by step system design will be introduced. IoT design means that the focus is on singular experiences and no longer but about design principles that represent a broader ecosystem within which IoT devices function.

Student Enrolled: 28 Student

Student Certified: 2 Student

Outcome of the Course:

The IoT provides a platform that creates opportunities for people to connect these devices and control them with big data technology, which in return will promote efficiency in performance, economic benefits and minimize the need for human involvement. It's the most important development of the 21st century. So this course will help learners in getting more knowledge and job opportunities.

Summary of Python for data science NPTEL Course (noc20-cs-80) (2020-21)

Python for data science: Data science is basically the science of analysing raw data and deriving insights from this data. There are multiple techniques to derive insights; a simple statistical techniques, a more complicated and more sophisticated machine learning techniques etc. The key focus of data science is actually deriving these insights using whatever techniques we want to use.

Student Enrolled: 31

Student Certified: 1

Outcome of the Course- The course aims at equipping participants to be able to use python programming for solving data science problems, to enable to learn Data Science concepts from scratch. Participants understand important Python programming concepts such as data operations, file operations, object-oriented programming and various Python libraries such as Pandas, Numpy, Matplotlib essential for Data Science. This course will make understand the various types of Machine Learning, Recommendation Systems and many more Data Science concepts, to help to get started with Data Science career. Participants Learn to apply data science methods and techniques, and acquire analysis skills.

Summary of Principles of Management Course (noc20-mg58)

Session: 2020-21

The objective of this course is to acquaint students with the terms, concepts, and points of view used in management and its historical evolution, ethics, social responsibility and environmental issues; provide students with a working knowledge of the skills and functions necessary to be an effective, efficient manager; provide an introduction to the theory and practice of managing organizations; examine the management functions (planning, organizing, leading or influencing, and controlling) and the impact of those functions on the business organization

Student Enrolled: 14 Students

Certified: 09 Students

Outcomes of the Course:

After completion of the course:

- Understand the concepts related to Business.
- Demonstrate the roles, skills and functions of management.
- Understand the complexities associated with management of human resources..

Summary of Heat Transfer Course

Heat transfer is one of the most important areas of engineering sciences. It is major mode of heat transfer during flowing fluid and it is the most common mode of heat transfer used in industry. This course will cover the preliminary concepts, forced convection and natural convection for external flows and internal flows, turbulent flows and phase change heat transfer. Numerical solution of the governing equations will also be covered.

Student Enrolled: 7 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Heat Transfer and will be able to apply the basic principles to analyze Heat Transfer systems.

Year: 2020-21

Summary of Fundamentals of Convective Heat Transfer Course

Convective heat transfer is one of the most important areas of engineering sciences. It is major mode of heat transfer during flowing fluid and it is the most common mode of heat transfer used in industry. This course will cover the preliminary concepts, forced convection and natural convection for external flows and internal flows, turbulent flows and phase change heat transfer. Numerical solution of the governing equations will also be covered.

Student Enrolled: 29 Students

Certified: 06 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Convective Heat Transfer and will be able to apply the basic principles to analyze Convective Heat Transfer systems.

Year: 2020-21

Summary of Computer Graphics

Computer graphics is one of the fundamental aspects of any computing system. Its primary role is to render the digital content (0's and 1's) in a human-comprehensible form on the computer screen. The rendering follows a series of stages, collectively known as the graphics pipeline. In this course, we will introduce the pipeline and its stages. The topics covered include various object representation techniques followed by the pipeline stages of modeling transformation, 3D to 2D viewing transformation, clipping and hidden surface removal and scan conversion (rendering). We shall follow the stages of the 3D graphics pipeline. In order to complete the coverage, we shall also briefly introduce the present-day graphics hardware (I/O devices, GPU) and the widely popular openGL graphics library.

Student Enrolled: 65 Students

Student Certified: 5 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Explain the core concepts of computer graphics, including viewing, projection, perspective, modelling and transformation in two and three dimensions.
- Apply the concepts of colour models, lighting and shading models, textures, ray tracing, hidden surface elimination, anti-aliasing, and rendering.

Year – 2020-21 (noc20-cs90)

Summary of Course "Introduction to Programming in C(noc20-cs91)"

2020-21

C is a highly efficient and simplistic programming language that was initially developed to write operating systems. Among its many benefits and features that make it so flexible and easy to use, it has low-level access to memory, a clean and concise style and a simplistic set of keywords. Additionally, the source code that is written using C for one system can work just as effectively on another operating system without experiencing any changes.

Acquiring an understanding of C will allow to easily learn and use a wide range of other programming languages that use C as their basis by borrowing the features and syntax used in C, such as Java and C++.

No. of Students Enrolled:29

No. of Students Certified:1

Outcome of the Course:

From this course students are enabled to formulate simple algorithms for arithmetic and logical problems and able to translate the algorithms to C programs. One can able to test and execute the programs and correct syntax and logical errors. It helps to implement conditional branching, iteration and recursion and learn use of arrays, pointers and structure to formulate algorithms and programs. One can apply programming to solve matrix addition and multiplication problems.

Summary of Course "Programming in C++ (noc20-cs57)"

2020-21

C++ is a powerful general-purpose programming language. It can be used to develop operating systems, browsers, games, and so on. C++ supports different ways of programming like procedural, object-oriented, functional, and so on. This makes C++ powerful as well as flexible.

C++ is still readily used in programming today. Despite the advent of popular object-oriented programming languages like Python, C++ continues to have a dedicated space in the tech world. C++ is still the go to language for solutions that need fast machine performance. AAA video games, IoT, embedded systems, and resource-heavy VR and AI applicationsall run on C or C++.

No. of Students Enrolled:212

No. of Students Certified:23

Outcome of the Course:

This course builds up on the knowledge of C programming and basic data structure (array, list, stack, queue, binary tree etc.) to create a strong familiarity with C++98 and C++03. Besides the constructs, syntax and semantics of C++ (over C), it also focusses on various idioms of C++ and attempt to go to depth with every C++ feature justifying and illustrating them with several examples and assignment problems. On the way, it illustrates various OOAD (Object-Oriented Analysis and Design) and OOP (Object-Oriented Programming) concepts.

While this course can be understood independently, it would help in developing understanding in OOP.

Summary of Course "Database Management Systems (noc20-cs60)"

2020-21

Databases form the backbone of all major applications today – tightly or loosely coupled, intranet or internet based, financial, social, administrative, and so on. Structured Database Management Systems (DBMS) based on relational and other models have long formed the basis for such databases. Consequently, Oracle, Microsoft SQL Server, Sybase etc. have emerged as leading commercial systems while MySQL, PostgreSQL etc. lead in open source and free domain. While DBMS differ in the details, they share a common set of models, design paradigms and a Structured Query Language (SQL).

No. of Students Enrolled: 24

No. of Students Certified: 8

Outcome of the Course:

This course introduces the students to the various theoretical and practical principles involved in the design and use of databases systems with the help of database management systems (DBMS) and the SQL Standard.

Summary of Soil Mechanics/Geotechnical Engineering I
NPTEL Course (noc20-ce38)

Geotechnical Engineering: Geotechnical engineering is the branch of engineering concerned with the analysis, design and construction of foundations, slopes, retaining structures, embankments, tunnels, landfills and other systems that are made of or are supported by soil or rock. The geotechnical research ranges in nature from analytical and numerical study of geotechnical problems to constitutive modeling, experimental modeling and design. Geotechnology plays a key role in all civil engineering projects built on or in the ground, and it is vital for the assessment of natural hazards such as earthquakes, liquefaction, sinkholes, rock falls and landslides.

Students Enrolled: 48 Student

Students Certified: 07 Student

Outcome of the Course:

After completing the course, the student will have an ability to apply knowledge of mathematics, science and engineering while analysis and design of geotechnical structure ant its components. Student is expected to solve complex geotechnical engineering problems and able to propose optimal, feasible and economical design solution. The student is expected to understand and follow ethical practices in geotechnical engineering.

Summary of Introduction to multimodal urban transportation systems NPTEL Course

Transportation systems are a fundamental part of logistics and planning whenever vehicles are used to move people or items from one location to another. A transportation system can be defined as the combination of elements and their interactions, which produce the demand for travel within a given area and the supply of transportation services to satisfy this demand. To deal with this, Planning, Operation and Management of Transportation Facilities is very important.

Students Enrolled: 48 Student

Students Certified: 05 Student

Outcome of the Course:

On completion of this course, student will be able to identify the sustainability principles in transportation, concept of Travel Demand Management (TDM), disseminate the techniques of urban public transit planning, operations and management. Student will be able to learn the concepts of non-motorized urban transport and applications in intelligent transportation systems (ITS).

Summary of Design of Reinforced Concrete Structures
NPTEL Course

Design of Reinforced Concrete Structures: In this course, basic elements governed by bending, shear, axial forces or combination of them are identified and are considered as building blocks of the whole structure. Different methods of design will be briefly described before introducing the limit states of collapse and serviceability. The design will be done as per IS 456:2000.

Students Enrolled: 88 Student

Students Certified: 09 Student

Outcome of the Course:

After completing this course, students will be able to know the designing of concrete components. This course will help the students in design consultancy firms and construction industries.

Summary of Consumer Psychology (noc20-hs57)

Human beings have basic needs that they fulfill by making transactions in the market. Transactions mostly in the form of monetary exchange for goods and services are very basic for the survival of the human race. The present course is designed to study how consumers behave on the market and what the consequences of various behavior patterns. Additionally, the present course also looks at various psychological factors that shape the behavior and actions of the consumer in the global market.

Student Enrolled: 17 Students

Certified: 5 Students

Outcomes of the Course:

After completion of the course, the students will be able to:

- Describe how theories and concepts around work–life balance affect notions of workplace stress management
- Describe how the modern workplace can both homogenize/conform behavior, and encourage individuality and personal expression.

Year: 2020-21

Summary of Introduction to Fluid Mechanics NPTEL Course

Introduction to Fluid Mechanics: Fluid Mechanics is an inter-disciplinary course covering the basic principles and its applications in Civil Engineering. The students will have new problem-solving approaches like control volume concept and streamline patterns which are nowadays required to solve the real-life problems. The visualization of the fluid-flow problems will be demonstrated to enhance student's interest on the subject.

Students Enrolled: 177 Student

Students Certified: 23 Student

Outcome of the Course:

After completing this course, students will be able to understand fundamentals and basic concepts of fluid. This course will also help the students to understand the flow of fluid in closed pipes and open channel.

Summary of Digital Circuits (noc20-ee70)

Digital circuits are part of any electronic design today. This also happens to be one of the core subjects for the undergraduate students in Electronics, Electrical and Computer Engineering. It forms the basis of many of the next level courses. The proposed course on digital circuits will cover all the fundamental concepts in digital design. It will primarily focus on the prescribed GATE syllabus for Electronics and Communication Engineering (ECE) specialization. The course will start with the representations of numbers – different number systems and conversion between them, representation of integer and real numbers etc. This will be followed by combinational and sequential circuit design techniques. Data converters and semiconductor memories will be covered. Microprocessor 8085 will be discussed as a complete digital system example. Designed primarily as a single course covering the digital circuits portion of GATE syllabus, the course will also be helpful for any other aspirant willing to learn digital electronics principles comprehensively in today's perspective.

Student Enrolled: 68 Student

Student Certified: 14 Student

Outcome of the Course:

- Gain knowledge between different types of number systems, and their conversions.
- Design various logic gates and simplify Boolean equations.
- Design various flip flops, shift registers and determining outputs.
- Design different types of counters.
- Knowledge in types of instructions and their usage.
- Write different programs using instructions of 8085 µp.
- Differentiate various interrupts with their priorities

Summary of Control systems

To provide a basic understanding of the concepts and techniques involved in designing control schemes for dynamic systems. Learning Outcomes: At the end of this course, one should possess in-depth knowledge of concepts from classical control theory, understand the concept of transfer function and use it for obtaining system response, analyze dynamic systems for their stability and performance, and design controllers (such as Proportional-Integral-Derivative) based on stability and performance requirements.

Student Enrolled: 143 Students

Student Certified: 21 Students

Outcome of the Course:

- Categorize different types of system and identify a set of algebraic equations to represent and model a complicated system into a more simplified form.
- Characterize any system in Laplace domain to illustrate different specification of the system using transfer function concept.
- Interpret different physical and mechanical systems in terms of electrical system to construct equivalent electrical models for analysis.
- Employ time domain analysis to predict and diagnose transient performance parameters of the system for standard input functions.
- Formulate different types of analysis in frequency domain to explain the nature of stability of the system.

Summary of An Introduction to Microeconomics

Microeconomics is the study of the allocation of scarce resources among individuals. Economic theories assume that individuals as well as firms have well defined objectives; utility maximization for individuals and profit maximization for firms and they act systematically according to the incentives and constraints of their economic environment. It is this framework that allows the economist to gain a fundamental understanding of the human puzzle in an economic setting. This course in the fundamentals of economics covers consumer theory, producer theory as well as the market structures through which individuals and firms interact.

Student Enrolled: 16 Students

Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Able to use theoretical notions, concepts of Absolute and Comparative advantage and interpret results.
- Identify the determinants of supply and demand; demonstrate the impact of shifts in both market supply and demand curves on equilibrium price and output, define equilibrium, solve equations.

Year – 2020-21(noc21-hs52)

Summary of Course "An Introduction to Programming in C++ (noc21-cs38)"

2020-21

C++ is a powerful general-purpose programming language. It can be used to develop operating systems, browsers, games, and so on. C++ supports different ways of programming like procedural, object-oriented, functional, and so on. This makes C++ powerful as well as flexible.

C++ is still readily used in programming today. Despite the advent of popular object-oriented programming languages like Python, C++ continues to have a dedicated space in the tech world. C++ is still the go to language for solutions that need fast machine performance. AAA video games, IoT, embedded systems, and resource-heavy VR and AI applications all run on C or C++.

No. of Students Enrolled:104

No. of Students Certified:2

Outcome of the Course:

This course builds up on the knowledge of C programming and basic data structure (array, list, stack, queue, binary tree etc.) to create a strong familiarity with C++98 and C++03. Besides the constructs, syntax and semantics of C++ (over C), it also focusses on various idioms of C++ and attempt to go to depth with every C++ feature justifying and illustrating them with several examples and assignment problems. On the way, it illustrates various OOAD (Object-Oriented Analysis and Design) and OOP (Object-Oriented Programming) concepts.

While this course can be understood independently, it would help in developing understanding in OOP.

Summary Analog Circuits (noc21-ee07)

This course is designed as the introductory course on Analog Circuits for undergraduate students. It covers the basic components and methodologies used for Analog Design. Most of the portion deals with OPAMP based circuits. Later in the course some BJT based circuits are discussed.

Student Enrolled: 45 Students

Student Certified: 08 Students

Outcome of the Course:

- Illustrate working principle of different electronic circuit and their application in real life.
- Define semiconductor device and different operating condition and their performance parameter.
- Choose proper semiconductor devices depending upon application considering economic and technology up-gradation.
- Employ mathematical and graphical analysis considering different practical issues modeling of semiconductor device; analyze the performance parameter of the system.
- Recognize different signal processing circuit and the use in industrial, real life, modern control system application.
- Use modeling/simulation parameters with standard equivalent circuit models to correctly predict the expected performance of various general-purpose electronic circuits.

Summary of Antennas

The Participant will learn and understand

1) Fundamental antenna parameters and numerical methods to analyze and differentiate the antennas.
2) Concept of radiation mechanism of various antennas.
3) Mechanism and models for radio-wave propagation.

Student Enrolled: 33 Students

Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

1) Identify basic antenna parameters.
2) Design and analyze antenna arrays.
3) Design and analyze wire and aperture antennas.
4) Identify the characteristics of radio-wave propagation.

Year – 2020-21

Summary of Business Ethics

This course is designed to develop in the students an understanding of the concept of Business Ethics and its application in business decision making with emphasize on CSR and sustainable business practices in the age of Globalization.

Student Enrolled: 6 Students

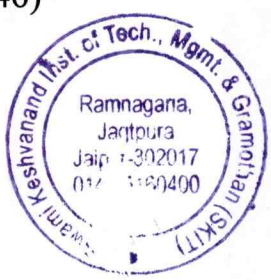
Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Promote **understanding of the importance**, for business and the community, of ethical conduct
- Enhance awareness and critical self-examination of one's own values, and to appreciate the relevance of personal values in the business/workplace setting

Year – 2020-21 (noc21-mg46)



Summary of Basic Construction Materials NPTEL Course

Basic Construction Materials: The aim of the course is to provide the scientific basis for the understanding and development of construction materials. It serves as a foundation course for students interested in careers involving research, teaching and/or construction engineering, as well as marketing, decision making, innovation and specification related to construction materials.

Students Enrolled: 31 Student

Students Certified: 4Student

Outcome of the Course:

After completing this course, students will be able to understand atomic bonding and development of microstructure in materials. This course will also help the students to understand the rheology & thermal properties of materials.

Summary of Basic Calculus - 1

This course is a follow up to the calculus course taught in schools. Some of the notions done earlier will be presented in a more rigorous manner and some new notions will be introduced. The course aims at treating rigorously the notions of continuity, differentiability and integrability and their applications.

Student Enrolled: 11 Students

Student Certified: 2 Students

Session: 2020-21 (noc21-ma16)

Outcome of the Course:

On completion of this course, the Participants will be able to

- Define the basic concepts and principles of differential and integral calculus of real functions and sequences and series
- Interpret the geometric meaning of differential and integral calculus
- Apply the concept and principles of differential and integral calculus to solve geometric and physical problems

Summary of Course "Cloud Computing (noc21-cs14)"

Session: 2020-21

Cloud computing is a scalable services consumption and delivery platform that provides on-demand computing service for shared pool of resources, namely servers, storage, networking, software, database, applications etc., over the Internet. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources, which can be rapidly provisioned and released with minimal management effort.

Cloud computing can be deployed universally in practically no time and offer the most extreme flexibility, agility and cost-sparing IT operations to business for progressively profitable and consistent development. This, thus, is making entrepreneurs change to cloud computing for completing business activities.

No. of Students Enrolled:37

No. of Students Certified:6

Outcome of the Course:

This course will introduce various aspects of cloud computing, including fundamentals, management issues, security challenges and future research trends. This will help students and researchers to use and explore the cloud computing platforms.

Summary of Course "Cloud Computing and Distributed Systems(noc21-cs15)"

Session: 2020-21

Cloud computing is a scalable services consumption and delivery platform that provides on-demand computing service for shared pool of resources, namely servers, storage, networking, software, database, applications etc., over the Internet. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources, which can be rapidly provisioned and released with minimal management effort.

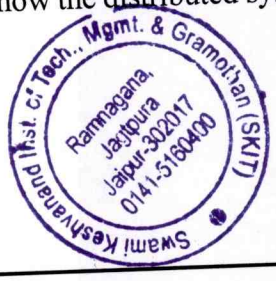
Cloud computing is the on-demand delivery of computations, storage, applications, and other IT resources through a cloud services platform over the internet with pay-as-you-go business model. Today's Cloud computing systems are built using fundamental principles and models of distributed systems. This course provides an in-depth understanding of distributed computing "concepts", distributed algorithms, and the techniques, that underlie today's cloud computing technologies.

No. of Students Enrolled:32

No. of Students Certified:4

Outcome of the Course:

This course will cover cloud computing and distributed systems concepts and models: virtualization, cloud storage: key-value/NoSQL stores, cloud networking, fault-tolerance cloud using PAXOS, peer-to-peer systems, classical distributed algorithms such as leader election, time, ordering in distributed systems, distributed mutual exclusion, distributed algorithms for failures and recovery approaches, emerging areas of big data and many more. Through this course one can look at aspects of industry systems such as Apache Spark, Google's Chubby, Apache Zookeeper, HBase, MapReduce, Apache Cassandra, Google's B4, Microsoft's Swan and many others. Upon completing this course, students will have intimate knowledge about the internals of cloud computing and how the distributed systems concepts work inside clouds.



Summary of CMOS and VLSI Design

This course brings circuit and system level views on design on the same platform. The course starts with basic device understanding and then deals with complex digital circuits keeping in mind the current trend in technology. The course follows a design perspective, starts from basic specifications, and ends with system level blocks. Eight Assignments are provided which will add/help in understanding the course in a better manner both at conceptual as well as hands-on level.

Student Enrolled: 17

Student Certified: 1

Outcome of the Course:

Learning out CMOS and VLSI Design will give the skills to understand and design system level blocks for simple and complex digital circuit.

Year – 2020-21

Summary of Course "Compiler Design (noc21-cs07)"

Session: 2020-21

Compilers have become part and parcel of today's computer systems. They are responsible for making the user's computing requirements, specified as a piece of program, understandable to the underlying machine. There tools work as interface between the entities of two different domains – the human being and the machine. The actual process involved in this transformation is quite complex. Automata Theory provides the base of the course on which several automated tools can be designed to be used at various phases of a compiler. Advances in computer architecture, memory management and operating systems provide the compiler designer large number of options to try out for efficient code generation.

No. of Students Enrolled:12

No. of Students Certified:4

Outcome of the Course:

This course on compiler design is to address all these issues, starting from the theoretical foundations to the architectural issues to automated tools. Being primarily targeted to a one-semester course for the undergraduate students, the course will follow the current GATE syllabus, enabling the students to prepare well for the same. It can also help all other participants looking for an introduction to the domain of compiler designs and code translators.

Summary of Computer Architecture *(noc21-cs41)* 2020-21

Computer Architecture: Computer architectures represent the means of interconnectivity for a computer's hardware components as well as the mode of data transfer and processing exhibited. Different computer architecture configurations have been developed to speed up the movement of data, allowing for increased data processing.

Student Enrolled: 15

Student Certified: 1

Outcome of the Course:
After completion learner will be able to demonstrate computer architecture concepts related to design of modern processors, memories and I/Os. Also able to analyze the performance of commercially available computers. He/she will be able to develop logic for assembly language programming

Summary of Computer Integrated Manufacturing Course

Computer integrated way of manufacturing provides myriad of benefits such as speed, flexibility, and better control. In this course, Computer Integrated Manufacturing (CIM) approaches are discussed. CAD/CAM tools and their within and between the production systems are presented along with appropriate case studies. Data storage and handling is also the need of contemporary manufacturing systems. This is also catered using software tools. The course is reinforced with the laboratory demonstrations to add a practitioners' touch.

Student Enrolled: 10 Students

Certified: 06 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of develop a prowess to largely plan, design and develop a product and a production system after completing this course and will be able to apply the basic principles to analyze Computer Integrated Manufacturing systems.

Year: 2020-21

***Summary of* Computer Networks and Internet Protocol *(noc21-cs18)* 2020-21**

Computer Networks and Internet Protocol: The domain of Internet has grown in a rapid pace from traditional circuit switched and packet switched small scale networks to modern high-speed mobile and wireless Internet. A large number of methods, architectures and designs came up at every protocol level to cop up with the demands for developing a secure and highly dependable information technology infrastructure.

Student Enrolled: 5

Student Certified: 2

Outcome of the Course:
Students will able to understand - (i) the architecture and principles of today's computer networks, (ii) the protocols and their functionalities, (iii) the requirements for the future Internet and its impact on the computer network architecture.

***Summary of* Computer Vision and Image Processing - Fundamentals and Applications**
(noc21-ee23) 2020-21

Computer Vision and Image Processing: Computer Vision is one of the most exciting fields in Machine Learning and AI. It has applications in many industries, such as self-driving cars, robotics, augmented reality, and much more. This course provides an introduction to computer vision including image acquisition and image formation models, radiometric models of image formation, image formation in the camera, image processing concepts, concept of feature extraction and selection for pattern classification/recognition, and advanced concepts like motion estimation and tracking, image classification, scene understanding, object classification and tracking, image fusion, and image registration, etc.

Student Enrolled: 5

Student Certified: 2

Outcome of the Course:
After completing the course, the students may expect to have the knowledge needed to read and understand more advanced topics and current research literature, and the ability to start working in industry or in academic research in the field of Computer Vision and Image Processing. They can also apply all these concepts for solving the real-world problems.

Summary of Construction Methods and Equipment Management

The Participant will learn and understand the managing cost and working of equipments on site.

Student Enrolled: 18 Students

Student Certified: 4 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Understand Planning Process of Equipments
- Cost of Owning and Operating Construction Equipment
- Equipment life and replacement analysis
- Understand working of heavy equipments

Year – 2020-21

Summary of Cryptography and Network Security (noc21-cs16) (2020-21)

Cryptology: **Cryptology**, science concerned with data communication and storage in secure and usually secret form. It encompasses both cryptography and cryptanalysis. Cryptography (from the Greek *kryptós* and *gráphein*, "to write") was originally the study of the principles and techniques by which information could be concealed in ciphers and later revealed by legitimate users employing the secret key.

.Student Enrolled: 19 Student

Student Certified: 2 Student

Outcome of the Course:

The modern study of **cryptography** investigates techniques for facilitating interactions between distrustful entities. In our connected society, such techniques have become indispensable---enabling, for instance, automated teller machines, secure wireless networks, internet banking, satellite radio/television and more.

Summary of Control Engineering (noc21-ee05)

This course shall introduce the fundamentals of modeling and control of linear time invariant systems; primarily from the classical viewpoint of Laplace transforms and a brief emphasis on the state space formulation as well. The course will be useful for students from major streams of engineering to build foundations of time/frequency analysis of systems as well as the feedback control of such systems. The 11th module of the course will cover a detailed application of filter design in the field of navigation and human movement (gait). Students will be able to design their very own basic navigational system using inertial sensors and microcontrollers.

Student Enrolled: 10 Students

Student Certified: 01 Student

Outcome of the Course:

- Categorize different types of system and identify a set of algebraic equations to represent and model a complicated system into a more simplified form.
- Characterize any system in Laplace domain to illustrate different specification of the system using transfer function concept.
- Interpret different physical and mechanical systems in terms of electrical system to construct equivalent electrical models for analysis.
- Employ time domain analysis to predict and diagnose transient performance parameters of the system for standard input functions.

Summary of Emotional Intelligence Course

"Intelligence quotient (IQ) gets you hired but emotional quotient (EQ) gets you promoted". This popular quote by Times magazine during late nineties has made the concept of emotional intelligence more popular among people by highlighting its multiple implications and applications. The uses and utility of emotional intelligence at home, school and workplace have benefited thousands in many disciplines. This course is designed to sensitize the participants about the concept, theory and applications of emotional intelligence. The participants will get to know the added advantage of EQ the software of the brain over the hardware (EQ). This programme will also explore how our hearts rule over our heads for creative creation. It will also focus on how various principles of emotional intelligence guide us in different contexts of life. The awareness about the credo of emotional intelligence will develop insights into self-regulation and realization of one's optimum potentials for better performance. The participants will come to know about many unknowns of life, which will further help them to enhance their awareness to be effective on their roles. The course will offer useful lessons with the help of practical exercises, games, audio-visual instruments, case studies, classroom interaction to show the road map how to foster emotional intelligence in organisation for achieving health, happiness and optimal performance at work.

Student Enrolled: 28 Students

Certified: 5 Students

Outcomes of the Course:

After completion of the course, the students will be able

- To relate more effectively to their colleagues and to others.
- Know how to communicate in an emotionally intelligent way. Understand how to demonstrate empathy in a wide range of situations.

Year: 2020-21 (noc21-hs04)

Summary of Course "Database Management Systems (noc21-cs04)"

Session: 2020-21

Databases form the backbone of all major applications today – tightly or loosely coupled, intranet or internet based, financial, social, administrative, and so on. Structured Database Management Systems (DBMS) based on relational and other models have long formed the basis for such databases. Consequently, Oracle, Microsoft SQL Server, Sybase etc. have emerged as leading commercial systems while MySQL, PostgreSQL etc. lead in open source and free domain. While DBMS's differ in the details, they share a common set of models, design paradigms and a Structured Query Language (SQL).

No. of Students Enrolled:109

No. of Students Certified:19

Outcome of the Course:

This course introduces the students to the various theoretical and practical principles involved in the design and use of databases systems with the help of database management systems (DBMS) and the SQL Standard.

Summary of Data Science for Engineers Course (noc21-cs23)

Session: 2020-21

Introduction to Data Science for Engineers: Data science is an interdisciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from structured and unstructured data and apply knowledge and actionable insights from data across a broad range of application domains.

Student Enrolled: 11

Student Certified: 1

Outcome of the Course:

Learners will be able to describe a flow process for data science problems (Remembering), classify data science problems into standard typology (Comprehension), develop R codes for data science solutions (Application), correlate results to the solution approach followed (Analysis), assess the solution approach (Evaluation), construct use cases to validate approach and identify modifications required (Creating).

Summary of Design and analysis of algorithms

NPTEL Course(noc21-cs22)

Session: (2020-21)

Design and analysis of algorithms: An algorithm is the best way to represent the solution of a particular problem in a very simple and efficient way. If we have an algorithm for a specific problem, then we can implement it in any programming language. An efficient algorithm solves a problem in an efficient way using minimum time and space. Analysis of algorithm is the process of analyzing the problem-solving capability of the algorithm in terms of the time and size required. However, the main concern of analysis of algorithms is the required time or performance. If we require an algorithm to run in lesser time, we have to invest in more memory and if we require an algorithm to run with lesser memory, we need to have more time.

Student Enrolled: 26

Student Certified: 1

Outcome of the Course- This course will help to Analyse the asymptotic performance of algorithms, write rigorous correctness proofs for algorithms, demonstrate a familiarity with major algorithms and data structures, apply important algorithmic design paradigms and methods of analysis and Synthesize efficient algorithms in common engineering design situations. This course also provides an experience in building algorithms and implementing them on clusters and distributed systems, develop proficiency in problem solving and programming and carry out the analysis of various algorithms for mainly time and space complexity.

Summary of Design Practice Course

This course starts with basic concepts of product design and development and then covers all the related information in depth i.e. material selection, motion study and work system design. The course is intended for beginners in post graduate studies in Design. It can also serve well for aspiring professionals in industry who will be willing to undertake careers in the field of design.

Student Enrolled: 25 Students

Certified: 03 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles and concepts of design.

Year: 2020-21

Summary of Digital System Design

Digital system design course focuses on design digital system from scratch. The course focuses on designing combinational and sequential building blocks, using these building blocks to design bigger digital systems. During this course we also learn how to use Verilog to design/model a digital system.

Student Enrolled: 28

Student Certified:3

Outcome of the Course:

Learning out Digital system design will give the skills to design combinational and sequential building blocks, using these building blocks to design bigger digital systems. In addition this course will give the skills to use Verilog to design/model a digital system.

Year – 2020-21

Summary of Effective Writing Course (noc21-hs44)

Writing, one of the four language skills continues to have its importance in all times. A good number of people despite having good spoken skills at times fail to prove their mettle when it comes to writing. Since writing represents a writer even in his absence and doesn't have scope for clarification, one has to master this art well. The present course on writing aims at familiarizing learners with the nuances of effective writing which can help them know the subtle art of writing, enabling them to write with clarity, precision and at the same time with the subtlety to express their ideas on different occasions with the notions of appropriateness and accuracy.

Student Enrolled: 17 Students

Certified: 3 Students

Outcomes of the Course:

- Remembering and understanding: recall, identify, label, illustrate, summarize.
- Applying and analyzing: use, differentiate, organize, integrate, apply, solve, analyze.
- Evaluating and creating: Monitor, test, judge, produce, revise, compose.

Year: 2020-21

Summary of Electronic Waste Management – Issues and Challenges

The Participant will learn and understand the issues and challenges in managing electronic waste

Student Enrolled: 8 Student

Student Certified: 1 Student

Outcome of the Course:

On completion of this course, the Participants will be able to

- Understand effects of recycling and management of Electronic Waste on human health, environment and society
- Understand risk assessment owing to pollutants released from E-Waste recycling in soil, air and water
- Compare E-Waste management Rules of India and around the World

Year – 2020-21

Summary of Energy Resources, Economics and Environment

This course will equip students with the tools necessary for economic analysis and quantification of impacts of energy systems. We will review the availability of energy resources and study methods for quantification of resource depletion and scarcity. The course will cover basic concepts in economics and their application to energy systems. Tools and techniques for project economics for an individual/ company perspective and macro-decision making for society will be introduced. We will discuss basic concepts of welfare economics and environmental economics that are necessary for energy systems analysis and their environmental impacts.

Student Enrolled: 3 Students

Student Certified: 1 Students

Session: 2020-21 (noc21-hs54)

Year – 2020-21

Summary of Engineering Mathematics II

This course is about the basic mathematics that is fundamental and essential component in all streams of undergraduate studies in sciences and engineering. The course consists of topics in complex analysis, numerical analysis, vector calculus and transform techniques with applications to various engineering problems. This course will cover the following main topics. Function of complex variables. Analytic functions. Line integrals in complex plane. Cauchy's integral theorem, Derivatives of analytic functions. Power series, radius of convergence. Taylor's and Laurent's series, zeros and singularities, residue theorem. Iterative method for solution of system of linear equations. Finite differences, interpolation. Numerical integration. Solution of algebraic and transcendental equations. Vector and scalar fields. Limit, continuity, differentiability of vector functions. Directional derivative, gradient, curl, divergence. Line and surface integrals, Green, Gauss and Stokes theorem. Laplace transform and its properties. Laplace Transform of special function. Convolution theorem. Evaluation of integrals by Laplace Transform.

Student Enrolled: 19 Students

Student Certified: 1 Students

Session: 2020-21 (noc21-ma16)

Outcome of the Course:

On completion of this course, the Participants will be able to

- Solve linear system of equations by direct, iterative methods and determine eigen values and eigen vectors of given square matrix also compute power, inverse of the matrix using Cayley-Hamilton theorem.
- Write given function in terms of sine and cosine terms in Fourier series and also to get knowledge in Fourier transforms.

Swami Keshvanand Inst. of Tech., Mgmt. & Gramothan (SKIT)
Ramnagaria,
Jaipur
302017
0141 5160400

Summary of Course "English language for Competitive exams (noc21-hs16)"

Session: 2020-21

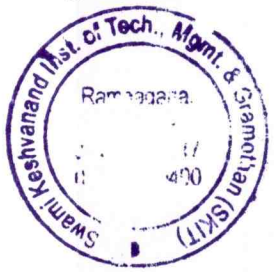
The course is designed and developed to suit the needs of those students who aim to appear for competitive exams with English Language as their core subject. It will be useful for those who aspire towards acing competitive exams with language in English as the main subject and/or want to pursue a higher academic degree, particularly as researchers, in India or abroad. The course includes major works, historical developments, sub-disciplines, movements and trends in English, American and also World language. The participants will also gain an understanding about the key literary figures of all time and their contribution to their respective literary scene.

No. of Students Enrolled:340

No. of Students Certified:34

Outcome of the Course:

The course will introduce the basic forms of English language to the students.
The course will develop the skill to compete the students in competition exam.
The course will develop reading skill and creative and expressive ability of the students.



Summary of Course "Enhancing Soft Skills and Personality"

Course Code: noc21-hs02

Session: 2020-21

The course aims to cause an enhanced awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality. Hard or technical skills help securing a basic position in one's life and career. But only soft skills can ensure a person retain it, climb further, reach a pinnacle, achieve excellence, and derive fulfilment and supreme joy. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness, and effective communication skills. The focus of this course is on interpersonal and management skills.

No. of Students Enrolled: 518

No. of Students Certified: 126

Outcome of the Course:

- Effectively communicate through verbal/oral communication and improve the listening skills
- Write precise briefs or reports and technical documents
- Actively participate in group discussion / meetings / interviews and prepare & deliver presentations
- Become more effective individual through goal/target setting, self-motivation and practicing creative thinking.

Summary of Entrepreneurship Essentials Course (noc21-ge06)

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..

Student Enrolled: 22Students

Certified: 5 Students

Outcomes of the Course:

After completion of the course, the students will be able to

- Understand the nature of entrepreneurship.
- Understand the function of the entrepreneur in the successful, commercial application of innovations.
- Gain an expansive and deep appreciation of entrepreneurship, and its pivotal role in the economy.
- Approach entrepreneurship with clarity and focus, and an enhanced understanding of the key success factors as well as possible risks and potential mitigation strategies.

Year: 2020-21

Summary of Financial Statement Analysis and Reporting

Financial Analysis and reporting is an integral part of overall financial analysis carried out by various business organizations in India and all around the world. It depicts the financial health of any company and helps the companies to augment their financial resources and management of generated funds efficiently. It compels the business firms to remain judicious in fund allocation to different activities and sub activities and use the generated funds carefully. Financial analysis guides the companies about their future course of action and the direction that any particular company should move on. Financial Analysis and reporting is an integral part of overall financial analysis carried out by various business organizations in India and all around the world. It depicts the financial health of any company and helps the companies to augment their financial resources and management of generated funds efficiently. It compels the business firms to remain judicious in fund allocation to different activities and sub activities and use the generated funds carefully. 6. Way forward – how to manage this waste stream applying state of the art technologies

Student Enrolled: 1 Students

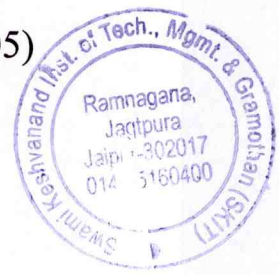
Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Fulfill the needs of a "capstone" course for Accounting Career students so that students can pursue entry-level jobs in the accounting and finance fields upon graduation
- To prepare the Accounting Option graduate with an in-depth course in the analysis of financial reports for students to provide much of the information users need to make economic decisions about businesses.

Year – 2020-21(noc21-mg05)



Summary of Fundamental of Welding Science and Technology Course

This course will cover the classification of welding process, classification of welding joints, industrial relevance of welding, welding symbols, characteristics of traditional welding power sources. It will give the fundamental knowledge of principle and physics involve in various welding processes. It will also cover the importance and applications of different traditional welding techniques. This course will highlight safety precautions to be followed in welding. This course will also cover welding defects & inspection and with their remedies to improve the weld quality.

Student Enrolled: 08 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Fundamental of Welding Science and also explain welding defects and inspection and with their remedies to improve the weld quality.

Year: 2020-21

Summary of Geographic Information Systems

The proposed course provides detailed understanding about Geographic Information Systems and their applications in Civil Engineering and Earth Sciences. All aspects starting from data input to modelling would be discussed in this course. Further, in the proposed course various datasets including DEMs, their source, generation techniques, derivatives, errors and limitations would be discussed extensively. Surface Hydrologic Modelling using DEMs, modelling derivatives and their applications would also be discussed.

Student Enrolled: 7 Students

Student Certified: 2 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Use GIS to Explore mapped data
- Use GIS to Relate GIS with remote sensing technologies
- Use GIS to Analyze spatial data, using GIS analysis tools

Year – 2020-21

Summary of Geotechnical Engineering II NPTEL Course

Geotechnical Engineering: Geotechnical engineering is the branch of engineering concerned with the analysis, design and construction of foundations, slopes, retaining structures, embankments, tunnels, landfills, and other systems that are made of or are supported by soil or rock. The geotechnical research ranges in nature from analytical and numerical study of geotechnical problems to constitutive modeling, experimental modeling and design. Geotechnology plays a key role in all civil engineering projects built on or in the ground, and it is vital for the assessment of natural hazards such as earthquakes, liquefaction, sinkholes, rock falls and landslides.

Students Enrolled: 5 Student

Students Certified: 1 Student

Outcome of the Course:

After completing the course, the student will have an ability to apply knowledge of mathematics, science and engineering while analysis and design of geotechnical structure ant its components. Student is expected to solve complex geotechnical engineering problems and able to propose optimal, feasible and economical design solution. The student is expected to understand and follow ethical practices in geotechnical engineering.

Summary of Hydraulic Engineering NPTEL Course

Hydraulic engineering, as a sub-discipline of civil engineering, is concerned with the flow and conveyance of fluids. Hydraulic engineering consists of study of viscous fluid flow, laminar and turbulent flow, boundary layer analysis, dimensional analysis, open channel flows, flow through pipes, and computational fluid dynamics.

Students Enrolled: 16 Student

Students Certified: 1 Student

Outcome of the Course:

The student will be able to learn the basics of hydraulic engineering. They will be able to deal with various hydraulic engineering problems like open channel flows and hydraulic machines.

Summary of IC Engines and Gas Turbines Course

This course deals with the gas power cycles. One part of the course is on IC engines and it focuses on the thermodynamic cycles for different fuels suitable for automobiles. Other part of the course has emphasis on thermodynamic cycle of aircraft engines and the components of the aircraft engine. Thus this course would provide an understanding on electricity generation or transportation application using gas as working medium.

Student Enrolled: 13 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain use of gas as working medium to run the world by producing electricity.

Year: 2020-21

Summary of Innovation by Design

In today's world, there are so many challenges and problems that needs to be addressed. In this situation, innovation is what provides the solution that will benefit the maximum number of users. And such innovation is often enabled by design. This course familiarizes you with the concept of "innovation" and the journey of a design idea from the identification of a problem to a final solution that has a positive impact on a large community of users. Through case studies that focus on the "seven concerns of innovation", you learn how the innovation process requires empathy, meticulous effort, constant user interaction and effective collaboration.

Student Enrolled: 5 Students

Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- The students can develop many creative ideas through structured brainstorming sessions.
- The students can develop rapid prototypes to bring their ideas into reality as quickly as possible and obtain feedback.

Year – 2020-21(noc21-de05)

Summary of Inspection and Quality Control in Manufacturing Course

In manufacturing, quality control is a process that ensures customers receive products free from defects and meet their requirements. Inspection and measurement is needed during production for quality control because of the inherent variability introduced by the machines, tools, raw materials, and human operators which causes variations in the different quality characteristics (length, diameter, thickness, tensile strength, surface finish etc.) of the product. Inspection and testing is very important in maintaining a certain quality level in the product during production. It helps to control the quality of products by fixing the sources of defects immediately after they are detected. Several non-destructive inspection methods also help to perform in-service inspection to avoid any catastrophic failure and predict the remaining life of the product.

Student Enrolled: 18 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain concepts, processes and techniques related to inspection and quality control in manufacturing.

Year: 2020-21

Summary of Introduction to Abrasive Machining and Finishing Processes Course

This course will define the areas of application of traditional as well as non-traditional abrasive finishing processes in the manufacturing industry. The lectures will introduce the basic principles of material removal by use of abrasives particles and material removal mechanism of different abrasive process. The effects of various input parameters on the outputs as well as the use of cutting fluids in various finishing process will be discussed. A variety of numerical problems and MCQs, discussions will also be included.

Student Enrolled: 02 Students

Certified: 02 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain basic principles of material removal by use of abrasives particles and material removal mechanism of different abrasive process and elaborate the applications of abrasive machining and finishing processes.

Year: 2020-21

Summary of Introduction to Civil Engineering Profession NPTEL Course

Introduction to Civil Engineering Profession: The course introduces the civil engineering profession and the degree program to first year students and prospective students. The different disciplines of civil engineering are briefly explained, along with the pre-requisites, scope and opportunities. Career prospects and novel/emerging areas are also presented.

Students Enrolled: 18 Student

Students Certified: 2 Student

Outcome of the Course:

After completing this course, students will aware about the civil engineering discipline. This course will also help the students to understand the career opportunities in civil engineering.

Summary of Course "Database Management Systems (noc21-cs52)"

Session: 2020-21

Databases form the backbone of all major applications today – tightly or loosely coupled, intranet or internet based, financial, social, administrative, and so on. Structured Database Management Systems (DBMS) based on relational and other models have long formed the basis for such databases. Consequently, Oracle, Microsoft SQL Server, Sybase etc. have emerged as leading commercial systems while MySQL, PostgreSQL etc. lead in open source and free domain. While DBMS's differ in the details, they share a common set of models, design paradigms and a Structured Query Language (SQL).

No. of Students Enrolled:21

No. of Students Certified:1

Outcome of the Course:

This course introduces the students to the various theoretical and practical principles involved in the design and use of databases systems with the help of database management systems (DBMS) and the SQL Standard.

Summary of Introduction to Industry 4.0 and Industrial Internet of Things NPTEL Course(noc21-cs20)

Session: (2020-21)

Introduction to Industry 4.0 and Industrial Internet of Things: Industry 4.0 concerns the transformation of industrial processes through the integration of modern technologies such as sensors, communication, and computational processing. Technologies such as Cyber Physical Systems (CPS), Internet of Things (IoT), Cloud Computing, Machine Learning, and Data Analytics are considered to be the different drivers necessary for the transformation. Industrial Internet of Things (IIoT) is an application of IoT in industries to modify the various existing industrial systems. IIoT links the automation system with enterprise, planning and product lifecycle. This course has been organized into the following modules:

Student Enrolled: 16

Student Certified: 1

Outcome of the Course- Industry 4.0 spans the entire product life cycle and supply chain— design, sales, inventory, scheduling, quality, engineering, and customer and field service. Everyone shares informed, up-to-date, relevant views of production and business processes—and much richer and more timely analytics.

Summary of Introduction to internet of things

Course (noc21-cs17)
2020-21

Introduction to internet of things (IoT): An overview of IOTs, design of smart objects that provide collaboration and ubiquitous services will be explored. Design for longevity/energy efficiency will be highlighted. Step by step system design will be introduced. IoT design means that the focus is on singular experiences and no longer but about design principles that represent a broader ecosystem within which IoT devices function.

Student Enrolled: 84 Student

Student Certified: 7 Student

Outcome of the Course:

The IoT provides a platform that creates opportunities for people to connect these devices and control them with big data technology, which in return will promote efficiency in performance, economic benefits and minimize the need for human involvement. It's the most important development of the 21st century. So this course will help learners in getting more knowledge and job opportunities.

Summary of Introduction to Machining and Machining Fluids Course

Machining is one of the basic and very important courses for the mechanical undergraduate students. This process comes under the subtractive manufacturing processes where in material is removed. This course gives the basic understanding of the various machining processes and its physics. The mentioned syllabus is systematic order to understand gradually, importance of machining, machining region mechanism, tool signatures, tool life, multipoint machining processes, cutting fluid, cutting fluid emissions and its effect on human kind. This course also gives emphasis on cutting fluid emissions and its effect on operators, environment and water pollution. This course is systemically arranged and taught in smooth as well as clear way so that students understand easily.

Student Enrolled: 02 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain how to develop the eco-friendly cutting fluids as an alternative to commercial miner oils and development of sustainable cutting fluids application techniques to improve the machining performance.

Year: 2020-21

Summary of Introduction to Modern Indian Political Thought

Modern Indian political thought is one of the fascinating areas of scholarly debates and discussions in contemporary India. It also signifies a shift away from excessive reliance upon Eurocentric views, methods and concepts to study and interpret Indian society and its politics. The major objective of this course is to introduce the students to some of the key modern Indian thinkers and their ideas which helped in shaping the society and politics of modern India.

Student Enrolled: 3 Students

Student Certified: 2 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Outlining the basic values and philosophy of Indian Constitution as expressed in the
- Preamble.
- Studying Fundamental rights, duties, and Directive Principles of State Policy.
- Examining Indian federalism through Centre-state relations.

Year – 2020-21

Summary of Introduction to Robotics Course

This course is a bridge-course for students from various disciplines to get the basic understanding of robotics. The mechanical, electrical, and computer science aspects of robotics is covered in this introductory course.

Student Enrolled: 07 Students

Certified: 03 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain interdisciplinary concepts of robotics.

Year: 2020-21

Summary of Introduction to the Psychology of Language

The objective of this course is to understand the psychological processes involved in language production, acquisition & comprehension. Students will be expected to learn how words & sentences are formed, spoken & understood. Also, how language as a cognitive function plays its role in overall cognition

Student Enrolled: 6 Students

Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Be aware of the complexities of language processing and the reasons why it is often difficult to manipulate them by conscious will or explicit instruction.
- Be familiar with the main methods used to investigate language comprehension, production, and acquisition.

Year – 2020-21

Summary of Literature and Coping Skills

This course helps learners explore the power of literary experience as a means to strong coping strategies and resilience, skills that matter the most in our times. Almost all of us are hounded by the uncanny at some point of time in our lives. We continue to bear these mental pangs silently and privately until we are overwhelmed by those weird feelings. The moments of disarray challenge us to either disappear into the dark or fight our way back into life. The point of return lies in our mind, in our will, and in our negotiations. The principal objective of this course is to engage learners with the power of poetic communication through their mind, body, and spirit and to help them experience personal growth by learning to overcome the fatal strikes of fear, anxiety, depression, trauma, and heartbreak. The course modules focus on a range of universally experienced themes, such as doubt and despair, bereavement and grief, love and heartbreak, pain and suffering with a view to discovering the beauty in everyday life and embracing life's lessons gracefully.

Student Enrolled: 4 Students

Student Certified: 1 Students

Year – 2020-21

Summary of Maintenance and Repair of Concrete Structure NPTEL Course

This course will help students learn how to identify various deterioration mechanisms or damage mechanisms in concrete structures (say, deterioration of metallic reinforcement and cementitious materials). The course will discuss both the scientific aspects and its use while practicing repair works at site. Use of various non-destructive, partially destructive tools to assess the condition of the structure will be discussed. Also, tips on selecting measurable parameters that are useful in deciding the further repair and maintenance practices will be provided.

Students Enrolled: 35 Student

Students Certified: 02 Student

Session: 2020-21 (noc21-ce13)

Outcome of the Course:

After completing this course, students will be able to know the designing and maintenance procedure of concrete components. This course will help the students in understanding of deterioration mechanisms in concrete structures.

Summary of Manufacturing Process Technology I & II Course

This is an introductory level course in Manufacturing Systems Technology and management. For most enterprises, the long term goal is to stay in business, grow and make profits. This is particularly true for manufacturing enterprises, which must understand the dynamic changes that are taking place in business environment and are flexible enough to change at every level.

Student Enrolled: 20 Students

Certified: 13 Students

Outcomes of the Course:

This course is an introductory course for engineering professionals who would like to take up careers in manufacturing and also for professionals who are already in manufacturing careers and would like to see the technological changes that manufacturing paradigm has witnessed.

Year: 2020-21

Summary of Mechatronics Course

The word mechatronics is composed of "mecha" from mechanism and the "tronics" from electronics. It is the synergistic integration of mechanical engineering, with electronics and intelligent computer control in the design and manufacturing of industrial products and processes. Mechatronics generally involves (i) implementing electronics control in a mechanical system (ii) enhancing existing mechanical design with intelligent control and (iii) replacing mechanical component with an electronic solution This course will cover all aspects related with mechatronics such as sensors and transducers, actuators and mechanisms, signal conditioning, microprocessors and microcontrollers, modeling & system response and design and mechatronics.

Student Enrolled: 14 Students

Certified: 02 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain interdisciplinary aspects related with mechatronics such as sensors and transducers, actuators and mechanisms etc.

Year: 2020-21

Summary of Microprocessors and Microcontrollers (noc21-ee18)

Microprocessors are used extensively in the design of any computing facility. It contains units to carry out arithmetic and logic calculations, fast storage in terms of registers and associated control logic to get instructions from memory and execute them. A number of devices can be interfaced with them to develop a complete system application. On the other hand, microcontrollers are single chip computers, integrating processor, memory and other peripheral modules into a single System-on-Chip (SoC). Apart from input-output ports, the peripherals often include timers, data converters, communication modules, and so on. The single chip solution makes the footprint of the computational element small in the overall system package, eliminating the necessity of additional chips on board. However, there exists a large range of such products. While the simpler microcontrollers are cheap, their capabilities (in terms of program size and analog and digital peripherals) are also limited. Such processors may be suitable for small applications. Microcontrollers like 8051, PIC belong to this category. On the other hand, advanced microcontrollers are often much more powerful, comparable to the very advanced microprocessors. The AVR and ARM processors are of this category.

Student Enrolled: 69 Students

Student Certified: 06 Students

Outcome of the Course:

- Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance.
- Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller.
- Compare accepted standards and guidelines to select appropriate Microprocessor (8085 & 8086) and Microcontroller to meet specified performance requirements.
- Analyze assembly language programs; select appropriate assemble into machine a cross assembler utility of a microprocessor and microcontroller.
- Evaluate assembly language programs and download the machine code that will provide solutions real-world control problems.

Summary of Nature and Properties of Materials Course

This course introduces to the basics of metals and metallic alloys, polymers, composites and smart materials which have extensively broadened the scope of engineering design in the fields of Civil, Mechanical, Aerospace and other structural applications.

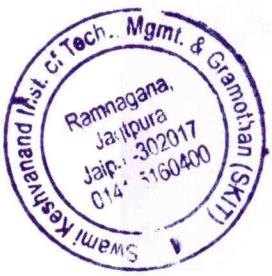
Student Enrolled: 15 Students

Certified: 02 Students

Outcomes of the Course:

After learning this course, students will be well-versed with the underlying principle governing the material properties and should be able to select proper material for their application.

Year: 2020-21



Summary of Operational Management Course

The current competitive business environment is forcing the organizations to adopt the latest tools, techniques and strategies for managing their resources in the most effective and efficient manner. The topics of the course deals with the management of resources and activities that lead to production of goods of right quality, in right quantity, at right time and place in the most cost-effective manner. The course focuses on the basic concepts, issues, and techniques adopted worldwide for efficient and effective operations. The topics include operations strategy, product design and development, forecasting, facility planning and layout, aggregate production planning, capacity planning, project management, production control, materials management, inventory and quality management, JIT and Kanban System.

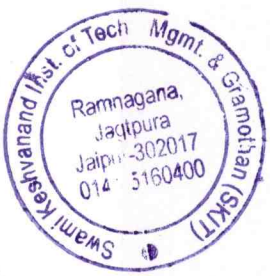
Student Enrolled: 05 Students

Certified: 04 Students

Outcomes of the Course:

After learning this course, students will be able to explain the concepts of operations strategy, product design and development, forecasting, facility planning and layout, aggregate production planning, capacity planning, project management etc.

Year: 2020-21



Summary of Plastic Waste Management

This course will focus on

1. Introduction of Plastic pollution as a global problem today.
2. What is Plastic Waste? The Magnitude of the problem on global scale and in Indian context. Plastic in Ocean and impact on sea life and economy.
3. What is the nature and complexity of this problem and what could be the best way to manage the plastic waste and how to mitigate the risk from plastic waste?
4. Plastic Waste Management Rules 2016, Recent Plastic Bans and the use of Extended Producer Responsibilities (EPR) concepts in managing Plastic waste in India.
5. Best Practices of Managing Plastic Waste from around the World including use of Plastic waste in road (experience from Indian context and other countries)
6. Way forward – how to manage this waste stream applying state of the art technologies

Student Enrolled: 23 Students

Student Certified: 5 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Understand the problems related to plastic waste disposal.
- Know the rules and regulations of plastic waste management rules, 2016
- Ways to reuse plastic in road construction

Year – 2020-21

Summary of Power System Engineering

This course is mainly for undergraduate third year as well as fourth year Electrical Engineering students, which will introduce and explain the fundamental concepts in the field of electrical power system engineering. The basic concepts of underground cables, overhead line insulators, transient over voltages and insulation coordination will be covered in detail. In addition to that, corona, sag and tension of transmission line will also be covered. In this course, distribution load flow, voltage stability analysis and application of capacitors in distribution networks will also be covered. Load frequency control of isolated and interconnected power system will be covered in depth. Unit commitment will also be covered. By the end of the course, the students should be able to gather high-quality knowledge of electrical power system engineering in the above-mentioned fields.

Student Enrolled: 16 Student

Student Certified: 04 Student

Outcome of the Course:

- Depreciation, power plant cost analysis and economics in plant selection.
- Incremental cost, scheduling considering transmission losses, Methods of loading turbo generators and unit commitment
- Base load peak load operation, coordination equations, scheduling methods and applications.
- Synchronizing current and power and effect of change in excitation, load sharing, sharing of load currents.
- Linear and nonlinear break even, min cost analysis and Concepts of physical and financial efficiencies of electrical goods.

Summary of Principles of Casting Technology Course

The course focuses on understanding the basics of science and technology of casting processes. Metal casting industries have evolved during the past hundred years because of advancements in technologies. The properties of the cast metals significantly depend upon the type of molding, melting, solidification and post treatment practices. This needs to be understood by the young students as well as practicing shop floor engineers so that products with superior qualities can be cast.

Student Enrolled: 08 Students

Certified: 01 Students

Outcomes of the Course:

This course is to provide a sound understanding of concepts and principles of casting technology so as to enable them to be conversant with advances in these methods in the long run towards increasing the productivity of casting industries.

Year: 2020-21

Summary of Principles of Management Course (noc21-mg30)

Session: 2020-21

The objective of this course is to acquaint students with the terms, concepts, and points of view used in management and its historical evolution, ethics, social responsibility and environmental issues; provide students with a working knowledge of the skills and functions necessary to be an effective, efficient manager; provide an introduction to the theory and practice of managing organizations; examine the management functions (planning, organizing, leading or influencing, and controlling) and the impact of those functions on the business organization

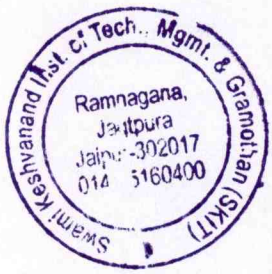
Student Enrolled: 11 Students

Certified: 06 Students

Outcomes of the Course:

After completion of the course:

- Understand the concepts related to Business.
- Demonstrate the roles, skills and functions of management.
- Understand the complexities associated with management of human resources.



Summary of Product Design and Manufacturing Course

Session: 2020-21

This course presents an overview of the product design and development process, along with the manufacturing systems aspects. The concepts Design for Manufacturing, Assembly, and Environment, and analytical tools for development, costing and manufacturing would help the students and practitioners learn to conceptualize, design, and manufacture competitively-priced quality products. Reverse Engineering, Prototyping and Simulation using soft tools are also incorporated make the students learn the advanced methods in manufacturing.

Student Enrolled: 04 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Product Design and Manufacturing and will be able to apply the basic principles to analyze Product Design and Manufacturing systems.

Summary of Course "Programming in C++ (noc21-cs02)"

Session: 2020-21

C++ is a powerful general-purpose programming language. It can be used to develop operating systems, browsers, games, and so on. C++ supports different ways of programming like procedural, object-oriented, functional, and so on. This makes C++ powerful as well as flexible.

C++ is still readily used in programming today. Despite the advent of popular object-oriented programming languages like Python, C++ continues to have a dedicated space in the tech world. C++ is still the go to language for solutions that need fast machine performance. AAA video games, IoT, embedded systems, and resource-heavy VR and AI applications all run on C or C++.

No. of Students Enrolled:64

No. of Students Certified:1

Outcome of the Course:

This course builds up on the knowledge of C programming and basic data structure (array, list, stack, queue, binary tree etc.) to create a strong familiarity with C++98 and C++03. Besides the constructs, syntax and semantics of C++ (over C), it also focus on various idioms of C++ and attempt to go to depth with every C++ feature justifying and illustrating them with several examples and assignment problems. On the way, it illustrate various OOAD (Object-Oriented Analysis and Design) and OOP (Object-Oriented Programming) concepts.

While this course can be understood independently ,it would help in developing understanding in OOP.

Summary of Course "Programming in Java (noc21-cs03)"

Session: 2020-21

With the growth of Information and Communication Technology, there is a need to develop large and complex software. Further, those software should be platform independent, Internet enabled, easy to modify, secure, and robust. To meet this requirement object-oriented paradigm has been developed and based on this paradigm the Java programming language emerges as the best programming environment. Now, Java programming language is being used for mobile programming, Internet programming, and many other applications compatible to distributed systems.

No. of Students Enrolled:99

No. of Students Certified:19

Outcome of the Course:

This course aims to cover the essential topics of Java programming so that the students can improve their skills to cope with the current demand of IT industries and solve many problems in their own filed of studies.

Summary of Properties of Materials (Nature and Properties of Materials: III) Course

This course introduces to the basics of metals and metallic alloys, polymers, composites and smart materials which have extensively broadened the scope of engineering design in the fields of Civil, Mechanical, Aerospace and other structural applications.

Student Enrolled: 15 Students

Certified: 05 Students

Outcomes of the Course:

After learning this course, students will be well-versed with the underlying principle governing the material properties and should be able to select proper material for their application.

Year: 2020-21

Summary of Programming, Data Structures and Algorithms using Python

NPTEL Course(noc21-cs21) (2020-21)

Programming, Data Structures and Algorithms using Python: Data Structure can be defined as the group of data elements which provides an efficient way of storing and organizing data in the computer so that it can be used efficiently. Examples of Data Structures are arrays, Linked List, Stack, Queue, etc. Data Structures are the main part of many computer science algorithms as they enable the programmers to handle the data in an efficient way. Data structures can be educated using any of the different programming languages available today. Python provides several benefits over other languages such as C++ and Java, the most important of which is that Python has a simple syntax that is easier to learn. Mostly Python language is used for introducing participants to programming and problem solving.

Student Enrolled: 47

Student Certified: 1

Outcome of the Course- This course builds up basic concepts such as conditionals, loops, functions, lists, strings, tuples searching and sorting algorithms, dynamic programming and backtracking, as well as exception handling, Python dictionaries as well as classes and objects for defining user defined data types such as linked lists and binary search trees. Participants will learn to Store data as key/value pairs using Python dictionaries, accomplish multi-step tasks like sorting or looping using tuples, create programs that are able to read and write data from files

Summary of Psychology of Stress, Health and Well-being

In today's world, mental distress and disorders are common and accounting for a significant burden of disability within nations. However, at the same time, there has been a growing interest in understanding and enhancing positive mental health and wellbeing particularly in the field of psychology. Overall, this course systematically addresses the issues of health, adjustment and well-being. It reviews the topics of stress and health while adding happiness and well-being theory and research to enrich our understanding of both negative and positive side of human behavior. Overall, this course will attempt to provide insights from the field of psychology to make your life more satisfying and meaningful.

Student Enrolled: 14 Students

Student Certified: 10 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- The basic objective is to enable students to understand the basic psychological processes and their applications in everyday life

Year – 2020-21

Summary of Python for data science NPTEL Course (noc21-cs33) (2020-21)

Python for data science: Data science is basically the science of analysing raw data and deriving insights from this data. There are multiple techniques to derive insights; a simple statistical techniques, a more complicated and more sophisticated machine learning techniques etc. The key focus of data science is actually deriving these insights using whatever techniques we want to use.

Student Enrolled: 17

Student Certified: 1

Outcome of the Course- The course aims at equipping participants to be able to use python programming for solving data science problems, to enable to learn Data Science concepts from scratch. Participants understand important Python programming concepts such as data operations, file operations, object-oriented programming and various Python libraries such as Pandas, Numpy, Matplotlib essential for Data Science. This course will make understand the various types of Machine Learning, Recommendation Systems and many more Data Science concepts, to help to get started with Data Science career. Participants Learn to apply data science methods and techniques, and acquire analysis skills.

Summary of Remote Sensing: Principles and Applications Course

The proposed course provides basic understanding about satellite based Remote Sensing and Digital Image Processing technologies. Presently, remote sensing datasets available from various earth orbiting satellites are being used extensively in various domains including in civil engineering, water resources, earth sciences, transportation engineering, navigation etc. Google Earth has further made access to high spatial resolution remote sensing data available to non-experts with great ease. Knowledge of Digital Image Processing of satellite data allows to process raw satellite images for various applications.

Student Enrolled: 6 Students

Certified: 1 Students

Outcomes of the Course:

- Explain and communicate the concept of various kind of maps and geospatial data.
- Develop, edit and update geospatial data.
- Create digital maps, apply projections and other characteristics of mapping.
- Integrate various kind of data from various sources and analyse the same using GIS concept and tools.

Year: 2020-21

Summary of Safety in Construction NPTEL Course

Principles of Construction Management: The course seeks to present a rounded view of the divers' issues involved in the management of construction projects, and includes aspects like construction economics, quality and safety management, and contract management, apart from time management and scheduling, estimation. It is hoped that engineers working in contracting, consulting and other organizations related to construction projects will also find the course useful.

Students Enrolled: 20 Student

Students Certified: 08 Student

Outcome of the Course:

After completing this course, students will be able to understand engineer working in field. This course will also help the students to understand tendering, contracting planning & scheduling processes of project.

Summary of Sensors and Actuators

This course is designed with an aim of educating students in microtechnology and its use to fabricate sensors and systems. The students will have an exposure to sensors and its importance in the real world. The students will also able to understand how to fabricate some of those sensors. Students will have an exposure towards how to fabricate the sensors and its application in real world. The students will provide an understanding on modern day microsensors and micro actuators. The students will have an idea about how to simulate some of those sensors and characterise before fabricating it. Below are some of the course objectives. The first objective of this course is to understand basics of sensors, actuators and their operating principle. The second objective is to educate the students on different types of microfabrication techniques for designing and developing sensors (Several applications from Electronics to Biomedical will be covered). The third objective is to explain working of various types of electrochemical sensors and actuators. Fourth objective is to provide information about interfacing of sensors and signal conditioning circuits to establish any control system or monitoring system. Fifth objective is to provide knowledge about simulation and characterization of different sensors. The final objective is to provide an understanding on characteristic parameters to evaluate sensor performance.

Student Enrolled: 7 Students

Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Choose an appropriate sensor comparing different standards and guidelines to make sensitive measurements of physical parameters like pressure, flow, acceleration, etc
- Design and develop sensors using optical methods with desired properties

Year – 2020-21

Summary of Signals and Systems

This course will introduce the students to basics of signal processing and systems analysis. We will focus on continuous-time signals and systems, but also give an introduction to discrete-time signals and systems towards the end of the course. This is a very important course for all engineers working in the electronics and communications domain.

Student Enrolled: 32

Student Certified: 6

Outcome of the Course:

Learning out Signals and Systems will give the skills to understand the basics of signal processing and systems analysis.

Year – 2020-21

Summary of Course Soft Skill Development

Course Code: noc21-hs07

Session: 2020-21

While hard skills teach us what to do, soft skills tell us how to apply our hard skills in a social environment. The focus of the course is to develop a wide variety of soft skills starting from communication, to working in different environments, developing emotional sensitivity, learning creative and critical decision making, developing awareness of how to work with and negotiate with people and to resolve stress and conflict in ourselves and others.

The uniqueness of the course lies in how a wide range of relevant issues are raised, relevant skills discussed and tips for integration provided in order to make us effective in workplace and social environments. The key areas addressed are conversation skills, group skills, persuasion skills, presentation skills, critical and creative thinking, emotional skills, positive thinking, and vocational skills.

No. of Students Enrolled: 85

No. of Students Certified: 11

Outcome of the Course:

- Effectively communicate through verbal/oral communication and improve the listening skills
- Write precise briefs or reports and technical documents
- Actively participate in group discussion / meetings / interviews and prepare & deliver presentations
- Become more effective individual through goal/target setting, self-motivation and practicing creative thinking.

Summary of Speaking Effectively

This course aims to introduce learners to the dynamics of effective spoken communication by establishing speaking as an autonomous medium with a distinctive vocabulary, syntax, structure, style and register. It will enable learners to participate in one-to-one interactions, in small groups and before a group. Learners are expected to master the fundamentals of speaking such as vocabulary, body language, pronunciation, and basic conversation skills before they move on to more advanced activities such as appearing in interviews, making formal presentations and participating in meetings.

Student Enrolled: 82 Students

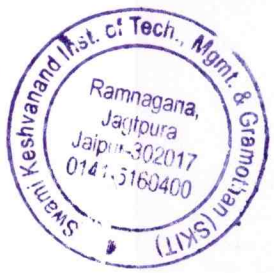
Student Certified: 30 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Employ verbal and nonverbal presentation skills for confidently and effectively delivering oral messages.
- Create and present organized and focused messages in public speaking settings.

Year – 2020-21



Summary of Steam and Gas Power Systems Course

This Course provides a simple understanding of the steam and gas power systems. The course contains the analysis of vapour power cycle i.e. Rankine cycle, steam generators and their accessories, Performance of Boilers and combustion of fuel, high pressure boilers, flow through steam and gas nozzles, different type of steam turbines for power generation and condensers. The gas turbine cycle, working of gas turbines, centrifugal compressors, axial compressors and combustion chamber of gas turbines.

Student Enrolled: 14 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to analyse the vapour power cycle and its components. Also explain the working of turbo-machines i.e. turbines, compressors etc.

Year: 2020-21 (noc21-me21)

Summary of "The Joy of Computing using Python" NPTEL Course (noc21-cs32) (2020-21)

Python:

Python is a widely used general-purpose, high level programming language. It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation. It provides code readability, and its syntax allows programmers to express their concepts in fewer lines of code. Python lets you work quickly and integrate systems more efficiently. At present Python is being used in web development, machine learning applications, along with all cutting-edge technology in software industry. Python programming language is very well suited for beginners, also for experienced programmers with other programming languages like C++ and Java.

Student Enrolled: 101

Student Certified: 19

Outcome of the Course:

Python programming is a general-purpose, and used in almost all fields like data science, web development, system automation and administration, basic game development, general and application-specific scripting etc. Additionally at present, Python is widely used by a number of big companies like Google, Pinterest, Instagram, Disney, Yahoo!, Nokia, IBM, and many others. The Raspberry Pi, which is a minicomputer relies on Python. So, this course will help learners in getting more job opportunities.

Summary of User-centric Computing for Human-Computer Interaction NPTEL Course(noc21-cs50)

Session: 2020-21

User-centric Computing for Human-Computer Interaction: Human-computer interaction is an emerging field of study at present, due to the proliferation of large number of consumer electronic products. The key issue in this field is to make the products usable to lay-persons. In order to do that, we need to take care of the (creative) design aspects (the look-and-feel of the interface) and also the system design aspect (both software and hardware). The field is interdisciplinary with inputs required from various other fields. However, the computer science and engineering plays the central role in the design of such systems (as per SIGCHI of ACM). In this course, we will introduce the engineering and computational issues in the design of human-computer interfaces for laypersons. The topics covered in the course includes the engineering life cycles for design of interactive systems, computational design framework (as part of the life cycle), components of the framework including the computational models of users and systems, and evaluation of such systems (with or without users).

Student Enrolled: 2

Student Certified: 1

Outcome of the Course- The B2C market has generally responded well to making the user the center of attention, but enterprise IT still has some catching up to do. That slower speed of IT to its lines of business (LOB) has potentially serious consequences, according to Martha Bennett, vice president and head of strategy ant Freeform Dynamics. "First, if people have to work with technology that doesn't quite meet their needs, they often find ways around constraints – this has potentially far-reaching implications in terms of IT security and support", "Second, loss of productivity and morale often occur when technology is employed that users have difficulty getting to grips with." In other words, if users are generally unhappy with the technology they're being forced to work with, they feel frustrated and will look elsewhere to satisfy their needs because they can. This is shadow of IT, and it's exactly the kind of thing CIOs want to avoid.

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Ramnagaria, Jagtpura
Jaipur-302017

Summary of Water and wastewater Treatment

Session: 2020-21

With growing concerns over freshwater availability, concept of treating and recycling wastewater is progressively getting more pertinent. However, wastewater to be recycled need to be treated first for ensuring its quality sufficiently fit for designated uses, such as irrigation, industrial processes, toilet flushing, ground water recharge etc. Wastewater treatment can be specifically tailored to meet the water quality requirements of a planned reuse, as some would need only moderate treatment while few others may require higher degree purification.

Students Enrolled: 45 Student

Students Certified: 02 Student

Outcome of the Course:

Student will be able to determine various treatment technologies and their application for producing reuse quality water from wastewater. Course will largely cover topics that includes the basic philosophy of wastewater treatment, principles of various wastewater treatment units, conventional treatment systems, advanced treatment processes, recycling and reuse opportunities and wastewater reuse criteria. Comprehensive knowledge and understanding on technologies for water reclamation and reuse will be gained.

Summary of Welding Process Course

This course will cover the classification of welding process, classification of welding joints, industrial relevance of welding, welding symbols, characteristics of traditional welding power sources. It will give the fundamental knowledge of principle and physics involve in various welding processes. It will also cover the importance and applications of different traditional welding techniques. This course will highlight safety precautions to be followed in welding. This course will also cover welding defects & inspection and with their remedies to improve the weld quality.

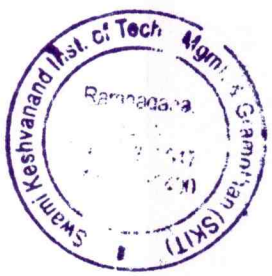
Student Enrolled: 03 Students

Certified: 02 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Fundamental of Welding Science and also explain welding defects and inspection and with their remedies to improve the weld quality.

Year: 2020-21



Summary of Course "Problem Solving through Programming in C(noc21-cs01)"

2020-21

C is a programming language that is both versatile and popular, allowing it to be used in a vast array of applications and technologies. It can, for example, be used to write the code for operating systems, much more complex programs and everything in between. Its simplicity and flexibility are largely because it can function independently from machines, which has lent itself to becoming one of the foundational programming languages in the industry.

Acquiring an understanding of C will allow to easily learn and use a wide range of other programming languages that use C as their basis by borrowing the features and syntax used in C, such as Java and C++.

No. of Students Enrolled:434

No. of Students Certified:82

Outcome of the Course:

From this course students are enabled to formulate simple algorithms for arithmetic and logical problems and able to translate the algorithms to C programs. One can able to test and execute the programs and correct syntax and logical errors. It helps to implement conditional branching, iteration and recursion and learn use of arrays, pointers and structure to formulate algorithms and programs. One can apply programming to solve matrix addition and multiplication problems and searching and sorting problems and also to solve simple numerical method problems.

Summary of Advances in welding and joining technologies Course

The progress of several welding and joining processes is ever increasing with the development of new materials and their application in modern technologies. The micro joining and nano joining is even more challenging area with the development of miniature components. This course is primarily designed from fundamental understanding to the most recent advances in welding and joining technologies. The syllabus is oriented to the advancement of the joining technologies which is different from conventional welding and joining processes. The modules cover almost all the direction of joining technologies and it is blended with fundamental development to the recent technologies. Audience will be able to develop fundamental understanding on different perspective and recent development in this field through the lectures and reinforce their knowledge by solving assignments. This course is presented in a lucid and simplified way to make it enjoyable to the beginners.

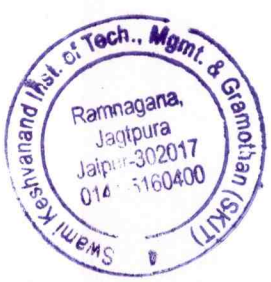
Student Enrolled: 05 Students

Certified: 04 Students

Outcomes of the Course:

After completion of the course, the students will be able to develop fundamental understanding on different perspective and recent development in this field of Advances in welding and joining technologies.

Year: 2020-21



Summary of Basics of Finite Element Analysis – I Course

This course is intended for all those who want to learn FEA from an application standpoint. Currently, many users of FEA have limited understanding of theoretical foundation of this powerful method. The consequence is that quite often they use commercial codes inaccurately, and do not realize that their results may be flawed. The course is intended to address this limitation by making the student aware of the underlying mathematics in easy to understand format. The course is open to all engineering students who have at the minimum successfully completed two years of their B. Tech (or equivalent) degrees. The course is also open to all professionals in industry who wish to learn fundamentals of FEA in a semi-formal but structured setting, and plan to use this knowledge in their workplace.

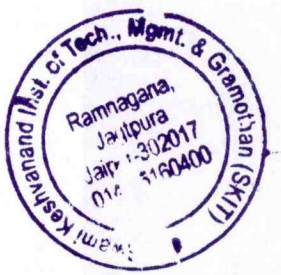
Student Enrolled: 01 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to develop fundamental understanding on different perspective of FEA.

Year: 2020-21



Summary of Course "Body language: Key to professional Success"

Course Code: noc21-hs93

Session: 2020-21

Body language plays a vital role in all formal contexts. The expanding trend of articulating views through vibrant participation in group discussions, power point presentations, team-based tasks, brainstorming and interviews, has made a good command over Body Language a mandatory skill. Whereas technical literacy is essential, it is a confident command over body language which gives an edge in today competitive arena. In all professional interactions, your body language is the only window to your attitudes and feelings; and therefore, it is always as important as your answers. The aim of this course is to impart sensitivity and precision to students understanding of body language so that in professional settings they can regulate their body language can successfully learn to control their hesitation, anxiety, and nervousness to come across as a more confident individual in all formal assessment situations.

No. of Students Enrolled: 19

No. of Students Certified: 1

Outcome of the Course:

- Student will be able to understand the body language to explain things
- Student can understand the certain gestures for more efficient communication.
- Student can understand the important to pay close attention to the effectiveness of your body language relative to what you are concentrating on conveying through it.

Summary of Building Materials and Composites

Students as a beginner in the trade of Architecture through this course will get exposed to the different materials used in building construction. Conventional materials would be discussed with an outline of its manufacturing or procuring process, properties, applications and simultaneously the alternative materials replacing them would be also covered. Several engineered materials have come up in use in the building industry as a substitute of the original material like engineered wood replacing wood or AAC and flyash bricks replacing clay bricks. A coverage on such alternate materials would be included. Large span and highrise structures use composite flooring system or steel for structural system, use of precast walling and flooring systems for fast delivery are other contents to expose students to other material applications in building industry. Finishes as in floors and walls like tiles, stone and clay tile cladding, paints and their appropriateness on different surfaces would be discussed. Nanotechnologies used in this trade would also be mentioned for specific materials stating their use. Specific ways of assembling different materials would also be highlighted to give consolidated knowledge to the students.

Student Enrolled: 3 Students

Student Certified: 3 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Evaluate financial evaluation of projects and project planning.
- Analyze the project scheduling.
- Analyze about the contract management.
- Understand about safety management

Year – 2020-21

Summary of Computer Graphics Course(noc21-cs97) 2020-21

Computer graphics is one of the fundamental aspects of any computing system. Its primary role is to render the digital content (0's and 1's) in a human-comprehensible form on the computer screen. The rendering follows a series of stages, collectively known as the graphics pipeline. In this course, we will introduce the pipeline and its stages. The topics covered include various object representation techniques followed by the pipeline stages of modeling transformation, 3D to 2D viewing transformation, clipping and hidden surface removal and scan conversion (rendering). We shall follow the stages of the 3D graphics pipeline. To complete the coverage, we shall also briefly introduce the present-day graphics hardware (I/O devices, GPU) and the widely popular openGL graphics library.

Student Enrolled: 28 Student

Student Certified: 5 Student

Outcome of the Course:

After completion of this course, students will be able to –

1. Understand and apply basics about computer graphics along with graphics standards.
2. Explain and analyses various algorithms to scan, convert the basic geometrical primitives, Area filling.
3. Explain, illustrate and design various algorithms for 2D transformations and clipping.
4. To understand the fundamentals concepts of parallel and perspective projections and evaluate various algorithms for 3D transformations.
5. Understand various color models in computer graphics system and develop animated motions through OpenGL

Summary of Course "Database Management Systems (noc21-cs58)"

2020-21

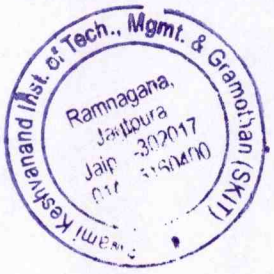
Databases form the backbone of all major applications today – tightly or loosely coupled, intranet or internet based, financial, social, administrative, and so on. Structured Database Management Systems (DBMS) based on relational and other models have long formed the basis for such databases. Consequently, Oracle, Microsoft SQL Server, Sybase etc. have emerged as leading commercial systems while MySQL, PostgreSQL etc. lead in open source and free domain. While DBMS's differ in the details, they share a common set of models, design paradigms and a Structured Query Language (SQL).

No. of Students Enrolled:101

No. of Students Certified:31

Outcome of the Course:

This course introduces the students to the various theoretical and practical principles involved in the design and use of databases systems with the help of database management systems (DBMS) and the SQL Standard.



Summary of Data Science for Engineers

Course (noc21-cs69)
2020-21

Introduction to Data Science for Engineers: Data science is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from structured and unstructured data, and apply knowledge and actionable insights from data across a broad range of application domains.

Student Enrolled: 21

Student Certified: 1

Outcome of the Course:

Learners will be able to describe a flow process for data science problems (Remembering) , classify data science problems into standard typology (Comprehension), develop R codes for data science solutions (Application), correlate results to the solution approach followed (Analysis), assess the solution approach (Evaluation), construct use cases to validate approach and identify modifications required (Creating).

Summary of Design for internet of Things

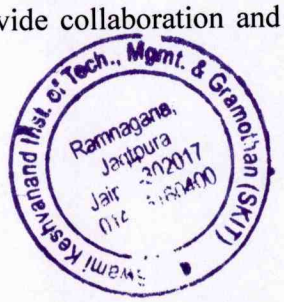
An overview of IOTs, design of smart objects that provide collaboration and ubiquitous services will be explored. Design for longevity/energy efficiency will be highlighted. Step by step system design will be introduced. Small video chips that will allow students to prototype will be displayed. At the end of the course, the student is expected to make the right choice of hardware, software and protocols for the proposed application.

Student Enrolled: 22

Student Certified: 2

Outcome of the Course:

Learning out Design for internet of Things will give the skills to make the right choice of hardware, software and protocols for the proposed application. In addition this course will provide the skills of IOTs, design of smart objects that provide collaboration and ubiquitous services



Year – 2020-21

Summary of Educational leadership

In the context of Global, Multicultural & Virtual work environments domain knowledge alone is not a sufficient guarantee for professional success. Since long we have been talking about organizational leadership or corporate leadership. In fact, leadership is an adjective mostly attached to the growth of industry. Rarely do we realize the importance of leadership in educational institutions. This course is designed to help the teaching/Academic professionals to understand how educational leadership can transform and enhance the effectiveness of educational institutions. This course intends to focus on academic community and to encourage individual members to develop various skills, competencies, abilities to enhance their leadership skills. It will also help them to develop awareness into their self-motivation, reflective practices, critical thinking, and positive plans of actions for enhancing their leadership impact and institutional effectiveness.

Student Enrolled: 5 Students

Student Certified: 2 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- After studying this course, you should be able to: discuss different views of leadership.
- The student demonstrates knowledge in relevant significant domains in educational leadership and higher education, including areas such as historical, political, social, legal, and economic contexts in which educational systems operate.

Year – 2020-21

Summary of Entrepreneurship and IP strategy Course (noc21-hs102)

To discuss intellectual property strategy to protect inventions and innovations of new ventures.

2. To develop skills of commercial appreciation by allocating knowledge about substantive aspects of management, strategy and legal literature.

3. The course will make participants appreciate the nature, scope and differences of IP, its different utilities and approaches

4. The course will make participants to manage and strategize IP lifecycle effectively throughout the journey of start-up, in a time when it is aspired highly by the economy and society.

5. Participants will learn the fundamentals and advanced strategies of IP. They will be given opportunity for understanding the same in MSME sector.

Student Enrolled: 6 Students

Certified: 4 Students

Outcomes of the Course:

After completion of the course, the students will be able to

- Understand the nature of entrepreneurship.
- Understand the function of the entrepreneur in the successful, commercial application of innovations.
- Gain an expansive and deep appreciation of entrepreneurship, and its pivotal role in the economy.
- Approach entrepreneurship with clarity and focus, and an enhanced understanding of the key success factors as well as possible risks and potential mitigation strategies.

Year: 2020-21

Summary of Financial Accounting

This course discusses basic concepts of financial accounting and reporting. The viewpoint is that of readers of financial reports rather than the accountants who prepare them. COURSE OBJECTIVES This course is designed with the following objectives: (i) Help the participants to become intelligent users of accounting information (a) Understand the basic accounting and financial terminology. (b) Understand how events affect firm value (c) Understand how financial transactions are recorded. (d) Make the participants' comfortable looking through financial statements (ii) Develop the ability in participants' to use financial statements to assess a company's performance

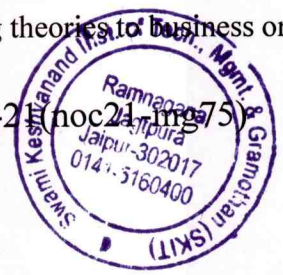
Student Enrolled: 3 Students

Student Certified: 1 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Develop an understanding of internal control issues and the effects of the regulatory environment on financial reporting.
- Apply knowledge of generally accepted accounting principles (GAAP) and managerial accounting theories to business organizations, state and local.



Year – 2020-21(noc21-mg75)

Summary of Hydration, Porosity & Strength of Cementitious Materials Course (noc21-ce66)

Session: 2020-21

Cement and concrete is the backbone of infrastructure development and it is important that engineers have a clear understanding of issues involved not only with cement, hydration and strength development, but also porosity, permeability and durability. With the basic framework using Ordinary Portland Cement, the course focuses on developing the subject in light of advances in chemical and mineral admixtures. Though the subject matter is approached from the point of view of the concrete science, the fact that paste made with OPC alone or in combination with other cementitious materials, is almost never used in the field is not light of. Illustrative examples from actual applications will be included to show the applications of the scientific principles.

Student Enrolled: 03 Students

Certified: 02 Students

Outcomes of the Course:

After completion of the course:

- Students will understand some of the basic properties of concrete.
- Students will understand an integral part of concrete, the combination of cement paste and cementitious materials.

Summary of Introduction to Operating System Course (noc21-cs72)

Session: **2020-21**

Introduction to Operating System: Operating systems (OS) provide the crucial interface between a computer's hardware and the applications that run on it. It allows us to write programs without bothering much about the hardware. It also ensures that the computer's resources such as its CPU, hard disk, and memory, are appropriately utilized. In this course, we dwell into how the OS manages to do all this in an efficient manner. This is an introductory course, for students with prior knowledge of computer organization. The course is based on an OS called xv6, which in many ways is similar to the Linux operating systems.

Student Enrolled: 18

Student Certified: 15

Outcome of the Course:

Learners will be able to understand the basic components of a computer operating system, and the interactions among the various components. Learner will be made aware of various aspects of operating system that are important for understanding overall functionality of system like scheduling, deadlocks, memory management, synchronization, system calls, and file systems.So this course will help learners in getting more knowledge and job opportunities.

Summary of Introduction to R Software

Any scientific task without the knowledge of software is difficult to imagine and complete in the current scenario. R is a free software that is capable of handling mathematical and statistical manipulations. It has its own programming language as well as built in functions to perform any specialized task. We intend to learn the basics of R software in this course.

Student Enrolled: 3 Students

Student Certified: 2 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Navigate and optimize the R integrated development environment (IDE) rstudio.
- Import external data into R for data processing and statistical analysis.
- Learn the main R data structures – vector and data frame.

Year – 2020-21(noc21-ma75)

Summary of Introduction to Smart Grid (noc21-ee68)

Smart grid can be defined as self-sufficient systems, which allows integration of any type, and any scale generation sources to the grid that reduces the workforce targeting sustainable, reliable, safe and quality electricity to all consumers. Associations of initial studies for the next step in smart grid applications will provide an economical benefit for the authorities in the long term and will help to establish standards to be compatible with every application. So that all smart grid applications can be coordinated under the control of same authorities. Even though these technological application studies constitute an initial step for the structure of the smart grid, they have not been fully accomplished in many countries. In this study, the introduction to smart grids is given as an overview.

Student Enrolled: 04 Students

Student Certified: 01 Student

Outcome of the Course:

- This course mainly focuses on background and fundamental building blocks of smart grid with stringent emphasis on practical applications in the existing power system network.
- This course provides overview of smart grid and its potential in different types of power sectors such as power generation, transmission and distribution in Metro, Urban/Semi urban and remote locations of India.
- This also emphasizes on renewable energy source integration in present grids as well as in micro,

Summary of Manufacturing Strategy

The aim of this course is to provide a treatment to manufacturing functions to gain competitive advantage. Normally, operation activities are considered reactive in nature. Therefore, organizations are not able to use operation function for competitiveness. W. Skinner wrote the seminal article in HBR in 1969 to highlight the role of manufacturing in corporate strategy. This course will discuss the process of formulation of manufacturing strategy and will also discuss various tools and techniques for making a world class organization. This course will have a right blend of theory and case discussions.

Student Enrolled: 2 Students

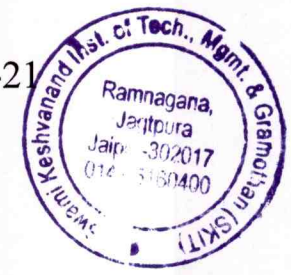
Student Certified: 2 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- The course provides knowledge about manufacturing strategy, and how such strategies can be developed for global enterprises.
- The course will provide skills to establish, structure, and manage global manufacturing enterprises in such a way that the overall competitiveness is improved.

Year – 2020-21



Summary of Course "Object Oriented Analysis and Design (noc21-cs57)"

Session: 2020-21

The complexity of software systems is ever on the rise – more complex problem domains being attempted (complex embedded systems), ever growing number of developers engaged in increasingly intricate development processes to turnaround in shorter and shorter time, flexibility of software and models of implementation being stretched to the limit with XaaS, platforms getting challenging with widely expanding distribution, cloud computation etc. Hence the analysis and design of software require well-organized and structured approaches to manage the challenges of complexity – even more than ever before.

Over the past two decades, methods of Object-Oriented Analysis, Design and Programming have proved to be effective solutions in handling the inherent complexity of software design, development, testing and maintenance. Concepts of OOAD like Abstraction, Encapsulation, Modularity, Hierarchy, Object, State, Behaviour, Identity, Class, Operation, Interface, Inheritance, Association, Aggregation, Decomposition, Use-case, etc. have become the lingua franca for the software developers; ubiquitous notation of UML (Unified Modelling Language) has firmly established itself as the vehicular language for design; and many object-based as well as object-oriented languages have become available and have been widely adopted (based on TIOBE Index for May 2019) – Java (16%), C++ (8%), Python (8%), VB / VB.NET (5.5%), C# (4%), Perl (1.5%), Ruby (1.5%), Objective-C (1.5%), Delphi/Object Pascal (1.5%), D (1%) – to name a few. Even out of C (14%) developers, a large section today adheres to OOAD / OOP principles in design and discipline.

No. of Students Enrolled:4

No. of Students Certified:1

Outcome of the Course:

This course introduces OOAD grounds up – starting with breaking down the root causes of inherent software complexity. After an in-depth exposure to Object Models, Classes and their interactions, the course takes a thorough tour of the diagrams of UML 2.0. Several systems examples help students understand the concept and tutorials offer quick practice

Summary of Power Plant Engineering Course

This Course provides a simple understanding of the power plant engineering. The course contains the details of steam and gas thermal power plants, hydro power plants, nuclear power plants, along with solar, wind and geothermal energy power systems in addition to the direct energy conversion. The economics of power generation and the environmental aspect of power generation are also being addressed in this course.

Student Enrolled: 03 Students

Certified: 01 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain the components and working of different types of power plants.

Year: 2020-21 (noc21-me86)

Summary of Principles and Applications of Building Science

Design and construction professionals require a command on fundamental principles of building physics to ensure functional efficiency in the built environments. The course provides a one-stop solution to design/construction industry professionals, students of architecture and engineering disciplines to understand these principles and learn their practical applications. The course comprises of 10 modules which cover climate responsive design of buildings, thermal comfort, and energy efficiency, building acoustics and noise control and visual quality and day lighting. The participants will engage in a series of experiential learning modules - involving basic tutorials, animated examples, applied case studies and do-it-yourself exercises.

Student Enrolled: 2 Students

Student Certified: 1 Students

Year – 2020-21

Summary of Course "Programming in C++ (noc21-cs55)"

Session: 2020-21

C++ is a powerful general-purpose programming language. It can be used to develop operating systems, browsers, games, and so on. C++ supports different ways of programming like procedural, object-oriented, functional, and so on. This makes C++ powerful as well as flexible.

C++ is still readily used in programming today. Despite the advent of popular object-oriented programming languages like Python, C++ continues to have a dedicated space in the tech world. C++ is still the go to language for solutions that need fast machine performance. AAA video games, IoT, embedded systems, and resource-heavy VR and AI applications all run on C or C++.

No. of Students Enrolled:112

No. of Students Certified:22

Outcome of the Course:

This course builds up on the knowledge of C programming and basic data structure (array, list, stack, queue, binary tree etc.) to create a strong familiarity with C++98 and C++03. Besides the constructs, syntax and semantics of C++ (over C), it also focusses on various idioms of C++ and attempt to go to depth with every C++ feature justifying and illustrating them with several examples and assignment problems. On the way, it illustrates various OOAD (Object-Oriented Analysis and Design) and OOP (Object-Oriented Programming) concepts.

While this course can be understood independently, it would help in developing understanding in OOP.

Summary of Programming, Data Structures and Algorithms using Python NPTEL Course (noc21-cs67)

Session: 2020-21

Programming, Data Structures and Algorithms using Python: Data Structure can be defined as the group of data elements which provides an efficient way of storing and organizing data in the computer so that it can be used efficiently. Examples of Data Structures are arrays, Linked List, Stack, Queue, etc. Data Structures are the main part of many computer science algorithms as they enable the programmers to handle the data in an efficient way. Data structures can be educated using any of the different programming languages available today. Python provides several benefits over other languages such as C++ and Java, the most important of which is that Python has a simple syntax that is easier to learn. Mostly Python language is used for introducing participants to programming and problem solving.

Student Enrolled: 54

Student Certified: 8

Outcome of the Course- This course builds up basic concepts such as conditionals, loops, functions, lists, strings, tuples searching and sorting algorithms, dynamic programming and backtracking, as well as exception handling, Python dictionaries as well as classes and objects for defining user defined data types such as linked lists and binary search trees. Participants will learn to Store data as key/value pairs using Python dictionaries, accomplish multi-step tasks like sorting or looping using tuples, create programs that are able to read and write data from files

Swami Keshvanand Inst. of Tech., Mgmt. & Gramothan (SKIT)
Ramnagaria, Jagatpura
Jaipur-302017
0141-5160400

Summary of Project Planning and Control

The Participant will learn and understand basic concepts in Project Planning and Control with a focus on construction projects.

Student Enrolled: 4 Students

Student Certified: 2 Students

Outcome of the Course:

On completion of this course, the Participants will be able to

- Evaluate financial evaluation of projects and project planning.
- Analyze the project scheduling.
- Analyze about the contract management.
- Understand about safety management

Year – 2020-21

Summary of Python for data science NPTEL Course (noc21-cs-78)

Session: 2020-21

Python for data science: Data science is basically the science of analysing raw data and deriving insights from this data. There are multiple techniques to derive insights, a simple statistical technique, a more complicated and more sophisticated machine learning techniques etc. The key focus of data science is deriving these insights using whatever techniques we want to use.

Student Enrolled: 23

Student Certified: 2

Outcome of the Course-

The course aims at equipping participants to be able to use python programming for solving data science problems, to enable to learn Data Science concepts from scratch. Participants understand important Python programming concepts such as data operations, file operations, object-oriented programming and various Python libraries such as Pandas, NumPy, Matplotlib essential for Data Science. This course will make understand the various types of Machine Learning, Recommendation Systems and many more Data Science concepts, to help to get started with Data Science career. Participants Learn to apply data science methods and techniques and acquire analysis skills.

Summary of Remote Sensing and GIS Course

The proposed course provides basic understanding about satellite based Remote Sensing and Digital Image Processing technologies. Presently, remote sensing datasets available from various earth orbiting satellites are being used extensively in various domains including in civil engineering, water resources, earth sciences, transportation engineering, navigation etc. Google Earth has further made access to high spatial resolution remote sensing data available to non-experts with great ease. Knowledge of Digital Image Processing of satellite data allows to process raw satellite images for various applications.

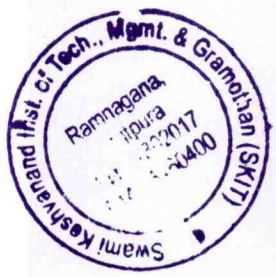
Student Enrolled: 7 Students

Certified: 2 Students

Outcomes of the Course:

- Explain and communicate the concept of various kind of maps and geospatial data.
- Develop, edit and update geospatial data.
- Create digital maps, apply projections and other characteristics of mapping.
- Integrate various kind of data from various sources and analyse the same using GIS concept and tools.

Year: 2020-21



Summary of Introduction to Robotics Course (noc21-me76)

This course is a bridge-course for students from various disciplines to get the basic understanding of robotics. The mechanical, electrical, and computer science aspects of robotics is covered in this introductory course.

Student Enrolled: 09 Students

Certified: 04 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain interdisciplinary concepts of robotics.

Year: 2020-21

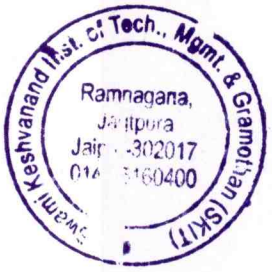
Summary of Role of Craft and Technology in Interior - Architecture

This course is very crucial as it focuses on trans-disciplinary research, emphasizing on the role of Craft & Technology in the discipline of Interior-Architecture. In the current decade which focuses on trans-disciplinarity and innovation, a course like this shall be very useful for a wide audience hailing from different disciplines such as art; craft; architecture; design; and creative industries. Moreover, such a course is very much in line with the MHRD initiatives like SANDHI and Design Hub, where the focus is on amalgamation of Art, Science and Technology. It has multifold objectives: a) To understand the definition and scope of Interior-Architecture and Craft & Technology. b) To document and disseminate the role of Craft & Technology in Interior-Architecture through state-of-the-art literature, best studies, and case studies. c) To create awareness and exposure for skill-based knowledge systems. d) To establish link between tradition and continuity. e) To develop new paradigms of pedagogy and practice in the field of Interior-Architecture and Craft & Technology

Student Enrolled: 1 Students

Student Certified: 1 Students

Year – 2020-21



Summary of System Design Through VERILOG

A comprehensive resource on Verilog HDL for beginners and experts large and complicated digital circuits can be incorporated into hardware by using Verilog, a hardware description language (HDL). A designer aspiring to master this versatile language must first become familiar with its constructs, practice their use in real applications, and apply them in combinations to be successful. Design Through Verilog HDL affords novices the opportunity to perform all these tasks, while also offering seasoned professionals a comprehensive resource on this dynamic tool.

Student Enrolled: 6 Students

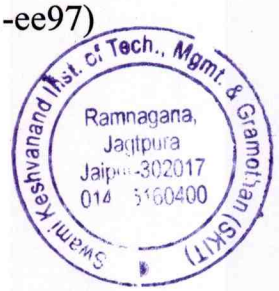
Student Certified: 1 Students

Outcome of the Course:

After studying this course, students will be able to:

- Construct the combinational circuits, using discrete gates and programmable logic devices.
- Describe Verilog model for sequential circuits and test pattern generation.
- Design a semiconductor memory for specific chip design.

Session – 2020-21 (noc21-ee97)



Summary of Theory of Computation

NPTEL Course(noc21-cs83)

Session: (2020-21)

Theory of Computation: Automata Theory is a branch of computer science that deals with designing abstract self-propelled computing devices that follow a predetermined sequence of operations automatically. An automaton with a finite number of states is called a Finite Automaton. This is a brief and concise tutorial that introduces the fundamental concepts of Finite Automata, Regular Languages, and Pushdown Automata before moving onto Turing machines and Decidability.

Student Enrolled: 17

Student Certified: 1

Outcome of the Course- able to design Finite Automata machines for given problems; able to analyze a given Finite Automata machine and find out its Language; able to design Pushdown Automata machine for given CF language(s); able to generate the strings/sentences of a given context-free languages using its grammar; able to design Turing machines for given any computational problem.