Swami Keshvanand Institute of Technology,
Management & Gramothan

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1.2.2 Summary Sheet of Add-on Courses (2021-22)

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Summary of PHP and MySQL Spoken Tutorial Course

PHP: Hyper text processor is a widely used Open-Source general-purpose scripting language that is specially suit for web development and can be embedded into HTML. The Main goal of the language is to allow web developers to write dynamically generated web pages quickly. MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a few databases.

Student Enrolled: 93

Student Certified:79

Outcome of the Course:

World leading social networking site, has a huge code based on PHP and it uses MySQL as database to store the information of user. Many free and open-source CMS like Drupal, Moodie etc. ate created using PHP and MySQL. So, this course is also helpful for web development by free-lances developers.

Summary of C++ Spoken Tutorial Course

C++: C++ is a cross-platform language that can be used to create high-performance applications. It gives programmers a high level of control over system resources and memory. It is an object-oriented programming language which gives a clear structure to programs and allows code to be reused, lowering development costs. It is portable and can be used to develop applications that can be adapted to multiple platforms. C++ is a middle-level language rendering it the advantage of programming low-level (drivers, kernels) and even higher-level applications (games, GUI, desktop apps etc.).

Student Enrolled: 104

Student Certified: 92

Outcome of the Course-C++ plays quite an integral role in modern times as many contemporary systems such as operating systems, web browsers, databases, etc. have C++ code in at least some part of their codebase. Moreover, C++ is quite useful in performance critical areas because of its speed. C++ is a programming language that is used in everyday life. It is an object-oriented language and all the features of C programming language are used here. This is used for games, operating systems, autonomous cars as well as medical technology. C++ Developers are quite sought after and they hold some of the most high-paying jobs in the industry .

Summary of Java Spoken Tutorial Course

Java: With the growth of Information and Communication Technology, there is a need to develop large and complex software. Further, that 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. This course aims to cover the essential topics of Java programming so that the participants can improve their skills to cope with the current demand of IT industries and solve many problems in their own filed of studies.

Student Enrolled: 102

Student Certified: 84

Outcome of the Course- Java is so fundamental that all companies dealing with systems as well as application development (including web, IoT, embedded systems, data mining, machine learning) have a need for the same. These include – Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc. Upon successful completion of this course, students will be Familiar with Java Programming Features, Java Programming Tools, Application versus Applet, Access Modifiers in Java, Basics of JDBC Driver and Jframe.

Summary of LaTeX Spoken Tutorial Course

LaTeX: LaTeX is most commonly used to create documents for academia, such as academic journals. In LaTeX, the author doesn't stylize the document directly, like in a word processor such as Microsoft Word, LibreOffice Writer, or Apple Pages; instead they write code in plain text that must be compiled to produce a PDF document.

Student Enrolled: 93

Student Certified: 64

Outcome of the Course- Latex is used to write documents containing mathematical formulas, articles in different journal styles, Drawing graphs and figures, Preparing presentation, write mathematical documents etc. So this course is also helpful creating documents using plain text, stylized using markup tags, similar to HTML/CSS or Markdown.

Summary of Introduction to Smart Grid

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 and nano-grids as part of the course and explores its issues in operation, analysis, management, control, protection and monitoring. In addition to it, this further provides detailed utility level analysis in terms of energy management, network analysis and operation of renewable based smart grids.

Student Enrolled: 4 Students

Certified: 1Student

Outcomes of the Course:

Understand issues, opportunities & challenges in Smart grid Develop skills required for smart grid planning & formulation of regulations. Understand Power distribution sector framework in India and its comparison globally. Learn processes for execution and control of regulation in power distribution business in India. Appreciate and evaluate the power sector in India for betterment i.e. recommendation for amendments if any.

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: 1033 Student

Student Certified: 1033 Student

Session: 2021-22

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 Python Spoken Tutorial Course

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: 102

Student Certified: 99

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 Design Practice – II Course

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: 5 Students

Students Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to explain about Geometrical Transformations, create forms and their geometric transformation models and explain Micro-electro Mechanical Systems (MEMS), Rapid Prototyping (3-D printing)/ Rapid tooling etc.

Summary of Engineering Metrology Course

Engineering metrology is the use of measurement science in manufacturing. The study of metrology is highly valuable for the students and practitioners, specifically from mechanical and allied engineering stream. For a product to be successful, it needs to be manufactured according to metrological specifications, otherwise heavy costs are incurred to comply with the specifications in the later stage. Also, the role played by measurements in the day today life makes it essential to study metrology. A laboratory demonstration is also induced to enhance the learning process. The course would be useful in many areas in the traditional and modern high technology viz. manufacturing, industrial, scientific research, defense, and many others.

Student Enrolled: 2 Students

Students Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to develop measurement procedures, conduct metrological experiments, and obtain and interpret the results using various instruments such as Comparators, Transducers, Screw threads etc.

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 semiformal but structured setting, and plan to use this knowledge in their workplace.
Student Enrolled: 2 Students

Students Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to explain the applied mathematics behind FEA, and apply this concept for modelling of heat transfer, solid mechanics problems.

Summary of Basics of Materials Engineering Course

The objective of this course is to introduce the basic concepts of materials science and failure theories for design to undergraduate mechanical engineering students. The course is a first level course and hence various concepts such as structure of crystalline materials, defects and their implications to mechanical behavior, the processing of materials through phase diagrams, a detailed discussion on iron-iron carbide equilibrium diagram and heat treatment of steels will be introduced at the introductory level.

Student Enrolled: 25 Students

Students Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to explain structure of crystalline materials, defects and their implications to mechanical behaviour and also explain the various types of failures with associated theories.

Summary of Applied Thermodynamics Course

"Applied Thermodynamics" is a topic of fundamental interest to Mechanical Engineering and Energy Engineering disciplines. The lectures are devoted towards basic engineering thermodynamic fundamentals. The syllabus is framed with respect to guidelines of "Mechanical/Energy Engineering" UG course curriculum for respective engineering disciplines across the country. The methodical online teaching, problem solving approach and online evaluation will help the candidate for credit transfer for their course curriculum.

Student Enrolled: 11 Students

Students Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain theoretical and thermodynamic background for steam and gas power cycle, refrigeration cycle, psychometric principles, internal combustion engine and gas turbine engine cycles, aircraft and rocket propulsion cycles.

Summary of Automation in Manufacturing Course

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: 27 Students

Students Certified: 8 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain principle of operation and construction details of sensors/transducers, actuators, drives and mechanisms, hydraulic and pneumatic systems and understand the applications of automation in real-life with case studies.

Summary of Engineering Drawing and Computer Graphics Course

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: 14 Students

Students Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will develop skills on understanding of engineering drawings used in industries - computer design and development of 3D objects - exposure to visual aspects of technical drawings

Summary of Engineering Graphics and Design Course

All engineering activities (design/ manufacturing/ operation/ servicing) for any product from any discipline involve a team of people who communicate graphically. Hence, every engineer must have exposure and some competence in presenting ideas as pictures, and be able to unambiguously interpret drawing from others.

Student Enrolled: 43 Students

Students Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will gain the skills to develop basic visualization competency as well as ability to representing ideas on both paper and computer related to engineering graphics and design.

Summary of Engineering Mechanics Course

This is a basic first level course to learn rigid body mechanics covering both statics and dynamics. Statics covers free body diagrams, equilibrium of rigid bodies, analysis of trusses and beams, discussion on friction, virtual work and stability. Dynamics deals with general plane motion of rigid bodies, use of translating and rotating frames of reference for analysis, plane kinetics and 3D kinematics

Student Enrolled: 11 Students

Students Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand the force systems, draw free body diagram, analyse the trusses, beams, etc. and use the concept of translating and rotating frames of reference for analysis of various mechanic's systems.

Summary of Manufacturing Systems 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. 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 in the last 3 decades.

Student Enrolled: 11 Students

Students Certified: 4 Students

Outcomes of the Course:

After completion of the course, the students will be able to define properties of materials, explain Principles and process planning of basic machining processes, Computer aided process planning, CNC part programming, Product design, Robotic systems planning and designing.

Summary of Concepts of Thermodynamics Course

Thermodynamics is the basic building block of all of modern day industries (power generation, iron and steel, food processing etc.) and human convenience (refrigeration, engines, air conditioning etc.). Understanding and applying various ideas of thermodynamics is therefore at the heart of progress in science and engineering. The course aims at building strong fundamentals of work and heat interactions for various systems. Through various examples, the ideas of several industrial components and power/refrigeration cycles are further elucidated by addressing the prob-lems from first principles. The ideas are extended to real systems where exergy or equivalently, the availability of a state is analyzed to give a feel of real problems to the students. Uniqueness of this course is a delicate balance between fundamental concepts and applications, in a manner consistent with the recently proposed AICTE Model Curriculum guidelines.

Student Enrolled: 32 Students

Students Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand the basic thermal science applied for refrigeration, engines, air conditioning etc.

Summary of Robotics Course

The course will start with a brief introduction to robots and robotics. The motivation behind keeping robots in modern industries will be discussed. After providing a brief history of robotics, different components of a robotic system will be identified. The method of determining degrees of freedom of a robotic system will be discussed with some examples. After classifying the robots based on certain criteria, workspace analysis of manipulators will be carried out. Applications of robots in different areas like in manufacturing units, medical science, space, and others, will be discussed. Various methods of robot teaching will be explained with some suitable examples. Economic analysis will be conducted to decide whether we should purchase a robot. Both forward and inverse kinematics problems will be solved with the help of some suitable examples. To ensure smooth variation of joint angles of the robot, trajectory planning schemes will be explained. After carrying out velocity analysis with the help of Jacobian matrix, inverse dynamics problems of robots will be solved using Lagrange-Euler formulation. Control scheme used in robots to realize the joint torques will be discussed. Besides manipulators, analysis will be carried out on wheeled and multi-legged robots. The working principles of various sensors used in robots will be explained in detail. The steps to be followed in robot vision will be discussed with some suitable examples. The principles of motion planning algorithms will be explained in detail. Thus, this course will deal with all the issues related to kinematics, dynamics, control schemes and robot intelligence.

Student Enrolled: 32 Students

Students Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will to explain the concepts related to Robotics, and demonstrate the use of Robot Kinematics and dynamics in real-world 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 microjoining and nanojoining 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: 11 Students

Students Certified: 4 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain the process of joining of materials using laser, electron beam welding, Microjoining and nanojoining.

Summary of Introduction to Japanese Language and Culture

Course

ABOUT THE COURSE:The material is designed for people who wish to have a reasonable working knowledge of written and spoken Japanese, which will help them interact better with the Japanese people and companies in their personal and/or professional life. Also, people travelling to Japan for training, education, business, tourism, etc. will find the course useful. INTENDED AUDIENCE: The material is designed for people who plan to develop a working knowledge of Japanese, which will help them interact better with the Japanese people.

Student Enrolled: 7 Students

Certified: 1Students

Outcomes of the Course:

After completion of the course, the students will have understanding Japanese Language has been taught as part of the Foreign Language Programme at IIT Kanpur since July 1995. With increasing technical and economic ties between India and Japan, more Japanese companies are doing business in India and vice versa. This gives rise to the urgent need for more Indians to learn at least the rudiments of Japanese for their professional advancement.This course has been designed with the above background and keeping in mind the requirements of Level's 5 of the 'Japanese Language Proficiency Test', held by Japan Foundation.

Summary of Environment and Development

Course

Progress on the environment-related Sustainable Development Goals has lagged in Asia and the Pacific, and environmental degradation and the risks to human health have continued to increase since the adoption of the 2030 Agenda for Sustainable Development and the Paris Agreement. At the same time, the coronavirus disease has further exposed the fragilities of the system and emphasized the urgency of restoring a sustainable relationship between nature and human societies. As we support the development of member States in Asia and the Pacific to achieve the 2030 Agenda, we promote raising climate ambition, safeguarding natural resources, protecting the Ocean, pursuing clean air for all and cities for a sustainable future.

Student Enrolled: 179 Students

Certified: 59Students

Outcomes of the Course:

After completion of the course, the students will have environmental knowledge pertaining to sustainable development. The course analyses the reciprocal interaction between the physical environment, the social organization and human behaviour in the context of development. The course will introduce students with an overview of environmental ethics, debates and change and to facilitate their understanding and analysis of the inter-relationship between environment and development issues and apply them to their own experience and work. To enhance the students' knowledge of the nature of and underlying causes of the most pressing environmental concerns and to understand how these impact on the lives and livelihoods of the local community. To look at the possibilities for environmental regeneration providing an analysis of case studies of local sustainable development initiatives and community based natural resource management. After the successful completion of the course the students will be able to comprehend the complexity and various forms and dimensions of development and environment issues and ground them in current issues and real life experiences.

Summary of Introduction To R Software

Course

R is an open-source programming language that is widely used as a statistical software and data analysis tool. R generally comes with the Command-line interface. R is available across widely used platforms like Windows, Linux, and macOS. Also, the R programming language is the latest cutting-edge tool.

It was designed by **Ross Ihaka and Robert Gentleman** at the University of Auckland, New Zealand, and is currently developed by the R Development Core Team. R programming language is an implementation of the S programming language. It also combines with lexical scoping semantics inspired by Scheme. Moreover, the project conceives in 1992, with an initial version released in 1995 and a stable beta version in 2000.

Student Enrolled: 2 Students

Certified: 2Students

Outcomes of the Course:

After completion of the course, the students will have understanding 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.

Summary of Engineering Mathematics - I

Course

Engineering mathematics is **the art of applying maths to complex real-world problems; combining mathematical theory, practical engineering and scientific computing to address today's technological challenges**.

The key technical skill of an engineering mathematician is mathematical modelling. Problem solving of this kind is best learnt by hands-on experience, so that's how we teach it: using case-study applications spanning engineering, the life sciences, medicine, climate science, energy, data science, robotics and more. Mathematical modelling units feature in all our degree programmes. In these you'll work in teams to tackle challenging, open-ended problems, putting theory into practice.

Student Enrolled: 79 Students

Certified: 4Students

Outcomes of the Course:

After completion of the course, the students will have understanding 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.

Summary of Introduction to Abstract and Linear Algebra

Course

Linear and abstract algebra is **one of the cornerstones of mathematics** and it is at the heart of many applications of mathematics and statistics in the sciences and engineering. This unit is an advanced version of MATH2022, with more emphasis on the underlying concepts and on mathematical rigour

Student Enrolled: 20 Students

Certified: 3Students

Outcomes of the Course:

After completion of the course, the students will have understanding Abstract and Linear Algebra are applicable to every discipline, be it engineering and technology, economics or social sciences. It is essential for the students to get acquainted with the subject of Abstract and Linear Algebra at an early stage. The present course has been designed to introduce the subject to undergraduate/postgraduate students in science and engineering. The course contains a good introduction to each topic and an advance treatment of theory at a fairly understandable level to the students at this stage.

Summary of Body language: Key to professional Success

Course

Body language plays a vital role in all formal contexts. The expanding trend of articulating views through vibrant participation in group discussions, PowerPoint 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's 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.

Student Enrolled:29 Students

Certified: 1 Students

Outcomes of the Course:

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, brain storming 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..

Summary of Automation in Production Systems and Management

Course

The automated elements of the production system can be separated into two categories: (1) automation of the manufacturing systems in the factory and (2) computerization of the manufacturing support systems. In modern production systems, the two categories overlap to some extent, because the automated manufacturing systems operating on the factory floor are themselves often implemented by computer systems and connected to the computerized manufacturing support systems and management information system operating at the plant and enterprise levels. The term computerintegrated manufacturing is used to indicate this extensive use of computers in production systems.

Student Enrolled: 4Students

Certified: 1Students

Outcomes of the Course:

After completion of the course, the students will have understanding basic introduce the fundamentals of automation in manufacturing systems with major emphasis on application of the state-of-the-art techniques and processes so as to achieve the best possible planning and control in a manufacturing and production environment. The knowledge in the topics as mentioned in the course outline is essential to achieve this objective. The course is intended to be designed for creating a knowledge-base of the state-of-the-art manufacturing systems particularly in designing and developing automated systems and sub-systems. The course is designed to teach the basic concepts, and tools and techniques and methods employed in the broad area of automation of manufacturing and production, in general, and computer-based numerical control, flexible manufacturing system, process planning in manufacturing, in particular, to the students at the undergraduate and post-graduate levels.

Summary of Managerial Economics

Course

Managerial Economics can be defined as amalgamation of economic theory with business practices so as to ease decision-making and future planning by management.

Managerial Economics assists the managers of a firm in a rational solution of obstacles faced in the firm's activities. It makes use of economic theory and concepts. It helps in formulating logical managerial decisions.

Student Enrolled: 12 Students

Certified: 1Students

Outcomes of the Course:

This course will introduce the students to different concepts, theories, tools and schools of thoughts in economics and their application on business decision/research problem. All functional areas of management derive their basic principles and concepts from economics. The objective of this course is to acquaint students with basic tools and concepts of micro economic analysis and their application to managerial decision making. This course will enable students to analyze firm-level economic problems and to take informed and optimal decisions subject to various constraints and objectives.

linux

Summary of Linux Spoken Tutorial Course

Linux: Linux is a community of open-source Unix like operating systems that are based on the Linux Kernel. It is used in other machines like servers, mainframe computers, supercomputers, embedded systems like routers, automation controls, televisions, digital video recorders, video game consoles, smartwatches, etc. Android (operating system) is based on the Linux kernel that is running on smartphones and tablets. Due to android Linux has the largest installed base of all general-purpose operating systems. Linux is generally packaged in a Linux distribution.

Student Enrolled: 103

Student Certified: 88

Outcome of the Course- Linux is open-source software. The code used to create Linux is free and available to the public to view, edit, and for users with the appropriate skills to contribute to. This course will prepare students to work comfortably and productively in open-source development communities and Linux environments, to learn to develop software for Linux/UNIX systems, to understand the inner workings of UNIX-like operating systems etc.

Summary of Principles of Management

Course

Any organization that wishes to be efficient and achieve its goals needs good management. Management has four basic functions - planning, organizing, leading, and controlling, also called the POLC framework in management. Without these in place, there would be little to no structure and focus in an organization. One classic theory on the principles of management was written by Henri Fayol in his 1916 book, "Administration Industrielle et Générale". By placing the focus on managerial skills over technical skills, these principles give us a foundation for what we call "good management".

Student Enrolled: 11 Students

Certified: 2Students

Outcomes of the Course:

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

Summary of Financial Derivatives & Risk Management

Course

Market deregulation, growth in global trade, and continuing technological developments have revolutionized the financial marketplace during the past two decades. A by-product of this revolution is increased market volatility, which has led to a corresponding increase in demand for risk management products. This demand is reflected in the growth of financial derivatives from the standardized futures and options products of the 1970s to the wide spectrum of over-the-counter (OTC) products offered and sold in the 1990s. Many products and instruments are often described as derivatives by the financial press and market participants. In this guidance, financial derivatives are broadly defined as instruments that primarily derive their value from the performance of underlying interest or foreign exchange rates, equity, or commodity prices.

Student Enrolled: 2 Students

Certified: 1Students

Outcomes of the Course:

After completion of the course, the students will have understanding basic Regulatory reforms across the world are gradually being introduced to reduce trade impediments between nations and usher in free market based pricing. Cross border investments through direct/portfolio routes are also being enticed as a medium for funding of growth and developmental activities. In addition, the governments of developing nations continue to pursue their strategy of partial privatization of the frontier sectors in an attempt to raise revenues for the exchequer as well as reduce operational losses with increased efficiency. Under these stimuli, scientific risk management by the investor fraternity becomes of cardinal necessity for generating competitive returns and surviving in the marketplace. Derivatives have proven to be immensely useful in the management of financial risk. Their vitality can be gauged from the exponential growth in trading volumes as well as the advent of new structured products literally on a day to day basis. Derivatives in petroleum and natural gas industries in the United States are, now, well entrenched, and they are being extensively used in the electricity industry as well.

Summary of Organizational Behaviour

Course

The study of organizational behavior includes areas of research dedicated to improving job performance, increasing job satisfaction, promoting innovation, and encouraging leadership. Each has its own recommended actions, such as reorganizing groups, modifying compensation structures, or changing methods of performance evaluation.

Student Enrolled: 8 Students

Certified: 6Students

Outcomes of the Course:

After completion of the course, the students will have understanding Work is an inherent part of human behaviour. Most adults spend at least 30 percent of their life time in their work place and/or in work related activities. Like in any other context, human behaviour in the organizational and work context is a complex phenomenon. Individual behaviour at work is a result of interaction between various individual, group and organizational level factors. Understanding how individuals and groups behave at work place will not only help improve their effectiveness but also nurture the quality of work life of the individuals. This course will help students to be cognizant of these work place dynamics so that they make conscious decisions in their future work life as well as long term career.

Summary of Financial Accounting

Course

Financial accounting is a specific branch of accounting involving a process of recording, summarizing, and reporting the myriad of transactions resulting from business operations over a period of time. These transactions are summarized in the preparation of financial statements, including the balance sheet, income statement and cash flow statement, that record the company's operating performance over a specified period.

Student Enrolled: 4 Students

Certified: 1Students

Outcomes of the Course:

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

Summary of Toyota Production System

Course

Toyota Motor Corporation's vehicle production system is a way of making things that is sometimes referred to as a "lean manufacturing system," or a "Just-in-Time (JIT) system," and has come to be well known and studied worldwide.

This production control system was established based on many years of continuous improvements, with the objective of making the vehicles ordered by customers in the quickest and most efficient way, in order to deliver the vehicles as swiftly as possible. The Toyota Production System (TPS) was established based on two concepts: "jidoka" (which can be loosely translated as "automation with a human touch"), as when a problem occurs, the equipment stops immediately, preventing defective products from being produced; and the "Just-in-Time" concept, in which each process produces only what is needed for the next process in a continuous flow.

Student Enrolled: 5 Students

Certified: 1Students

Outcomes of the Course:

After completion of the course, the students will have understanding Manufacturing is one of the important activity for wealth generation. Countries like China, Thailand, Vietnam etc are creating an enabling environment for developing these nations as major industrial ones. Therefore, there is an increasing interest in manufacturing activities. Toyota car company at Japan is a very interesting case study to learn many things to make manufacturing competitive. Toyota consistently raises the bar for manufacturing, product development, and process excellence. The result is an amazing business success story: steadily taking market share from price cutting competitors, earning far more profit than any other automaker, and winning the praise of business leaders worldwide.

The proposed course will discuss various aspects of Toyota's approach and will also focus to achieve sustainability through excellence in operations

Summary of Manufacturing Strategy

Course

Although management and marketing play a major role in any company's success, manufacturing strategies can mean the difference between success and failure for many corporations. Companies must develop a manufacturing strategy that plays up their strengths and pits them competitively in their market. Developing a manufacturing strategy that suits a company's strengths is essential not only to maintain the supply chain to customers, but to ensure the company remains competitive within its market.

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Student Enrolled: 3 Students

Certified: 2Students

Outcomes of the Course:

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 artivle 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.

Summary of Innovation, Business Models and Entrepreneurship

Course

Building on a case study of an entrepreneurial venture, we investigate the role played by business models in the innovation process. Rather than debating their accuracy and efficiency, we adopt a pragmatic approach to business models — we examine them as market devices, focusing on their materiality, use and dynamics. Taking into account the variety of its forms, which range from corporate presentations to business plans, we show that the business model is a narrative and calculative device that allows entrepreneurs to explore a market and plays a performative role by contributing to the construction of the techno-economic network of an innovation.

Student Enrolled: 4 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will have understanding **"Innovation, Business Models and Entrepreneurship"**, is designed to give an in-depth understanding on various aspects of innovation, creativity, evolving business models, incubation and entrepreneurship. The course also includes sessions on blue ocean strategy and technology incubation which are proving as game changer in today's competitive scenario. Course also deals with role of IPR and IP management in innovation management. The course is a blend of theory and practice therefore this course does not require any prerequisite and will be useful to understand innovation and its applications in different spheres of development and growth.

Summary of Ethics in Engineering Practice

Course

Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.

Student Enrolled: 44 Students

Certified: 1Students

Outcomes of the Course:

After completion of the course, the students will have understanding 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.

Summary of Python for data science NPTELCourse(noc22-cs32) (2021-22)

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: 62

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 "Introduction to internet of things" Course (noc22-cs53) (2021-22)

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 device's function.

Student Enrolled: 88 Student

Student Certified: 5 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 Data Base Management System course(noc22-cs51))(2021-22)

Data Base Management System: 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.

Student Enrolled: 172 Students

Student Certified: 15 Students

Outcome of the Course:

DBMS is so fundamental that all companies dealing with systems as well as application development (including web, IoT, embedded systems, data mining, machine learning) have a need for the same. These include – Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc. Upon successful completion of this course, students will be Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.

Summary of Course "Programming in Modern C++" (noc22-cs43)" 2021-22

Programming in Modern C++: 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++.

Student Enrolled: 62

Student Certified: 4

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 Programming in Java Course(noc22-cs47)2021-22

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

Student Enrolled: 283 Students
Student Certified: 50 Students

Outcome of the Course:
Java is so fundamental that all companies dealing with systems as well as application development (including web, IoT, embedded systems, data mining, machine learning) have a need for the same. These include – Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc. Upon successful completion of this course, students will be Familiar with Java Programming Features, Java Programming Tools, Application versus Applet, Access Modifiers in Java, Basics of JDBC Driver and Jframe.

Summary of Programming, Data Structures and Algorithms using Python NPTEL Course(noc22-cs26) (2021-22)

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: ~~38~~ 84

Student Certified: 6

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 Introduction to Data Base Systems course(noc22-cs57))(2021-22)

Introduction to Data Base Systems: 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.

Student Enrolled: 130 Students

Student Certified: 7 Students

Outcome of the Course:

DBMS is so fundamental that all companies dealing with systems as well as application development (including web, IoT, embedded systems, data mining, machine learning) have a need for the same. These include – Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc. Upon successful completion of this course, students will be Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.

Summary of "Problem Solving through Programming in C" Course (noc22-cs45) (2021-22)

Problem Solving through Programming in C: 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++.

Student Enrolled: 325 Student

Student Certified: 50 Student

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 "The Joy of Computing using Python" NPTEL Course((noc22-cs31) (2021-22)

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: 106

Student Certified: 17

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 Course "Introduction to Programming in C(noc22-cs40)"

2021-22

Introduction to Programming in C: 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++.

Student Enrolled: 167

Student Certified: 8

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 Introduction to Machine Learning Course (noc22-cs29)(2021-22)

Machine learning (**ML**): ML is the study of computer algorithms that improve automatically through experience and by the use of data. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as "training data", in order 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: 55

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 Course "An Introduction to Programming in C++ (noc22-cs42)" 2021-22

Introduction to Programming in C++: 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++.

Student Enrolled: 207

Student Certified: 14

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 Cloud computingCourse(noc22-cs20)2021-22

Cloud computing: 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.

Student Enrolled: 38 Students

Student Certified: 1 Student

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 Online Privacy Course(noc22-cs37)2021-22

Online Privacy: With increase in the usage of the Internet, there has been an exponential increase in the use of online platforms, including social media (Facebook, Twitter, Koo, Tinder), e-commerce (Amazon, Flipkart), gaming (Roblox), video streaming (Netflix, Amazon Prime, Twitch), and messaging (WhatsApp, Signal, Telegram) services. These platforms have changed our way of living, and information that we share with or consume from these platforms. However, widely used, there is a lack of understanding of privacy on these online platforms. Popularity of study of Online privacy as a topic of study is very recent. Online Privacy needs to be investigated, studied and characterized from various perspectives (computational, cultural, psychological, theoretical, etc.).

Student Enrolled: 7 Students

Student Certified: 2 Students

Outcome of the Course:

After the completion of this course, students will be able to understand the critical threats and defend privacy through real-time and scalable systems, Privacy Attitudes & Awareness, Social Media Privacy, Privacy policies etc.
Since there are no logical boundaries for the online space, it is important to study the problem from an international perspective.

Summary of "Embedded Systems Design" Course (noc22-cs46)(2021-22)

Embedded Systems Design: An embedded system is an electronic system that has a software and is embedded in computer hardware. It is programmable or nonprogrammable depending on the application. An embedded system is defined as a way of working, organizing, performing single or multiple tasks according to a set of rules.

The important characteristics of an embedded system are speed, size, power, reliability, accuracy, adaptability. Therefore, when the embedded system performs the operations at high speed, then it can be used for real -time applications. The Size of the system and power consumption should be very low, then the system can be easily adaptable for different situations.

Student Enrolled: 5

Student Certified: 2

Outcome of the Course:

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, to be distributed for free, to selected participants.

This course on Embedded systems will help the students to understand the fundamental requirements of embedded systems and the interaction between hardware and software in such systems, steps of hardware design, introduce the students to ASIPs, ASICs and FPGAs. The students are be exposed to the very important issue of designing for less power consumption and introduce them to the techniques that are adopted to this end.

Summary of Design and analysis of algorithms

NPTEL Course(noc22-cs27) (2021-22)

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 analysing 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: 13

Student Certified: 1

Outcome of the Course- This course will help to Analyses 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 Psychology of Stress, Health and Well-being

Course

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: 25

Certified: 2

Outcomes of the Course:

Learners should be able to comprehend:

- The connection between the mind and body
- Effects of stress on the immune system
- Psychological disorders caused by stress
- Mechanisms that lead to stress
- Theories of mindfulness, happiness, and purpose
- Coping procedures and strategies
- Activities to enhance happiness

Summary of System Design Through VERILOG

Course

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 in order to be successful.

Student Enrolled: 6 Students

Certified: 1 Students

Outcomes of the Course:

After studying this course, students will be able to:

1. Construct the combinational circuits, using discrete gates and programmable logic devices.
2. Describe Verilog model for sequential circuits and test pattern generation.
3. Design a semiconductor memory for specific chip design.
4. Design embedded systems using small microcontrollers, larger CPUs/DSPs, or hard or soft processor cores.
5. Synthesize different types of processor and I/O controllers that are used in embedded system.

Summary of An Introduction to Information Theory Course

Information Theory answers two fundamental questions: what is the maximum data rate at which we can transmit over a communication link, and what is the fundamental limit of data compression. In this course we will explore answers to these two questions. We will study some practice source compression algorithms. We will also study how to compute channel capacity of simple channels.

Student Enrolled: 22 Students

Certified: 1 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

- Explain the source coding and noisy channel theorems and describe their implications for applications covered in lectures.

- Compute information theoretic quantities, construct bounds and describe+implement algorithms involving high-dimensional probability distributions.

- Describe the techniques covered in the course: identify their limitations, discuss their practical merits and design and describe alternatives.

- For a novel data source, communication channel or application, identify relevant information theoretic aspects to provide insight or suggest useful methods.

Summary of Global Marketing Management

Course

Global business comprises of a large and growing portion of the world's total business. Today, global events and competition affect almost all companies- large and small-because most sell output to and secure supplies from foreign countries. Many companies also compete against products and services that come from abroad. Thus most managers, regardless of industry or company size, need to approach their operating strategies, from a global perspective. In view of the above, this course provides a fresh, up-to-date analysis of the global business environment and successfully blends a comprehensive review of global business with exhaustive discussion of what happens in the many parts of the global market. Moreover, the course not only describes the ideas of global marketing but also presents many contemporary examples, scenarios and cases. This course will therefore provide first-hand knowledge of Global Marketing operations and help practitioners and budding scholars of international business.

Student Enrolled: 12 Students

Certified: 1 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. Classify strategies for entering export markets from extant knowledge and research
2. Apply core theoretical concepts in international marketing to find practical solutions to constraints of small businesses
3. Differentiate the merits of varied solutions in the profession of marketing and business development
4. Synthesise feedback obtained from real world critique and evidence gathered from different sources to address problems related to international marketing
5. Propose revised strategies and marketing communications to enter diverse international markets and leverage the firm's competitive advantage on the global scale
6. Improve professional experience through an evidence-based approach to decision making in the domain of international marketing
7. Reflect on the significance of international marketing in the future direction of global business developments
8. Evaluate the combined influence of global firms and globalisation on both the national and international arenas

Summary of Fundamentals of semiconductor devices

Course

This course seeks to cover the basics of semiconductor devices including the physics of energy bands, doping and carrier statistics and transport leading up to the understanding of common semiconductor devices including p-n junctions and their applications, BJTs and MOSFETs. The course will also give a flavour of the basics of compound semiconductors and their devices, and also touch base with opto-electronic devices such as solar cells, photodetectors and LEDs. The course will ensure that undergraduates, college teachers and other interested audience with no background in semiconductors are able to grasp the content. In parallel, the course will consistently seek to engage the audience by giving real-life examples pertaining to the content, and also seek to calibrate the content with respect to practical and commercial technologies which are all around us and which use semiconductor devices. There will be enough food for thought even for advanced learners such as PhD students and active researchers.

Student Enrolled: 15 Students

Certified: 0 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. explain the basic properties of semiconductors including the band gap, charge carrier concentration, doping and charge carrier injection/excitation.

2. explain the working, design considerations and applications of various semiconducting devices including p-n junctions, BJTs and FETs.

3. describe the working and design considerations for the various photonic devices like photodetectors, solar-cells and LEDs

Summary of Sensors and Actuators

Course

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. They will have an exposure towards how to fabricate the sensors and its application in real world and understand and also learn modern day microsensors and micro actuators, how to simulate some of those sensors and characterise before fabricating it.

Student Enrolled: 10 Students

Certified: 1 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. explain fundamental physical and technical base of sensors and actuators,
2. describe basic laws and phenomena that define behaviour of sensors and actuators,
3. analyse various premises, approaches, procedures and results related to sensors and actuators,
4. create analytical design and development solutions for sensors and actuators,
5. conduct experiments and measurements in laboratory and on real components, sensors and actuators,
6. interpret the acquired data and measured results,
7. describe development and application of sensors and actuators,
8. take part in team work and be able to independently present various professional materials.

Summary of Training and Development Course

An emphasis on learning through training, development and knowledge management is a must do if companies want to gain a competitive advantage and employee expectations. Companies that use innovative training and development practices report better financial performance than their competitors who do not. The role of training has broadened beyond one time learning event to the creation of conditions for learning that can occur through collaboration, online and offline learning or a combination of these methods. The present course deals with the whole horizon of training and development with a blend of theory and examples to make it relevant to the takers of the course.

Student Enrolled: 14

Certified: 5

Outcomes of the Course:

Understand the need and process of training need analysis in organizations.
Understand the process of designing a training programme and its evaluation.
Understand various training methods and their applicability in different organizational situations.
Comprehend the tools and techniques of management development.

Summary of Twentieth Century Fiction

Course

This course seeks to study some of the key texts in late nineteenth-century and twentieth-century fiction that engage with issues such as imperialism, modernity, trauma, embodiment, agency and identity. Through a careful study of selected literary texts and their cultural contexts, the course aims to offer a complex understanding of fiction, reality and representation.

Student Enrolled: 2

Certified: 1

Outcomes of the Course:

- Comprehend the characteristics of literature in 20th century, with the focus to be on fiction.
- Identify the social structures in literary texts through analytical strategies dealt with lectures.
- Infer the cultural and historical aspect of the 20th century life from fiction.

Summary of Microwave Theory and Techniques

Course

The course will be broadly focusing on analysis, design and development of microwave circuits and systems. The course will cover introduction to Microwaves, Microwave transmission modes, Transmission lines, Impedance Matching, Microwave Network Analysis, Directional Coupler, Power Divider, Microwave Filters, Microwave Attenuator, RF switches and phase shifters, Microwave Amplifiers, Low Noise Amplifier, Microwave Mixers and Oscillators. Microwave Antennas, Microwave Measurements, Microwave Systems, E-ect of Microwaves on human body, RF MEMS, Microwave Imaging, etc.

Student Enrolled: 24 Students

Certified: 4 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. Explain different types of waveguides and their respective modes of propagation.

2. Analyze typical microwave networks using impedance, admittance, transmission and scattering matrix representations.

3. Design microwave matching networks using L section, single and double stub and quarter wave transformer.

4. Explain working of microwave passive circuits such as isolator, circulator, Directional couplers, attenuators etc.

5. Describe and explain working of microwave tubes and solid state devices

Summary of Microwave Integrated Circuits

Course

Microwave Integrated Circuits is a course designed for introducing the field of Microwave Engineering to students, engineers and academics. Since at microwave frequencies, the distributed circuit effects become very prominent, new circuit theories based on Maxwell's laws have to be introduced. Further, new circuit design techniques as well as new circuit elements are also introduced. The first part of the course deals with the basics of theory. In the later part, the designs of various microwave devices like couplers, circulators, filters and amplifiers are introduced.

Student Enrolled: 3 Students

Certified: 2 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. analyze the wave propogation in TE, TM or TEM modes, in structures such as rectangular waveguides

2. design various microwave components such as power dividers, hybrid junctions, microwave solid state dives, ferrite devices and microwave amplifier

3. demonstrate various perceive operating principles of basic passive and active microwave devices.
4. perform analysis mathematically the operation and working of the various tubes

5. demonstrate various microwave bench setup for measuring various parameters

Summary of Microwave Engineering

Course

This course is indented to provide a foundation for microwave engineering to the undergraduate students. Rigorous treatment of the fundamentals of microwave engineering will be provided. Design of different passive and some active microwave circuits/subsystems will be covered in detail. This course will also provide an overview of application of microwave in communication and other areas.

Student Enrolled: 21 Students

Certified: 0 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. Explain different types of waveguides and their respective modes of propagation.

2. Analyze typical microwave networks using impedance, admittance, transmission and scattering matrix representations.

3. Design microwave matching networks using L section, single and double stub and quarter wave transformer.

4. Explain working of microwave passive circuits such as isolator, circulator, Directional couplers, attenuators etc.

5. Describe and explain working of microwave tubes and solid state devices.

Summary of Microprocessors And Microcontrollers

Course

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: 86 Students

Certified: 20 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

- recall and apply a basic concept of digital fundamentals to Microprocessor based personal computer system.
- identify a detailed s/w & h/w structure of the Microprocessor.
- illustrate how the different peripherals (8255, 8253 etc.) are interfaced with Microprocessor.
- distinguish and analyze the properties of Microprocessors & Microcontrollers.
- analyze the data transfer information through serial & parallel ports.
- train their practical knowledge through laboratory experiments.

Summary of Digital Image Processing

Course

Digital image processing deals with processing of images which are digital in nature. Study of the subject is motivated by three major applications. The first application is in improvement of pictorial information for human perception i.e. enhancing the quality of the image so that the image will have a better look. The second is for autonomous machine applications which have wider applications in industries, particularly for quality control in assembly automation and many similar applications. Another major application area is in efficient storage and transmission of images. This course will introduce various image processing techniques, algorithms and their applications.

Student Enrolled: 21 Students

Certified: 0 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1: Review the fundamental concepts of a digital image processing system.

2 : Analyze images in the frequency domain using various transforms.

3 : Evaluate the techniques for image enhancement and image restoration.

4 : Categorize various compression techniques.

5: Interpret Image compression standards.

6 : Interpret image segmentation and representation techniques.

Summary of Introduction to Wireless and Cellular Communications Course

An in-depth understanding of the wireless channel and the related impairments (multipath, fading), small-scale and large-scale propagation e-ects ,Understanding of the design of cellular systems,Detailed discussion of Multiple Access (TDMA/CDMA/OFDM), Antenna diversity, MIMO, Wireless Channel Capacity, Computer simulations of wireless systems,Exposure to current and emerging wireless and cellular systems (LTE, 802.11).

Student Enrolled: 5 Students

Certified: 1 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

1. Apply cellular concepts to evaluate the signal reception performance in a cellular network and traffic analysis to design cellular network with given quality of service constraints.
2. Determine the type and appropriate model of wireless fading channel based on the system parameters and the property of the wireless medium.
3. Analyse and design receiver and transmitter diversity techniques.
4. Determine the appropriate transceiver design of multi-antenna systems and evaluate the data rate performance.
5. Design wireless communication systems with key 3G (e.g., CDMA) and 4G (OFDM) technologies.
6. Describe and differentiate four generations of wireless standard for cellular networks.

Summary of Business analytics and data mining Modeling using R

Course

Objective of this course is to impart knowledge on use of data mining techniques for deriving business intelligence to achieve organizational goals. Use of R (statistical computing software) to build, assess, and compare models based on real datasets and cases with an easy-to-follow learning curve.

Student Enrolled: 4 Students

Certified: 1 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

- Candidates will learn about regression trees in detail.
- The methods of logistic regression will also be covered by all the applicants.
- In the Business analytics and data mining Modeling using the R certification course by Swayam the topic of data mining will be covered.
- The assessment performance metrics for prediction and classification will also be learnt by the students.
- The methods involved in methods naÃ¨ve bayes will also be learnt by the students.
- The candidates will be learning the methods and wrapping up artificial neural networks in detail.
- The method of preparing the data in a more professional way will be inculcated by the students.
- The exploration visualization techniques of business analytics will further be covered in the course syllabus.
- Candidates will also study performance metrics.

Summary of Analog communication

Course

The course will introduce the participants to the signal representation in both time and frequency domain, basic analog communication techniques like modulation theory, system design for analog modulator and demodulator, random process and noise analysis.

Student Enrolled: 22 Students

Certified: 1 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

- 1. To study the fundamental concept of the analog communication systems.
- 2. To analyze various analog modulation and demodulation techniques.
- 3. To know the working of various transmitters and receivers.
- 4. To understand the influence of noise on the performance of analog communication systems.
- 5. To acquire the knowledge about information and capacity.

Summary of Design for internet of things

Course

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: 27 Students

Certified: 2 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

- Able to understand the application areas of IOT ·
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks ·
- Able to understand building blocks of Internet of Things and characteristics.

Summary of Electromagnetic Theory

Course

Electromagnetic theory is a core course in Electrical Engineering curriculum. The course covers static and dynamic electric and magnetic fields and their interaction. Major topics include Electromagnetic Waves, Transmission Lines, Waveguides, and Antenna fundamentals. In addition, quasi-static analysis and numerical methods are also discussed. Successful completion of the course will allow students to take up Microwave Engg, Antennas, and Optics for future studies

Student Enrolled: 16 Students

Certified: 0 Students

Outcomes of the Course:

The student after undergoing this course will be able to:

- Understand the basic mathematical concepts related to electromagnetic vector fields.
- Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.
- Apply the principles of magneto statics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.
- Understand the concepts related to Faraday's law, induced emf and Maxwell's equations.
- Apply Maxwell's equations to solutions of problems relating to transmission lines and uniform plane wave propagation.

Summary of Principles of Management

Course

The course provides an overview of management and its evolution. It examines management functions of planning, organizing, leading, and controlling and its impact on the business organization. It discusses necessary skills and functions required for efficient manager in contemporary business environment. Overall, it enables students to analyze and understand changing business environment, and the role of ethics, social responsibility and environmental issues in contemporary business environment.

Student Enrolled: 15

Certified: 6

Outcomes of the Course:

- Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, and have same basic knowledge on international aspect of management
- To understand the planning process in the organization
- To understand the concept of organization
- Demonstrate the ability to directing, leadership and communicate effectively
- To analysis isolate issues and formulate best control methods.

Summary of Leadership

Course

The concept of leadership has been employed within different context and at different levels of analysis e.g. self-leadership, small-group leadership, organizational leadership and national leadership. The primary purpose of this course is to serve as a catalyst for the students of leadership's thinking and dialogue about leaders and the process of leadership.

Student Enrolled: 5

Certified: 1

Outcomes of the Course:

•Student can clearly articulate own leadership capacity based on a thorough examination of personal leadership style, vision, and values.
• Student discusses in detail/analyzes both core beliefs and the origins of the core beliefs and discussion has greater depth and clarity.
• Student can independently apply ethical perspectives/concepts to an ethical question, accurately, and is able to consider full implications of the application.
• Demonstrates in interactions with others understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.

Summary of Integrated Marketing Communication

Course

The objective of this course is to enlighten the participants with important issues in planning and evaluation of marketing communication strategies and execution. This course is developed with a blend of theoretical lectures and various examples which will provide insight on real-life scenarios. The participants will be familiarized with integration of marketing communication strategies for building brands. The course focusses on the strategic importance of IMC and the highlights the centrality of the art of IMC with reference to driving businesses and organizations as large.

Student Enrolled:5

Certified: 2

Outcomes of the Course:

By the end of this course students should be able to:

1. Quickly understand a company and its marketing communications activities
2. Thoroughly describe a range of media and methods available to marketers
3. Develop a clearly thought out Communications Audit
4. Clearly argue a point of view regarding marketing communications
5. Demonstrate a comprehensive understanding of Marketing Communications theories and concepts

Summary of Introduction to Operations Research Course

Operations Research (OR) is a discipline that helps to make better decisions in complex scenarios by the application of a set of advanced analytical methods. It couples theories, results and theorems of mathematics, statistics and probability with its own theories and algorithms for problem solving. Applications of OR techniques spread over various fields in engineering, management and public systems. This course introduces the students to the following topics Linear Programming, Transportation problems Assignment problems. Advanced topics on duality. At the end of this course students will be able to understand, formulate linear programming problems and applications

Student Enrolled: 1

Certified: 1

Outcomes of the Course:

On completion of this course you should be able to:

- Define and formulate linear programming problems and appreciate their limitations.
- Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained and translate solutions into directives for action.
- Conduct and interpret post-optimal and sensitivity analysis and explain the primal-dual relationship.
- Develop mathematical skills to analyse and solve integer programming and network models arising from a wide range of applications.
- Effectively communicate ideas, explain procedures and interpret results and solutions in written and electronic forms to different audiences.

Summary of Leadership and Team Effectiveness

Course

To provide a framework for the students to understand the importance of Leadership and team effectiveness in organizations. To develop an understanding of the interpersonal processes and group dynamics. To provide a theoretical understanding of leadership practices in organizations. To provide an understanding of factors influencing teamwork and team leadership. To evaluate the role of leadership in the development of an institution. Course Learning Outcomes By the end of the course the student should be able to: Explain how global leadership skills contribute to leadership effectiveness. Understand the leader's role in team-based organizations. Explain the potential contribution of outdoor training to the development of team leadership. Explain the basics of leadership during a crisis. Explain how evidenced based leadership can contribute to contingency and situational leadership.

Student Enrolled:13

Certified: 5

Outcomes of the Course:

By the end of the course the student should be able to:

- Explain how global leadership skills contribute to leadership effectiveness.
- Understand the leader's role in team-based organizations.
- Explain the potential contribution of outdoor training to the development of team leadership.
- Explain the basics of leadership during a crisis.
- Explain how evidenced based leadership can contribute to contingency and situational leadership.

Summary of Integrated Marketing Management

Course

The course provides a good foundation on the essentials of Marketing Management required in the fiercely competitive Indian Market. It covers : Marketing function; Marketing concept; Relationship with other functions; Relevance; Marketing environment; Markets; Consumer; Buyer behaviour; Market segmentation; Marketing Planning; Marketing mix; Product policy; New products; Product life cycle; Pricing; Distribution; Advertising and promotion; Marketing organization; Sales forecasting; Management of sales force; Marketing control

Student Enrolled: 11

Certified: 2

Outcomes of the Course:

- Students will demonstrate strong conceptual knowledge in the functional area of marketing management.
- Students will demonstrate effective understanding of relevant functional areas of marketing management and its application.
- Students will demonstrate analytical skills in identification and resolution of problems pertaining to marketing management.

Summary of Experimental Physics - II

Course

Experimental Physics is a fundamental subject to learn by all under graduate students of science and engineering. There is no book available on this subject, which will cover all the experiments discussed in this course. So the video course on Experimental Physics in teaching form will be easily understandable to students and NPTEL is the suitable platform to spread over the distant students not only the knowledge but also the evaluation of the knowledge providing the certificate. Of course, the online video course on Experimental Physics will definitely compensate the crisis of specialized teacher of this subject in many colleges in our country.

Student Enrolled: 3

Certified: 1

Outcomes of the Course:

Appreciate the relationship between experiment, theory and computation as scientific techniques, and assess whether an experimental result (in conjunction with an estimated error) or output from a computer program is physically reasonable.

Explain the importance of reproducibility of scientific work, and the role that laboratory notebooks and quantitative statements of confidence in results play in achieving this.

Apply standard practical techniques (e.g., routine handling of common laboratory equipment, linear least-squares fitting and writing short, procedural computer programs) as directed in a lab script to achieve a stated goal.

Present a record of an experiment or computation in an appropriate, clear and logical written form (e.g., lab notebook, lab report, fully documented computer code), augmented with figures and graphs where appropriate.

Summary of Foundation Course in Managerial Economics

Course

This course is developed to teach modern microeconomic theory to understand the behavior of household, firms and their interaction under different market structure. The purpose of this course is to provide students with a basic understanding of economic theory that can be used in managerial decision making problems within various organizational settings such as a firm or a government agency. Objective is to develop a good understanding of economic concepts and tools that have direct managerial applications

Student Enrolled: 23

Certified: 4

Outcomes of the Course:

- Apply the knowledge of the mechanics of supply and demand to explain working of markets
- Describe how changes in demand and supply affect markets
- Understand the choices made by a rational consumer
- Explain relationships between production and costs
- Define key characteristics and consequences of different forms of markets

Summary of Education for Sustainable Development

Course

Education is a human right and a force for sustainable development and peace. Every goal in UNESCO's '2030 Agenda' (17 Sustainable Development Goals-SDGs) requires education to empower people with the knowledge, skills and values to live in dignity, build their lives and contribute to their societies. While governments hold the main responsibility for ensuring the right to quality education, the '2030 Agenda' is a universal and collective commitment. It requires political will, global and regional collaboration, and active engagement of educational institutions, civil society, youth, corporate/private sector, and other multilateral agencies to tackle educational challenges and build systems that are inclusive, equitable and relevant to all learners/stakeholders

Student Enrolled: 12

Certified: 7

Outcomes of the Course:

- Understand the fundamental environmental, social, and economic issues underlying sustainability
- Enhance the student learning experience through the integration of sustainability principles into collaborative learning, practices, and operations
- Deepen the learning experience associated with sustainability to align with the needs of students

Summary of E-Business

Course

The Internet has changed the way companies carry out their businesses. The primary objective of this course is to introduce concepts, tools and approaches to electronic business to the post- graduate and undergraduate students. Further, the subject will help the students to develop skills to manage businesses in the digital world.

Student Enrolled: 5

Certified: 1

Outcomes of the Course:

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

- Understand the basic concepts and technologies used in the field of management information systems.
- Understand the processes of developing and implementing information Systems. Be aware of the ethical, social, and security issues of information systems.
- Understand the role of information systems in organizations, the strategic management processes, and the implications for the management.
- Develop an understanding of how various information systems work together to accomplish the information objectives of an organization.

Summary of Basic Calculus - 1

Course

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, differentiabilty and integrability and their applications.

Student Enrolled: 15

Certified: 2

Outcomes of the Course:

1. Define the basic concepts and principles of differential and integral calculus of real functions and sequences and series
2. Interpret the geometric meaning of differential and integral calculus
3. Apply the concept and principles of differential and integral calculus to solve geometric and physical problems
4. Organize solving of complex problems by combining the acquired mathematical concepts and principles

Summary of Consumer Behaviour

Course

Drawing heavily from the fields of psychology, anthropology and economics; the concepts of Consumer Behaviour puts forth the decision-making processes of buyers, both individually and in groups. It studies the decision-making parameters at both individual as well as group levels as endeavors to understand the consumer preferences and choice heuristics. The course will also bring forth the parameters, process and conflicts while considering family as decision-making unit. The course will sensitize the participants about how the aforesaid concepts will help them in designing appropriate marketing mix and the overall marketing strategy

Student Enrolled: 8

Certified: 1

Outcomes of the Course:

Upon successful completion, students will have the knowledge and skills to:

- Identify the major influences in consumer behaviour
- Distinguish between different consumer behaviour influences and their relationships
- Establish the relevance of consumer behaviour theories and concepts to marketing decisions
- Implement appropriate combinations of theories and concepts
- Recognise social and ethical implications of marketing actions on consumer behaviour
- Use most appropriate techniques to apply market solutions

Summary of Wildlife Ecology

Course

Wildlife is an enamouring field for most of us. In my professional tenure, I've observed numerous people flocking to get a glimpse of the tiger, to get an opportunity of diving with the fishes, or to get access to a National Park or a Wildlife Sanctuary. And these experiences gets even more endearing when you get to know how the show is getting managed, how and why we regulate access, and also how we maintain grasslands and water bodies to keep the systems up and running. This course will cover one such aspect of wildlife management by providing an overview of the field of Ecology, and also how it is being used in the understanding and management of our wildlife resources. In this course, we'll use the casestudy approach with real-life examples from the field to get a better understanding of the field and its applications.

Student Enrolled: 1 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will have understanding of wildlife ecosystem. They will gather information about the wildlife management. Practical knowledge will be shared by means of Case studies.

Summary of Mechanics of Solids

Course

This course is to serve as an introduction to mechanics of deformable solid bodies. The primary course objective is to equip the students with the tools necessary to solve mechanics problems, which involves (a) static analysis of a component to find the internal actions (forces and moments), (b) determine stresses, strains and deformation due to internal actions, and (c) compare them with known acceptable values. This requires the familiarity with the vocabulary of the subject, skill of drawing free body diagrams and the understanding of the material behavior under loads. It is expected to improve your engineering design skills.

Student Enrolled: 14 Students

Certified: 1 Students

Outcomes of the Course:

Students will be able to understand mechanics of deformable solid bodies. Students will be able to solve mechanics problems.

Summary of Science, Technology and Society

Course

The objective of the course is to enable students to understand science as a socio-cultural product in specific socio-historical contexts. The course exposes students to philosophical, historical and sociological perspectives to look at science as a practice deeply embedded in culture and society. It emphasizes the dynamic nature of the relations between wider cultural practices on one hand and scientific practices on the other. The attempt is to equip students with an understanding indispensable for an in-depth study of science-technology-society dynamics.

Student Enrolled: 6 Students

Certified: 3 Students

Outcomes of the Course:

Students will be able to understand science as a socio-cultural product in specific socio-historical contexts. Students will be able to relate the need of science and technology for development of society.

Summary of Soft skills

Course

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 has to 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 look into 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, with its interactive and need based modules, will address various challenges of communication as well as behavioural skills faced by individuals at workplace and organizations in bridging the gaps through effective skills of interviews, group discussions, meeting management, presentations and nuances of drafting various business documents for sustainability in today's global world.

Student Enrolled: 368 Students

Certified: 158 Students

Outcomes of the Course:

After completion of the course, the students will get information regarding the requirements of corporate culture. The students will understand the role and responsibilities of a team player and a leader.

Summary of Remote Sensing: Principles and Applications

Course

Remote sensing (RS) is the technology that helps to gather information about objects and phenomena from a distance. There has been a radical transformation in the technology from the early application of 'image interpretation' to the paradigm of quantitative RS. The advancement in sensors and data processing algorithms have led to multiple applications of RS in various domains. To perform quantitative RS, one must understand the basic nature of RS sensors, the interaction between electromagnetic radiation and earth surface features and the assumptions and limitations of the algorithms applied. This course will enable the participants to learn about the necessary physical concepts involved in different phases of RS which will help in better appreciation of algorithms and existing datasets. The concepts will further be strengthened through explanation of selected applications.

Student Enrolled: 3 Students

Certified: 2 Students

Outcomes of the Course:

Students will be able to understand the basic concepts of remote sensing and applications related to this technology. Students will be able to understand all the elements of remote sensing

Summary of Renewable Energy Engineering: Solar, Wind and Biomass Energy Systems

Course

In this course an attempt has been made to standardize the course material and to emphasize on the fundamental of non-conventional energy sources (solar, wind, and biomass). Harnessing the energy through these sources using efficient technologies is expected to play an important role in serving as clean energy source for mankind. Thus, processes to harness energy are steadily gaining technical and economic importance worldwide. Therefore, it is necessary for energy planners/ users to know the facts as well as limitations of these technologies. This course aims at bringing the technological developments and research trends in the field of non-conventional energy sources with emphasis on engineering and design aspects. After attending this course students will have insight of biomass types, classifications, selective utilization of biomass resource for extraction of energy, bio-digester, wind machine and thermo-digester design.

Student Enrolled: 4 Students

Certified: 2 Students

Outcomes of the Course:

Students will be able to gain knowledge the recent advancements in renewable energy sector. Special emphasis will be given on Solar, Wind and Biomass Energy Systems. Students will learn all technological developments and research trends in the field of non-conventional energy sources

Summary of Concrete Technology

Course

This course broadly encompasses the study of properties of ingredients of concrete, design of concrete mix, production of concrete and various concreting operations. Cementing material is the vital component of the concrete, hence study of process of manufacturing of cement, types of cement and their properties are covered in this course. Study of properties of aggregates and water also finds their due coverage in the course. Process of concrete production and concreting operations also forms an essential component of the course. In addition to the study of special purpose concretes, the course also provides the due coverage of admixtures which are added to modify the properties of concrete. Properties of concrete in plastic as well as in hardened stage find its due coverage in this course.

Student Enrolled: 45 Students

Certified: 6 Students

Outcomes of the Course:

Students will be able to gain knowledge about the manufacturing and raw materials used in concrete. Students will also know about recent advancements in concrete technology. The course aims at imparting knowledge and skill to supervise concreting operations involving proportioning, mixing, transporting, placing, compacting, finishing and curing of concrete. Hence this course has its stand alone value also.

Summary of Introduction to Civil Engineering Profession Course

The course introduces the civil engineering profession and the degree programme 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. This should be a compulsory first course in civil engineering to present the perspective for the undergraduate students.

Student Enrolled: 28 Students

Certified: 7 Students

Outcomes of the Course:

Students starting their degree in civil engineering will be able to know the basics and branches of civil engineering. The introductory knowledge of civil engineering will be learnt by the students.

Summary of Geotechnical Engineering 1

Course

Geotechnical Engineering-1 deals with the fundamental aspects of soils starting from their origin to various engineering applications. The course discusses the basic classification, characterization, hydraulic and mechanical properties of soils in depth. The expected outcome of the course is to make the students familiarize with soil and to showcase its behavior during various engineering applications such as foundation, retaining wall etc.

Student Enrolled: 10 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, students will be able to understand various engineering applications of soil mechanics. Students will gain knowledge regarding different engineering properties of soil.

Summary of Air Pollution and Control

Course

The objective of the course is to impart the knowledge and understanding of causes and effects of air pollution and their controlling mechanisms. The course will provide a deeper understanding of air pollutants, pollution inventory and modelling. The course also imparts knowledge on the impacts of air pollution on different aspects such as policy, human health and various contemporary technological innovation for betterment of air quality. Student Enrolled: 31 Students

Certified: 7 Students

Outcomes of the Course:

After completion of the course, students will be able to gain knowledge regarding different causes and effects of air pollutants. Students will also gain knowledge regarding impacts of air pollution on different aspects such as policy, human health and various contemporary technological innovation for betterment of air quality.

Summary of Introduction to Accounting and Finance for Civil Engineers Course

With the changing paradigm of the construction industry, and introduction of different contracting models, with the government trying to play more of a regulatory role and withdrawing from financial commitments, and the space being occupied by financial institutions, civil engineers in the modern day are expected to be familiar with basic accounting and finance.

Student Enrolled: 2 Students

Certified: 0 Students

Outcomes of the Course:

After completion of the course, students will be able to understand various contracting models. Students will be able to understand the accounting and finance of civil projects.

Summary of Applied Linguistics

Course

Language is an essential part of all that we do. It defines us as humans. This course deals with the applications of theoretical tools in understanding languages and out come of the analyses of theoretical tools. We aim to have delivered the applications of the fundamental ideas of language to the fields such as language teaching and learning, cognitive science, education, and language disorder and disabilities.

Student Enrolled: 6 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will have knowledge of applications of theoretical tools in understanding languages. Students will have fundamental ideas of language to fields such as language teaching and learning, cognitive science, education, and language disorder and disabilities.

Summary of German - I

Course

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.

Student Enrolled: 123 Students

Certified: 11 Students

Outcomes of the Course:

Students will be familiar to basic alphabets, grammar, prepositions, tenses in german language.

Summary of Entrepreneurship Essentials

Course

The course provides foundational knowledge on various aspects of entrepreneurial venture creation and management during its life-cycle. It has been designed to address multidisciplinary audiences. The objective of the course is to teach key issues faced by entrepreneurs and managers at different stages of the life-cycle of an enterprise and is relevant both for aspiring entrepreneurs and for decision makers in established enterprises. Topics can be classified in some major themes such as : Making a choice to create an entrepreneurial venture, current trend of technology entrepreneurship, how to start a start-up, identifying opportunities, factors driving competitive advantages, organizational structure, basic knowledge of financial statements and project report, introductory knowledge on marketing management, human resource management, & strategic management, risk analysis, legal aspect of business, how to raise fund during life-cycle of a new ventures.

Enrolled: 15 Students

Certified: 5 Students

Outcomes of the Course:

On completion of the course, student will be able to:

- Understand the concept of management, organization, planning, staffing.
- Understand the importance of Directing and controlling, leadership styles, Communication, Coordination and Controlling
- Understand the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, feasibility studies.
- 4 Understand the contents of project report, ERP and project.
- 5 Understand IPRs and institutional support in entrepreneurship, Case Study of Entrepreneurs.

Summary of Enhancing Soft Skills and PersonalityCourse

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.

Student Enrolled:519Students

Certified:104Students

Outcomes of the Course:

On completion of the course, student will be able to–

•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.

•Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

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:16Students

Certified:6Students

Outcomes of the Course:

On completion of the course, student will be able to–

Define Emotional Intelligence (EQ). Identify the benefits of emotional intelligence. Learn the four core skills required to practice emotional intelligence. Define and practice self-management, self-awareness, self-regulation, self-motivation and empathy. Successfully communicate with others in a non-verbal manner. Verbally communicate with others. Interpret and manage your emotions. Master tools to regulate and gain control of one's own emotions Articulate your emotions using the right language. Balance optimism and pessimism. Effectively impact others. Relate emotional intelligence to the workplace. Use the concepts and techniques in the workplace.

Summary of Literature and Life

Course

The primary objective of this course on Literature and Life is to help learners make sense of their own lives through the prism of literature. Hence, it will explore the interconnections between literature and life to understand and appreciate the complex but fragile human relationships at various levels like the individual, family, society, business, politics, etc., as represented in selected essays, poems, plays and short stories from British, American and Indian literature.

Student Enrolled: 10 Students

Certified: 1 Student

Outcomes of the Course:

On completion of the course, student will be able to

1) Learn about life and literature.

Summary of Non-conventional energy Resources

Course

This course looks at the operating principle of a range of non-conventional energy resources, materials used, characterization, and key performance characteristics. The technologies looked at will include, Solar energy, Wind, Batteries, Fuel cells, and Geothermal conversion. The advantages and limitations of these technologies in comparison to conventional sources of energy will also be examined.

Student Enrolled: 4 Students

Certified: 2 Students

Outcomes of the Course:

On completion of the course, student will be able to

- Demonstrate the generation of electricity from various Non-Conventional sources of energy, have a working knowledge on types of fuel cells.
- 2. Estimate the solar energy, Utilization of it, Principles involved in solar energy collection and conversion of it to electricity generation.

Summary of Effective Writing Course

The value of writing, one of the four language skills, has never waned. Many people, although having excellent verbal talents, struggle to demonstrate their writing abilities. Because writing reflects a writer even when he is not there and has no room for interpretation, mastering this craft is essential. The purpose of this writing course is to familiarise students with the nuances of effective writing so that they can better understand the subtle art of writing. It allows them to write with clarity, precision, and subtlety to express their ideas on various occasions while considering the concepts of appropriateness and accuracy.

Student Enrolled: 45 Students

Certified: 3 Students

Outcomes of the Course:

On completion of the course, student 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.

Summary of Soft Skill DevelopmentCourse

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.

Student Enrolled:71Students

Certified:24 Students

Outcomes of the Course:

On completion of the course, student will be able to–

•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.

•Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

Summary of Digital Electronic Circuit

Course

There is a notable increase in the use of the word 'digital' for products and services that are becoming part of our everyday life. Examples are digital camera, digital watch, digital weighing machine, digital signature, digital payment, and digital art and so on. The digital prefix associates a term with digital technology and is considered a step up in the delivered performance at a given cost. The world of digital provides easy storage and reproduction, immunity to noise and interference, flexibility in processing, different transmission options, and very importantly, inexpensive building blocks in the form of integrated circuits.

Student Enrolled: 19 Students

Certified: 1 Student

Outcomes of the Course:

On completion of the course, student will be able to -

- 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.

Summary of Recent Advances in Transmission Insulators

Course

This course introduces the recent advances in EHV/UHV transmission Insulators. The course emphasizes learning and understanding the newer design criteria for the UHV transmission insulation. The course starts with an introduction to the importance of EHV /UHV transmission, its present and future growth. The discussion on the various components used for UHV transmission, design considerations etc are strengthened with the aid of lectures, practical video demonstrations and assignment exercises.

Student Enrolled: 4 Students

Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will have understanding basic principles of Transmission and Importance of insulators. Student will also be able to learn basic knowledge of different types of insulators.

Summary of Digital System Design

Course

The course begins with a discussion on Discrete Time signals and systems. This is followed by an introduction of the Z transform, its properties and system theoretic implications. The foundations of digital filter design and realization are built up. Practice Problems with solutions, summaries of each lecture and illustrative explanations of concepts are all additionally provided, to enhance learning.

Student Enrolled: 19 Students

Certified: 2 Students

Outcomes of the Course:

On completion of the course, student should be able to:

1. Describe discrete time signals & systems and represent in frequency domain
2. Compute dft using fft algorithms and derive dft properties
3. Design iir digital filters using various techniques
4. Design fir digital filters using various techniques
5. Analyze multirate signal processing techniques

Summary of Digital Protection of Power System

Course

This course is to be prepared to serve as an introductory course for Digital Protection of Power System for post graduate students of various technical institutes such as IITs, NITs, state level government colleagues, deemed universities and affiliated colleges to the deemed universities. It aims to give a comprehensive up-to-date presentation of the fundamentals of digital relays, concept of digital signal processing used in digital relays and various algorithms utilized in digital/numerical relays. It begins with a state-of-the-art survey of theories and methods of digital/numeric relays and phasor measurement units (PMUs) along with IEC 61850 substation and automation protocols. In continuation, it provides a theoretical summary along with examples of real-life engineering applications to a variety of technical problems such as load shedding and frequency relaying, reclosing and synchronizing, protection issues due to interconnection of distributed energy resources in the grid and digital protection of various electrical apparatus such as generator, transformer, transmission lines etc. In this point of view, the said course bridges the gap between the theoretical advances, experimental validations and practical engineering in real life.

Student Enrolled: 2 Students

Certified: 1 Students

Outcomes of the Course:

On completion of the course, , the student will be able to :

- Recognize the advantages of digital relays over conventional relays.
- Apply the suitable signal processing technique for protection.
- Analyze various travelling wave protection schemes and apply different algorithms for digital.

Summary of Network Analysis

Course

The course will begin with explaining basic underlying principles of working of various types of electrical rotating machines. The conditions to be fulfilled for the steady production of electromagnetic torque (Te). Motoring and generating mode of operation. Primary focus will be on the operation of 3-phase induction machine, single phase induction motor, and synchronous machines. A fair knowledge of distributed windings is essential in order to understand the working of rotating machines more effectively – few lectures will be devoted on this topic. Concept of electrical and mechanical angles will be explained. Nature of magnetic flux distribution along the air-gap of a rotating machine will be discussed. Clear concept of Rotating magnetic field is so important in understanding the operation of induction and synchronous machines. For each of this machine equivalent circuit will be derived and then used to derive expression for the torque. Starting, speed control and electrical braking of the motors will be discussed. Although main focus will be on the steady state performance analysis, few cases of important transient analysis will be discussed. Students will be motivated to solve numerical problems logically and efficiently.

Student Enrolled: 37 Students

Certified: 2 Students

Outcomes of the Course:

Apply the knowledge of basic circuital law and simplify the network using reduction techniques Analyze the circuit using Kirchhoff's law and Network simplification theorems Infer and evaluate transient response, Steady state response, network functions Obtain the maximum power transfer to the load , and Analyze the series resonant and parallel resonant circuit evaluate two-port network parameters , design attenuators and equalizers Synthesize one port network using Foster and Cauer Forms..

Summary of Signals and Systems

Course

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: 33 Students

Certified: 3 Students

Outcomes of the Course:

On completion of the course, student will be able to 1) Analyze the discrete time signals and system using different transform domain techniques. 2) Design and implement LTI filters for filtering different real world signals. 3) Develop different signal processing applications using DSP processor.

Summary of Introduction to Psychology Course

This course is designed for better understanding of the self and others. It will help you understand the how and why of thinking, feeling, and action. This introductory psychology course will cover the major psychological constructs and principles, primarily focusing on the perceptual processes, learning, memory, emotions, genetic and environmental determinants of behavior and personality. In the last week it will also demonstrate some lab sessions whereby the relevant construct and phenomena can be empirically tested.

Student Enrolled: 15 Students

Certified: 3 Students

Outcomes of the Course:

On completion of the course, student will be able to–

- Identify basic concepts and research findings and give examples of psychology's integrative themes.
- Apply psychological principles to everyday life.
- Draw appropriate, logical, and objective conclusions about behaviour and mental processes from empirical evidence.
- Evaluate misconceptions or erroneous behavioural claims based on evidence from psychological science.
- Design, conduct, or evaluate basic psychological research.
- Describe ethical principles that guide psychologists in research and therapy

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: 107 Students

Certified: 25 Students

Outcomes of the Course:

On completion of the course, student will be able to–

- Read, identify the transition in texts and comprehend scientific and technical contexts in an enhanced way.
- Read and interpret data from graphical representations and charts in an effective way.
- Write reports effectively using appropriate vocabulary and accurate spelling and grammar.
- Draft job application letters with Resume and e-mails in a convincing manner.
- Describe processes, participate in formal and informal conversations, Group Discussions

Summary of Economic Growth and Development Course

This course engages the student with the much debated theories of growth versus development. The decades following liberalization and globalization have been a period of very high levels of economic inequality. With the focus on issues surrounding inequality, this course will introduce students to the major ideas and theories surrounding the often used and misused concepts of economic growth and economic development. With the help of major concepts used in growth and development economics, a student taking this course will be able to participate in the debate and understand the nuances surrounding the issue of economic development.

Student Enrolled:8Students

Certified:3Students

Outcomes of the Course:

- Student will be able to understand the links between household behavior and the economic models of demand.
- It will also help in understanding the efficiency and equity implications of market interference, including government policy.

Summary of Introduction to Cognitive Psychology Course

One of the most puzzling fact for humans over the centuries has beèn the understanding of human behavior. Understanding and predicting human behavior will helps humans in exerting more control over situations. The bases of human behavior are the cognitive processes underlying them. The present course is an attempt to discuss and understand the basic cognitive processes that guide human behavior. The knowledge from the course will be useful in tackling everyday problems and attaining optimal solutions. Additionally, we can use knowledge about human cognitive systems in designing sophisticated Artificial Intelligence (AI) systems that learn from mistakes and make our lives a lot easier to live.

Student Enrolled: 3 Students

Certified: 1 Students

Outcomes of the Course:

On completion of the course, student will be able to–

- Describe cognitive psychology as a part of cognitive science
- List the assumptions of the information processing approach to cognition
- Explain the relationship between applied and basic research in cognitive psychology

Summary of Human Behaviour Course

We as intelligent beings have always wondered why we do what we do. The most interesting knowledge that humans beings would kill to possess would be the knowledge to control other people. The basic premise of being human is individual difference (we are all different). One science that helps people in understanding other people and scientifically predicting their actions is the science of psychology. In the present course, I will make an attempt to simplify the science of human behavior.

Student Enrolled: 28 Students

Certified: 6 Students

Outcomes of the Course:

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

- Demonstrate the applicability of the concept of Human Behaviour to understand the behavior of people in the organization.
- Demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization.
- Analyze the complexities associated with management of the group behavior in the organization.
- Demonstrate how the Human Behaviour can integrate in understanding the motivation (why) behind behavior of people in the organization.

Summary of Speaking Effectively Course

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: 264 Students

Certified: 102 Students

Outcomes of the Course:

On completion of the course, student will be able to–

- Students will heighten their awareness of correct usage of English grammar in writing and speaking
- Students will improve their speaking ability in English both in terms of fluency and comprehensibility
- Students will give oral presentations and receive feedback on their performance

Summary of Development and Applications of Special Concretes

Course

Concrete is no longer simply a mixture of water, cement, sand and coarse aggregate-the advent of chemical admixtures and better understanding of the hydration of cement, and other issues relating to properties of concrete, has made it possible to use several other ingredients and have led to the development of several special concretes and construction methods and use concrete in diverse environments. Building on the fundamental principles of normal concrete, this course explains how some commonly used special concretes have been developed and how they are used in different conditions. The course seeks to present a unified view of concrete materials, construction methods and construction environment and examine the matter on parameters such as quality control methods

Student Enrolled: 7 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, students will be able to understand various types of special concretes. Students will be able to understand applications and development methods of different types of concrete.

Summary of Fundamentals of manufacturing processes Course

It is proposed to include fundamental of following aspects of manufacturing technology: Understanding Manufacturing: concept of manufacturing, need, scope, advantages, limitation, application, materials and manufacturing, classification of manufacturing, process capabilities, selection, break even analysis of manufacturing processes. Casting: approach, steps, pattern, molding, gate and riser, melt treatment, solidification, casting processes: sand mould, shell mould, permanent mould casting, casting defect and their remedy. Forming: approach, hot and cold forming, rolling, forging, extrusion, drawing, sheet metal forming, press, dies, types of dies and die set sheet metal operations punching, blanking, notching, nibbling. Joining: approach, need, principle of fusion welding, gas welding, thermit welding, arc welding common arc welding processes, resistance welding, weldability of metals, solidification of weld, weld discontinuities and their remedy. Machining: approach, mechanism, classification, cutting tool, tool material, heat generation, cutting fluid, grinding, internal and external surface grinding, centreless grinding designation and selection of grinding wheel, trueing and balancing, honing, reaming, lapping, polishing etc. Improving properties: heat treatment of steel and aluminum alloys, Fe-C diagram, TTT diagram, and CCT diagram, heat treatment processes annealing, normalizing, quenching tempering, surface modification methods namely without change chemistry, changing chemical composition and development of coating and cladding.

Student Enrolled: 16 Students

Students Certified: 5 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain the fundamental processes of manufacturing namely, casting, rolling, machining and welding.

Summary of Work System Design Course

Work System Design deals with the systematic examination of the methods of doing work with an aim of nding the means of eective and e-cient use of resources and setting up of standards of per formance for the work being carried out. The systematic examination of work involves what is done? And how it is done? As well as what is the standard time to do the work? This is required to have an in-depth analysis of all the elements, factors, resources and relationships aecting the e-ciency and eectiveness of the work being studied. The course also aims at scientically establishing the time required for a qualied worker to carry out a work element at a dened rate of working. Ergonomic aspects of work system design are also included in the course contents. The scope of this course is not only limited to the manufacturing applications but it is also relevant for service sector industry.

Student Enrolled: 16 Students

Students Certified: 5 Students

Outcomes of the Course:

After completion of the course, the students will be able to use the concept of productivity by measuring it, explain the concept of method and motion study by understating the Man-Machine Systems.

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:8 Students

Students Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to explain the systems used in various types of power plants such as thermal, hydro, solar, and nuclear power plants and also analyse these power plants from economics point of view.

Summary of Theory of Production Processes Course

The course focuses on understanding the science behind technology of primary production processes namely casting, forming and welding. Conventionally, the courses on manufacturing processes deal with study of operational procedures. The course has been divided into three sections namely casting, forming and welding, each being covered in 4 weeks of time. The underlying principles of solidification, fluidity, gating, risering, melting etc. will be covered in casting section whereas mechanics of metalworking, analysis of different metal working processes will be covered in the second section i.e. forming. In the third section i.e. welding, principles of welding processes, thermal effects, weldability etc. will be covered.

Student Enrolled:2 Students

Students Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to calculate the solification time required for the casting, and explain the technical aspects related to stress and strain in metal working, analyse the rolling, forging and welding processes.

Summary of Advanced Machining Processes Course

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 workpiece.

Student Enrolled: 7 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, at bringing the students up-to-date with the latest technological developments and research trends in the field of unconventional / non-traditional / modern machining processes.

Summary of Welding Application Technology Course

This course will cover the industrial relevance of welding processes. It will give the fundamental knowledge of various important welding processes which includes most of the important fusion welding, solid state welding (i.e. Friction Welding, FSW etc.) and solid-liquid state welding (i.e. Shouldering and Brazing). It will also cover the importance and applications of all these welding techniques. This course will highlight the safety precautions to be followed in different welding techniques. This course also will cover the basic concepts of weld induced residual stresses and distortions. In this course, the concepts of different residual stresses measurements techniques will be provided.

Student Enrolled: 5 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to apply the knowledge of welding in practice for various industrial applications. It will also encourage the participants to increase their research interest in the field of welding.

Summary of Computer Integrated Manufacturing Course

Use of computers in manufacturing in order to design and develop the products has found unprecedented applications. Computer integrated way of manufacturing provides a 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: 3 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to use the software tools to design and develop the products and explain the benefits of computer integrated manufacturing systems.

Summary of Product Design and Manufacturing Course

Innovation, better management, throughput improvements, and expansion of new technologies have led Product Design and Manufacturing as a compelling field for the students. Managing the product development process, right from idea generation to final product manufacturing has to be systematic and effective to meet the customer needs, while incorporating the time-to-market constraint as well. This course presents an overview of the product design and development process, along with the manufacturing systems aspects.

Student Enrolled: 5 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand the product development process and design the new product by mitigating the drawbacks of the existing one.

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: 33 Students

Certified: 3 Students

Outcomes of the Course:

After completion of the course, the students will have the understanding of the underlying principle which are governing the material properties and should be able to select proper material for the applications.

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. 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 in the last 3 decades.

Student Enrolled: 17 Students

Certified: 6 Students

Outcomes of the Course:

After completion of the course, the students will have understanding the basic properties of materials, Casting processes, Machining processes, Joining processes Non-traditional machining processes, Advanced machining processes (AJM, USM, ECM and EDM).

Summary of Design Practice Course

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: 6 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain the phases of the design of components, structures and systems.

Summary of Introduction To Fluid Mechanics Course

This is an introductory course in Fluid Mechanics. The subject Fluid Mechanics has a wide scope and is of prime importance in several fields of engineering and science. Present course emphasizes the fundamental underlying fluid mechanical principles and application of those principles to solve real life problems. Special attention is given towards deriving all the governing equations starting from the fundamental principle. There is a well balanced coverage of physical concepts, mathematical operations along with examples and exercise problems of practical importance.

Student Enrolled: 32 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will have a strong fundamental understanding of the basic principles of Fluid Mechanics and will be able to apply the basic principles to analyse fluid mechanical systems.

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.

Student Enrolled: 41 Students

Certified: 4 Students

Outcomes of the Course:

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

Summary of Machining Science Course

The course will basically deal with the following topics: Machining, Machining Process, Tool Geometry, Mechanics of Metal Cutting, Friction in Metal Cutting, Mechanism of Oblique cutting, Practical Machining Operations, Measurement of cutting Forces, Tool Material, Tool Wear and Tool Life, Abrasive Machining Processes, Economics of Machining, Thermal Aspects of Machining, Surface finish.

Student Enrolled: 1 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain the technical aspects related to machining such as tool geometry, metal cutting mechanics, cutting force measurement, tool life, heat generation, economics of machining etc.

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: 12 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to analyse the working of IC engines and gas turbine, and explain the working and applications of these thermos-mechanical systems.

Summary of Fundamentals of Automotive Systems Course

The objective of this course is to provide a fundamental understanding of the various systems of a typical automobile.

Student Enrolled: 21 Students

Certified: 4 Students

Outcomes of the Course:

At the end of this course, the students will be able to explain the construction and working of various systems of an automobile with their importance.

Summary of Security Analysis & Portfolio Management Course

Regulatory reforms across the world are gradually being introduced to reduce trade impediments between nations and usher in free market based pricing. Cross border investments through direct/portfolio routes are also being enticed as a medium for funding of growth and developmental activities. In addition, the governments of developing nations continue to pursue their strategy of partial privatization of the frontier sectors in an attempt to raise revenues for the exchequer as well as reduce operational losses with increased efficiency. Under these stimuli, scientific investment management by the investor fraternity becomes of cardinal necessity for generating competitive returns and surviving in the marketplace. Financial instruments have proven to be immensely useful as versatile investment avenues. Their vitality can be gauged from the exponential growth in trading volumes as well as the advent of new structured products literally on a day to day basis.; Most courses in this area do not cover investment theory as a cogent wholesome. They deliver the content in the asymptote rather than as a mainstream course focusing either on the purely stochastic underpinnings or emphasizing the trade-based orientation.

Student Enrolled: 2 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to develop regulatory reforms for financial planning and suggest strategies for investment using various financial instruments.

Summary of Experimental Physics I Course

This course designed in three modules:(I) Experimental Physics-I: Experiments on Mechanics, General properties of matter, Thermal properties of matter, Sound, Electricity and magnetism.(II) Experimental Physics-II : Experiments on Optics and Modern Physics.(III) Experimental Physics-III : Experiments on Solid state physics and Modern Optics.: Each module is of 30 hours course and at present we will discuss only module-I. This course is not only suitable for undergraduate students of physics, rather it is compulsory for all undergraduate students of science, engineering and technology, who have to deal with instruments in any point of time during their career and profession.

Student Enrolled: 1 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain thermal and general properties of matters with respect to their interaction with sound, electricity and magnetism experimentally.

Summary of Physics of Renewable Energy Systems Course

For a country like India, renewable energy will play an important in ensuring energy safety, security and sustainability. With the fast growing demand in off-grid applications in areas extending from villages to hills, newer technologies will have to be MADE IN INDIA. We will start with the basics of energy sources ranging from thermal, mechanical, and photovoltaic sources. The lectures will cover the topics on electricity generation using solar cells, use of solar heaters, solar based mobiles chargers to use of solar cookers in India. Subsequently, we will shift our attention on wind, water, tidal and geothermal power. At the end, the need of efficient energy storage technologies will be discussed. These include Li batteries and super capacitors.

The additional required concepts such as free electron model, p-n junction, Coriolis force, turbulence, standing waves, thermodynamics, capacitors, crystal structure, etc. will also be discussed.

The basics of various characterization techniques useful for evaluating energy systems will also be explained. These include cyclic voltammetry, charge discharge, EIS, quantum efficiency, etc. will be explained.

Student Enrolled: 12 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to explain the electricity generation using renewable energy systems based on solar, wind, water, tidal and geothermal power plants.

Summary of Disaster Recovery and Build Back Better Course

The concept Build Back Better (BBB) proposes an integrated and holistic approach to post-disaster reconstruction and recovery in order to address the wide range of prevalent issues and ensure that the affected community is redeveloped in a resilient manner for the future. For a comprehensive understanding of the Build Back Better principles, it is valuable to analyze the complete list of propositions from all prominent studies and guidelines which depict effective post-disaster reconstruction and recovery. It is important to identify key areas of present research on and potential research gaps or future research needs for BBB.

Student Enrolled: 4 Students

Certified: 2 Students

Outcomes of the Course:

After completion for this course, students will be able to understand the concepts related to risk and vulnerability, evaluate and plan the post disaster reconstruction development.

Summary of C and Cpp Language Course

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

Powerful and flexible: C/C++ are used for developing operating systems, compilers, parsers, interpreters, word processors, search engines and graphic programs. C requires less runtime support portable programming language: A variety of C/ C++program written for one computer system can be compiled and run on another system, with little or no change

Student Enrolled: 159 Students

Certified: 16 Students

Outcomes of the Course:

After completion of the course, the students will

- Demonstrate an understanding of algorithms in the problem-solving process.
- Identify the necessary properties of good problem-solving techniques.
- Create and analyze algorithms for solving simple problems.
- Use incremental program development to create, test, and debug algorithms for solving simple problems.

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Certified: 16 Students

Outcomes of the Course:

After completion of the course, the students will

- Demonstrate an understanding of algorithms in the problem-solving process.
- Identify the necessary properties of good problem-solving techniques.
- Create and analyze algorithms for solving simple problems.
- Use incremental program development to create, test, and debug algorithms for solving simple problems.

Summary of C and Cpp Language Course

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

Powerful and flexible: C/C++ are used for developing operating systems, compilers, parsers, interpreters, word processors, search engines and graphic programs. C requires less runtime support portable programming language: A variety of C/ C++program written for one computer system can be compiled and run on another system, with little or no change

Student Enrolled: 159 Students

Certified: 16 Students

Outcomes of the Course:

After completion of the course, the students will

- Demonstrate an understanding of algorithms in the problem-solving process.
- Identify the necessary properties of good problem-solving techniques.
- Create and analyze algorithms for solving simple problems.
- Use incremental program development to create, test, and debug algorithms for solving simple problems.

Summary of Advanced Cpp Course

C++ is a programming language developed by Bjarne Stroustrup starting in 1979 at Bell Labs. C++ is a statically typed, free-form, multi-paradigm, compiled, general-purpose, powerful programming language. C++ is an object oriented language. It supports features like classes and objects, Polymorphism, Encapsulation, Inheritance etc. C++ is also used for hardware design.

Student Enrolled: 123 Students

Certified: 14Students

Outcomes of the Course:

After completion of the course, students will understand the concept of data types, loops, functions, array, pointers, string, structures and files, analyze problems, errors and exceptions; Apply programming concepts to compile and debug c programs to find solutions.; Understand the difference between object oriented programming and procedural oriented programming language; Program using C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc. ; Construct appropriate diagrams and textual descriptions to communicate the static structure and dynamic behavior of an object oriented solution.

Summary of Git Course

Git was developed by Linus Torvalds in 2005. Git is a distributed version control software. It is a widely used source code management system for software development. It is free and open source software(FOSS). It is useful for Programmers, Web developers, Project managers, Writers and many others. Anyone working with text files, sheets, design files, drawings, etc., can use Git to track versions.

Git manages the changes in documents, computer programs and web sites etc. It provides a historical record of what you have done over time. It allows developers to work collaboratively. In Git, conflicts can be easily resolved using the suggestions given by Git itself. If there is loss of data, it can be restored from any of the client repositories.

Student Enrolled: 148 Students

Certified: 26 Students

Outcomes of the Course:

Upon completion of this course, students will define what information is appreciate the value of information to the modern organisation; understand the CIA triad of Confidentiality, Integrity and Availability; appreciate the difficulties that arise when valuable information needs to be shared; identify the five leading-edge resources that have up-to-date information on information security.

Summary of Linux Course

Linux is one of the most popular Operating Systems used in today's world. Linux refers to the family of Unix-like computer operating systems using the Linux kernel. Linux can be installed on a wide variety of computer hardware, ranging from mobile phones, tablet computers and video game consoles to mainframes and supercomputers.

It is an opensource software and the Linux kernel is released under the GNU General Public License and hence can be freely created, modified and distributed.

Linux is actually just a kernel. Many people have put together distributions (often called flavors), that contain not just the kernel but also many other programming tools and utilities. Some well-known distributions include Red Hat Linux, Ubuntu, SuSE Linux, and Debian GNU/Linux.

The real power of Linux can be tapped by using its wide and powerful storehouse of commands which need to be typed in on the terminal. The reason behind this is the fact that Linux can trace its intellectual heritage, if not its source code, to the Unix OS. Unix was developed much before GUI environments were dreamt of. Thus, Unix (and hence Linux) provides a wide array of flexible text-mode commands.

Student Enrolled: 120 Students

Certified: 23 Students

Outcomes of the Course:

Upon completion of this course, students will have a good working knowledge of Linux, from both a graphical and command line perspective, allowing them to easily use any Linux distribution; learn advanced subjects in computer science practically; progress as a Developer or Linux System Administrator using the acquired skill set.

Summary of Java Course

Java is a free and open source high level programming language. It is simple as well as object oriented language. Till date, the Java platform has attracted more than 6.5 million software developers. Java Platform, Standard Edition (Java SE) lets you develop and deploy Java applications on desktops and servers, as well as today's demanding Embedded and Real-Time environments.From laptops to mobile phones, game consoles to scientific supercomputers, music players to the Internet,Set-top boxes to printers, Web cams to medical devices,Ooops that is a huge list to follow,Java is everywhere!!!!!

This set of tutorials will cover features and usage of Java version 1.6.x Please see the associated text box of individual spoken tutorials on the website to decide the versions of Java and OS to which it is applicable.

The Spoken Tutorial Effort for Java is contributed jointly by TalentSprint, Hyderabad and the Spoken Tutorial Team, IIT Bombay. Other contributors who helped in the creation of the scripts are Prathamesh Salunke, Arya Ratish, Ashwini Patil.

Student Enrolled: 11 Students

Certified: Nil

Outcomes of the Course:

After completion of the course, students will be able to use an integrated development environment to write, compile, run, and test simple object-oriented Java programs; Read and make elementary modifications to Java programs that solve real-world problems;Validate input in a Java program; Identify and fix defects and common security issues in code; Document a Java program using Javadoc; Use a version control system to track source code in a project.

Summary of C Course

Powerful features, simple syntax, and portability make C a preferred language among programmers for business and industrial applications.Portability means that C programs written for a computer with a particular kind of processor, say Intel, can be executed on computers with different processors such as Motorola, Sun Sparc, or IBM with little or no modification.C language is widely used in the development of operating systems.

An Operating System(OS) is a software(collection of programs) that controls the various functions of a computer. Also it makes other programs on your computer work.

For example, you cannot work with a word processor program, such as Microsoft Word, if there is no operating system installed on your computer.Windows, Unix, Linux, Solaris, and MacOS are some of the popular operating systems.

Dennis M. Ritchie, a systems engineer at Bell Laboratories, New Jersey developed C in the early 1970'salthough designed for the Unix operating system, it soon proved itself a powerful, general purpose programming language.

C++ is a programming language developed by Bjarne Stroustrup starting in 1979 at Bell Labs. C++ is a statically typed, free-form, multi-paradigm, compiled, general-purpose, powerful programming language. C++ is an object oriented language. It supports features like classes and objects, Polymorphism, Encapsulation, Inheritance etc. C++ is also used for hardware design.

Student Enrolled: 123 Students

Certified: 123 Students

Outcomes of the Course:

After the completion of this course, the students will be able to Understand basic C and C++ concepts; Fundamentals of C language & Control Statements; Loop Control Structures & Arrays, Strings & Functions; Structure, Union, Pointers, File handling; Fundamentals of C++; Class & Object, Operator Overloading; Inheritance & Polymorphism; Exception handling & Templates; Ability to read, write and debug elementary C and C++ code; Obtain working knowledge of data types, basic operations, portability issues, standard programming.

Summary of Arduino Course

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

Arduino board designs use a variety of microprocessors and controllers. The boards are equipped with sets of digital and analog input/output pins, USB connection which is used for loading programs from computers, power jack, reset button etc.

A program written with the IDE for Arduino is called a sketch. The Arduino IDE supports the languages C and C++ using special rules of code structuring. It consists of only two functions, setup and loop. The setup function is used to initialize variables, input and output pin modes and other libraries needed in the sketch. After setup has been called, function loop is executed repeatedly in the main program. It controls the board until the board is powered off or reset.

Arduino can interact with buttons, LEDs, motors, speakers, cameras, TV and smart phones etc. It can used for almost any electronics projects.

Student Enrolled: 120 Students

Certified: 120 Students

Outcomes of the Course:

After the completion of this course, students will gain skills in building simple circuits around the Arduino Uno for implementing simple functions; Writing straightforward Arduino sketches for making LEDs blink, getting sensor reading, writing a text on an LCD screen, and reading the potentiometer's position, amongst other things; Learning what is Arduino and prototyping; Understanding analog and digital outputs and inputs; Learning ways in which Arduino can communicate with other devices; How to read datasheets; Using a multimeter for measuring continuity, resistance, current, and voltage; Employing protoboards for creating permanent projects; Getting productive at the Arduino IDE; Using arrays in your Arduino sketches; Compiling, writing, and uploading sketches; Using libraries on your own ; Installing the libraries; Playing music; Learning hat is Arduino programming; Familiarity with Arduino structures, keywords, and concepts; Measuring and detecting ultraviolet light and color; Assessing the acceleration, humidity, and temperature; Detecting noise and person entering the room; Creating the gadgets you want on your own; Finding the distance between the sensor and the object in front of it; Producing noise; Displaying text on the liquid crystal display.

Summary of Python 3.4.3 Course

Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation.

Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library.

Guido van Rossum began working on Python in the late 1980s as a successor to the ABC programming language and first released it in 1991 as Python 0.9.0. Python 2.0 was released in 2000 and introduced new features such as list comprehensions, cycle-detecting garbage collection, reference counting, and Unicode support. Python 3.0, released in 2008, was a major revision that is not completely backward-compatible with earlier versions. Python 2 was discontinued with version 2.7.18 in 2020.

Python consistently ranks as one of the most popular programming languages

Student Enrolled: 149 Students

Certified: 149 Students

Outcomes of the Course:

Upon completion of this course, students will understand why Python is a useful scripting language for developers; learn how to design and program Python applications; learn how to use lists, tuples, and dictionaries in Python programs; learn how to identify Python object types; learn how to use indexing and slicing to access data in Python programs; define the structure and components of a Python program; learn how to write loops and decision statements in Python; learn how to write functions and pass arguments in Python; learn how to build and package Python modules for reusability; learn how to use exception handling in Python applications for error handling.

Summary of C++ Spoken Tutorial Course(2021-22)

C++: C++ is a cross-platform language that can be used to create high-performance applications. It gives programmers a high level of control over system resources and memory. It is an object-oriented programming language which gives a clear structure to programs and allows code to be reused, lowering development costs. It is portable and can be used to develop applications that can be adapted to multiple platforms. C++ is a middle-level language rendering it the advantage of programming low-level (drivers, kernels) and even higher-level applications (games, GUI, desktop apps etc.).

Student Enrolled: 290

Student Certified: 282

Outcome of the Course-C++ plays quite an integral role in modern times as many contemporary systems such as operating systems, web browsers, databases, etc. have C++ code in at least some part of their codebase. Moreover, C++ is quite useful in performance critical areas because of its speed. C++ is a programming language that is used in everyday life. It is an object-oriented language and all the features of C programming language are used here. This is used for games, operating systems, autonomous cars as well as medical technology. C++ Developers are quite sought after and they hold some of the most high-paying jobs in the industry .

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Student Enrolled: 70

Student Certified: 69

Outcome of the Course-C++ plays quite an integral role in modern times as many contemporary systems such as operating systems, web browsers, databases, etc. have C++ code in at least some part of their codebase. Moreover, C++ is quite useful in performance critical areas because of its speed. C++ is a programming language that is used in everyday life. It is an object-oriented language and all the features of C programming language are used here. This is used for games, operating systems, autonomous cars as well as medical technology. C++ Developers are quite sought after and they hold some of the most high-paying jobs in the industry .

Summary of LaTeX Spoken Tutorial Course(2021-22)

LaTeX: LaTeX is most commonly used to create documents for academia, such as academic journals. In LaTeX, the author doesn't stylize the document directly, like in a word processor such as Microsoft Word, LibreOffice Writer, or Apple Pages; instead they write code in plain text that must be compiled to produce a PDF document.

Student Enrolled: 264

Student Certified: 179

Outcome of the Course- Latex is used to write documents containing mathematical formulas, articles in different journal styles, Drawing graphs and figures, Preparing presentation, write mathematical documents etc. So this course is also helpful creating documents using plain text, stylized using markup tags, similar to HTML/CSS or Markdown.

Summary of Java Spoken Tutorial Course(2021-22)

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

Student Enrolled: 284

Student Certified: 262

Outcome of the Course- Java is so fundamental that all companies dealing with systems as well as application development (including web, IoT, embedded systems, data mining, machine learning) have a need for the same. These include – Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc. Upon successful completion of this course, students will be Familiar with Java Programming Features, Java Programming Tools, Application versus Applet, Access Modifiers in Java, Basics of JDBC Driver and Jframe.

Summary of PHP and MySQL Spoken Tutorial Course(2021-22)

PHP: Hyper text processor is a widely used Open-Source general-purpose scripting language that is specially suit for web development and can be embedded into HTML. The Main goal of the language is to allow web developers to write dynamically generated web pages quickly. MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a few databases.

Student Enrolled:255

Student Certified: 190

Outcome of the Course:

World leading social networking site, has a huge code based on PHP and it uses MySQL as database to store the information of user. Many free and open-source CMS like Drupal, Moodie etc. ate created using PHP and MySQL. So, this course is also helpful for web development byfree-lances developers.

linux

Summary of Linux Spoken Tutorial Course(2021-22)

Linux: Linux is a community of open-source Unix like operating systems that are based on the Linux Kernel. It is used in other machines like servers, mainframe computers, supercomputers, embedded systems like routers, automation controls, televisions, digital video recorders, video game consoles, smartwatches, etc. Android(operating system) is based on theLinux kernel that is running on smartphones and tablets. Due to android Linux has the largest installed base of all general-purpose operating systems.Linux is generally packaged in a Linux distribution.

Student Enrolled: 296

Student Certified: 274

Outcome of the Course- Linux is open source software. The code used to create Linux is free and available to the public to view, edit, and for users with the appropriate skills to contribute to. This course will prepare students to work comfortably and productively in open source developmentcommunities and Linux environments, to learn to develop software for Linux/UNIX systems, to understand the inner workings of UNIX-like operating systems etc.

Summary of Python Spoken Tutorial Course(2021-22)

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: 284

Student Certified: 263

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 C++ Spoken Tutorial Course(2021-22)

C++: C++ is a cross-platform language that can be used to create high-performance applications. It gives programmers a high level of control over system resources and memory. It is an object-oriented programming language which gives a clear structure to programs and allows code to be reused, lowering development costs. It is portable and can be used to develop applications that can be adapted to multiple platforms. C++ is a middle-level language rendering it the advantage of programming low-level (drivers, kernels) and even higher-level applications (games, GUI, desktop apps etc.).

Student Enrolled: 70

Student Certified: 69

Outcome of the Course-C++ plays quite an integral role in modern times as many contemporary systems such as operating systems, web browsers, databases, etc. have C++ code in at least some part of their codebase. Moreover, C++ is quite useful in performance critical areas because of its speed. C++ is a programming language that is used in everyday life. It is an object-oriented language and all the features of C programming language are used here. This is used for games, operating systems, autonomous cars as well as medical technology. C++ Developers are quite sought after and they hold some of the most high-paying jobs in the industry .

Summary of 'Role of Craft and Technology in Interior – Architecture' Course

This course is very crucial as it focuses on a 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's initiatives like – SANDHI and Design Hub, where the focus is on amalgamation of Art, Science and Technology. It has multi-fold 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: 2 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand definition and scope of 'Interior-Architecture' and 'Craft & Technology'. Students will be able to establish link between tradition and continuity and develop new paradigm of pedagogy.

Summary of 'Introduction to Aerospace Engineering' Course

The aim of this course is to provide a general overview of the field of Aeronautical Engineering to interested students. The course will consist of ten Capsules, each consisting of two Lectures. Each Lecture will cover a specific concept or area relevant to the subject. An attempt will be made to cover the contents in an interesting manner, by a judicious use of a mix of power-point presentations, in-class activities, quizzes, innovative and hands on assignments that will not only increase the awareness of the students, but also satiate their curiosity and desire to know more about the various concepts related to the subject.

Student Enrolled: 18 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will have general overview of Aeronautical Engineering.

Summary of 'Farm Machinery' Course

The course on Farm Machinery is designed for undergraduate students of Agricultural Engineering, Practicing Engineers, Machinery Manufacturers and Research Scientists. The contents comprise of basic principles and the use of modern technology, viz, Image Processing, Microcontrollers, Sensors and Embedded Systems. Design of horticultural machines and equipment are specially included considering the need of the hour. Suitable examples in the form of problems and their solutions are included for the students to get clarity about the various concepts discussed on each topic. Use of machines Custom hiring and mechanization of small farms are also discussed under each level of mechanization for the readership to appreciate the importance of the machines used.

Student Enrolled: 4 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand principles and the use of modern technology, viz, Image Processing, Microcontrollers, Sensors and Embedded Systems. Students will learn also about custom hiring and mechanization of small farms.

Summary of 'Building Materials and Composites' Course

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. A number of 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.

Student Enrolled: 8 Students

Certified: 3 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand about conventional materials and their properties. Also, they will learn about assembling different materials and nanotechnologies used in specific materials.

Summary of 'Conservation Geography' Course

Geography is the study of areal differentiation. It examines three questions - 1. What features (say mountains) and processes (such as volcanism) are found in different locations? 2. Why are they located where they are? 3. Where else on Earth do we find these specific features and processes? This governs several developmental decisions, such as location of mines, factories, towns, cities, and infrastructure. After all, mining will be economically feasible in areas that have a concentration of ores. Factories can easily be set up where we have availability of land, labour, capital and infrastructure. Towns and cities require land, infrastructure, water, etc. But at the same time, areal differentiation also governs the localisation of biodiversity - forests, wildlife, etc. - which need to be conserved to provide us with ecosystem benefits like food, water, disease control and employment. Past experience shows that if we are not careful, hasty developmental decisions harm biodiversity and conservation - especially when, say, developing mines in biodiversity-rich areas. This ultimately affects all of us - destruction of ecosystems, water flows and pollution wreck havoc to food and water security, health and economic development. The present course examines these concepts, beginning with the basics of Geography and Conservation, and looking at their interplay through several case studies to help reach conservation-oriented development.

Student Enrolled: 5 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand concepts of conservation geography, basics of Geography and Conservation, and conservation-oriented development.

Summary of 'Principles and Applications of Building Science' Course

Design and construction professionals require a command on fundamental principles of building physics in order to ensure functional efficiency in the built environments. The course provides a one-stop solution to design/construction industry professionals and 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: 4 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand basic principles of building physics and be able to ensure functional efficiency in the built environment in design industry.

Summary of 'Hydration, Porosity & Strength of Cementitious Materials' Course

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: 3 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand issues involved with hydration, porosity, permeability and durability of concrete and cement. Student will learn the applications of scientific principles.

Summary of 'Design of Reinforced Concrete Structures' Course

Design of reinforced concrete structures is an introductory design course in civil engineering. 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

Student Enrolled: 21 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand different philosophies of RC design. Students will learn design of structural elements: beam, column, slab and footing as per IS code.

Summary of 'Glass Processing Technology' Course

Glass Processing Technology is a significant component of the value chain in the glass façade industry where the basic float glass goes to the processor and from them to the fabricator and installed in the building façade. There are important processes that go in to it and needs detailed understanding and expertise.

Student Enrolled: 1 Student

Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will be able to understand important processes related to processing, fabrication and installation of the glass.

Summary of 'Integrated Waste Management for a Smart City' Course

This course has emphasized on Integrated Solid Waste Management aspects within the broad subject area of Integrated Waste Management for a Smart City. The issues of Municipal Solid Waste (MSW) management, Construction, and Demolition (C&D) Waste and Electronic Waste Management will be covered in this course. The topics will include generation rates and waste composition; Integrated waste management issues, collection, recovery, reuse, recycling, energy-from-waste, and landfilling; Biological treatment of the organic waste fraction - direct land application, composting, and anaerobic digestion. The environmental impact of waste management and its relationship to the big picture sustainable development and smart city development will be discussed. A major focus of this course will be the role of MSW management within the various initiatives of the Govt. of India including Swachh Bharat Mission, Smart Cities as well as Make in India. The challenges of waste management for smart cities will also be discussed taking case studies from the first list of 20 smart cities identified in the first phase of this program. This will be followed by an overview of the Construction and Demolition (C&D) Waste and Electronic Waste (E-Waste) management issues in India in general and for the smart cities in particular. The new rules with respect to C&D Waste and E-Waste Management will be covered. The challenges of managing these waste streams effectively will be discussed.

Student Enrolled: 4 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand issues of Municipal Solid Waste Management. Student will learn about biological treatment of the organic waste and will have an overview of C&D waste and E-Waste management issues.

Summary of 'Project Planning & Control' Course

This course will cover the basic concepts in Project Planning and Control with a focus on construction projects. The course is relevant to Civil Engineering senior level undergraduate as well as post-graduate students in the area of construction management. Practicing engineers who are part of the planning team on construction projects will also benefit from the concepts covered in the course.

Student Enrolled: 7 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand basic concept of project planning and control and will be familiar with its application in construction management.

Summary of 'Remote Sensing and GIS' Course

This course will introduce the students to the state-of-the-art concepts and practices of remote sensing and GIS. It starts with the fundamentals of remote sensing and GIS and subsequently advanced methods will be covered. This course is designed to give comprehensive understanding on the application of remote sensing and GIS in solving the research problems.

Student Enrolled: 12 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand fundamentals of remote sensing and its applications. Upon completion, the participants should be able to use remote sensing (Satellite images and Field data) and GIS in their future research work

Summary of 'Strength of Material' Course

Strength of Materials is a fundamental subject needed primarily for the students of Mechanical sciences. As the engineering design of different components, structures etc. used in practice are done using different kinds of materials, it is essential to understand the basic behavior of such materials. The objective of the present course is to make the students acquainted with the concept of load resultant, consequences and how different kinds of loadings can be withstood by different kinds of members with some specific materials. NPTEL lecture series on Strength of Materials are prepared, explaining the fundamentals in a simple and lucid manner so that the students can grasp the basics of the application of loading system and its consequence in a deformable body.

Student Enrolled: 13 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand basic behaviour of different kind of materials, different types of loading acting on a structural system and its effect on deformable bodies.

Summary of 'Soil Mechanics/Geotechnical Engineering I' Course

Broadly Geotechnical Engineering encompasses two distinct segments: Soil Mechanics and Foundation Engineering. Soil Mechanics deals with study of physical properties of soils, and the relevance of these properties as they affect soil strength, stability, and drainage. Foundation engineering deals with (i) selection of foundation type based on building site conditions and site constraints, (ii) determining size and reinforcement of the foundation and (iii) finally construction of foundation element. This course will focus on the first, soil mechanics. Soil Mechanics is the basis for all geotechnical applications. One has to learn basic principle of geotechnical engineering through soil mechanics and it is a core course for civil engineering in every college/university across the globe. Every aspect of soil mechanics starting from origin of soil to stability of soil slopes will be covered with great detail under this course

Student Enrolled: 6 Students

Certified: 1 Students

Outcomes of the Course:

After completion of the course, the students will be able to understand basic concepts of soil mechanics, properties of soil and their effect on its strength, stability and drainage. Students will understand about types of foundations used in structure design and design of foundation.

Summary of Fundamentals of Electrical Engineering 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 and nano-grids as part of the course and explores its issues in operation, analysis, management, control, protection and monitoring. In addition to it, this further provides detailed utility level analysis in terms of energy management, network analysis and operation of renewable based smart grids.

Student Enrolled: 92 Students

Certified: 6Students

Outcomes of the Course:

Identify and write down the outcome based course, module and unit objectives based on Bloom Taxonomy Develop appropriate test items for all outcome based objectives for both summative and formative evaluation. Plan an outcome-based curriculum document to meet NBA and Washington Accord requirements.

Summary of Digital Circuits

Course

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 circuit's 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: 78 Students

Certified: 8 Students

Outcomes of the Course:

Derive basic logic gates, adder, and subtractor using universal gates. Illustrate realization of Boolean expression in SOP and POS form and design it using logic gates. Design and test combinational circuits. Design and develop sequential circuits.

Summary of Control engineering

Course

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: 35 Students

Certified: 1Students

Outcomes of the Course:

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.

Summary of Electrical Measurement and Electronic Instruments

Course

It is a core course for all UG Electrical Engineering students. The content of this course is also aligned to the syllabus for the GATE EE exam. The course has two halves: (1) Electrical Measurements (6 weeks): Working principle and Dynamics of different electro-mechanical instruments, ammeter, voltmeter, ohmmeter, wattmeter, energy meter, measurement of resistance and impedances, bridges and potentiometers, Instrument transformers. (2) Electronic Instruments (6 weeks): Differential amplifier, op-amp circuits, Analog DC and AC instruments, ADC and DAC, Digital instruments, function generator, oscilloscope Find details below.

Student Enrolled: 22 Students

Certified: 2Students

Outcomes of the Course:

After completion of the course, the students will have Understand construction, working principle and types of oscilloscopes. Comprehend different types of signal generators and analyzers, their construction and operation. Describe the working principle, selection criteria and applications of various transducers used in measurement systems.

Summary of Digital Circuits

Course

The course will begin with explaining basic underlying principles of working of various types of electrical rotating machines. The conditions to be fulfilled for the steady production of electromagnetic torque (Te).Motoring and generating mode of operation. Primary focus will be on the operation of 3-phase induction machine, single phase induction motor,and synchronous machines.A fair knowledge of distributed windings is essential in order to understand the working of rotating machines more effectively – few lectures will be devoted on this topic. Concept of electrical and mechanical angles will be explained.Nature of magnetic flux distribution along the air-gap of a rotating machine will be discussed.Clear concept of Rotating magnetic field is so important in understanding the operation of induction and synchronous machines.For each of this machine equivalent circuit will be derived and then used to derive expression for the torque. Starting, speed control and electrical braking of the motors will be discussed. Although main focus will be on the steady state performance analysis, few cases of important transient analysis will be discussed. Students will be motivated to solve numerical problems logically and efficiently.

Student Enrolled: 78 Students

Certified: 8 Students

Outcomes of the Course:

Derive basic logic gates, adder, and subtractor using universal gates. Illustrate realization of Boolean expression in SOP and POS form and design it using logic gates. Design and test combinational circuits. Design and develop sequential circuits.

Summary of Design of photovoltaic systems

Course

This course is a design oriented course aimed at photovoltaic system design. The course begins by discussing about the PV cell electrical characteristics and interconnections. Estimation of insolation and PV sizing is addressed is some detail. Maximum power point tracking and circuits related to it are discussed. Later, applications related to peltier refrigeration, water pumping, grid connection and micro grids are discussed in detail. Lastly a brief discussion on life cycle costing is also discussed in order to bring in a measure of completeness to the course.

Student Enrolled: 3 Students

Certified: 0Students

Outcomes of the Course:

On successful completion of the course, students will be able to: Describe the fundamental concepts of energy from the sun and solar PV. Apply the MPPT algorithms for solar PV. Analyse the grid integration of solar PV with and without battery storage. Discuss the applications of solar PV.

Summary of Introduction to Smart Grid

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 and nano-grids as part of the course and explores its issues in operation, analysis, management, control, protection and monitoring. In addition to it, this further provides detailed utility level analysis in terms of energy management, network analysis and operation of renewable based smart grids.

Student Enrolled: 3 Students

Certified: 1Student

Outcomes of the Course:

Understand issues, opportunities & challenges in Smart grid Develop skills required for smart grid planning & formulation of regulations. Understand Power distribution sector framework in India and its comparison globally. Learn processes for execution and control of regulation in power distribution business in India. Appreciate and evaluate the power sector in India for betterment i.e. recommendation for amendments if any.

Summary of Microprocessors and Interfacing

Course

Initially, an overview of 8086 microprocessor will be covered. Comparison with 8-bit processor will be discussed. Later, the detailed architecture 0f 8086 will be discussed. The 8086 instructions will be covered with examples. Simple to complex programs using 8086 assembly language will be discussed. A peripheral device 8255 will be discussed in detail. Then, the interfacing of 8086 with several peripherals such as key board, display, stepper motor will be covered.

Student Enrolled: 1 Student

Certified: 1 Student

Course Outcomes:

Recall and apply a basic concept of digital fundamentals to Microprocessor based personal computer system. Identify a detailed s/w & h/w structure of the Microprocessor. Illustrate how the different peripherals (8255, 8253 etc.) are interfaced with Microprocessor. Distinguish and analyze the properties of Microprocessors & Microcontrollers. Analyze the data transfer information through serial & parallel ports. Train their practical knowledge through laboratory experiments.

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Summary of Analog Circuits Course

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 and MOSFET based circuits are discussed..

Student Enrolled: 66 Students

Certified: 14 Student

Outcomes of the Course:

After completion of the course, the students will have understanding 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 predict correctly the expected performance of various general-purpose electronic circuits.

Summary of "The Joy of Computing using Python" NPTEL Course(noc21-cs75)(2021-22)

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: 83

Student Certified: 9

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 Programming, Data Structures And Algorithms Using Python

This course is an introduction to programming and problem solving in Python. It does not assume any prior knowledge of programming. Using some motivating examples, the course quickly builds up basic concepts such as conditionals, loops, functions, lists, strings and tuples. It goes on to cover searching and sorting algorithms, dynamic programming and backtracking, as well as topics such as exception handling and using files. As far as data structures are concerned, the course covers Python dictionaries as well as classes and objects for defining user defined datatypes such as linked lists and binary search trees.

Student Enrolled: 96

Students Certified: 8

Outcomes of the Course:

At the end of this course the students will be to:

- Understand data structures and algorithms in computer science perspectives
- Understand algorithms analysis procedure, space and time complexity of various algorithms
- Understand how to use existing data structures and algorithms found in python's libraries
- Understand how to apply data structures and algorithms to solve real world problem

Summary of Problem solving through Programming In C

Course

This course is aimed at enabling the students to

- Formulate simple algorithms for arithmetic and logical problems
- Translate the algorithms to programs (in C language)
- Test and execute the programs and correct syntax and logical errors
- Implement conditional branching, iteration and recursion
- Decompose a problem into functions and synthesize a complete program using divide and conquer approach
- Use arrays, pointers and structures to formulate algorithms and programs
- Apply programming to solve matrix addition and multiplication problems and searching and sorting problems
- Apply programming to solve simple numerical method problems, namely rot finding of function, differentiation of function and simple integration

Student Enrolled: 335 Students

Certified: 49 Students

Outcomes of the Course:

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

- Write efficient algorithms to solve various problems
- Understand and use various constructs of the programming language such as conditionals, iteration, and pointers
- Implement your algorithms to build programs in the C programming language
- Use data structures like arrays, linked lists, and stacks to solve various problems
- Understand and use file concept of recursion.

Summary of Programming in C++

Course

There has been a continual debate on which programming language/s to learn, to use. As the latest TIOBE Index for May 2019 indicates – Java (16%), C (14%), C++ (8%), Python (8%), and C# (4%) together control nearly half the programming community. Given this, it is still important to learn C and C++ because of the efficiency they offer. While we appreciate that Java is good for applications, for graphics; and we acknowledge that Python is appropriate for portable software, engineering problem solving (especially ML), and graphics; it is worth bearing in mind that the JVM (Java Virtual Machine) and PVM (Python Virtual Machine - Python interpreter) are indeed written in C++, making C++ the father of all languages today.

Well, C++ is the systems language. It is multi-paradigm - procedural, object-oriented, functional, and generic. So, why should I learn it if my primary focus is on applications? The answer lies in the recent updates of C++, namely, C++11, C++14, C++17, and upcoming C++20 that offer excellent depths and flexibility for C++ that no language can match. These extensions attempt to alleviate many of the long-standing shortcomings of C++ including porous resource management, error-prone pointer handling, expression semantics, and better readability.

Student Enrolled: 248 Students

Certified: 22 Students

Outcomes of the Course:

After completion of the course, the students will be able to build 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), student will be able to apply various idioms of C++ and understand every C++ feature Student will be able to implement illustrate various OOAD (Object-Oriented Analysis and Design) and OOP (Object-Oriented Programming) concepts.

Summary of "Data Science for Engineers" NPTEL Course(noc21-cs69)(2021-22)

Data Science:

Data Science is a unique multidisciplinary confluence of Computer Science, Computational Mathematics, Statistics and Management. Data engineering involves data collection methods, designing enterprise data storage and retrieval. The core data science subjects focus on data analytics, visualization, predictive modeling and analytics for data-driven decision making. Knowledge representation, machine learning, artificial intelligence, deep learning will be taught with relevant case studies. The students can study industry-specific, custom-designed program electives on blockchain technologies, quantum computing, data forensics, data privacy, algorithmic trading, and data security.

Student Enrolled: 30
Student Certified: 1

Outcome of the Course:

1. Describe a flow process for data science problems (Remembering)
2. Classify data science problems into standard typology (Comprehension)
3. Develop R codes for data science solutions (Application)
4. Correlate results to the solution approach followed (Analysis)
5. Assess the solution approach (Evaluation)
6. Construct use cases to validate approach and identify modifications required (Creating)

Summary of "Introduction to Operating Systems" NPTEL Course(noc21-cs72)(2021-22)

Operating Systems:

An operating system acts as an intermediary between the user of a computer and computer hardware. The purpose of an operating system is to provide an environment in which a user can execute programs conveniently and efficiently.

An operating system is a software that manages computer hardware. The hardware must provide appropriate mechanisms to ensure the correct operation of the computer system and to prevent user programs from interfering with the proper operation of the system.

Student Enrolled: 57
Student Certified: 15

Outcome of the Course:

1. Understand fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc
2. Analyze important algorithms eg. Process scheduling and memory management algorithms
3. Categorize the operating system's resource management techniques, dead lock management techniques, memory management techniques.C5.

Summary of "Big Data Computing" NPTEL Course(noc21-cs86)(2021-22)

Big Data Computing:

Big data is larger, more complex data sets, especially from new data sources. These data sets are so voluminous that traditional data processing software just can't manage them. But these massive volumes of data can be used to address business problems you wouldn't have been able to tackle before.

Student Enrolled: 38
Student Certified: 3

Outcome of the Course:

This course provides an in-depth understanding of terminologies and the core concepts behind big data problems, applications, systems and the techniques that underlie today's big data computing technologies. It provides an introduction to some of the most common frameworks such as Apache Spark, Hadoop, MapReduce, Large scale data storage technologies such as in-memory key/value storage systems, NoSQL distributed databases, Apache Cassandra, HBase and Big Data Streaming Platforms such as Apache Spark Streaming, Apache Kafka Streams that has made big data analysis easier and more accessible.

Summary of Cloud computing

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.

Student Enrolled: 72

Students Certified: 3

Outcomes of the Course:

At the end of this course the students will be to:

- Understand and implement various aspects of cloud computing, including fundamentals, management issues, security challenges and future research trends.
- Use and explore the cloud computing platforms.

Summary of Introduction to Internet of Things

Course

Internet of Things (IoT) is presently a hot technology worldwide. Government, academia, and industry are involved in different aspects of research, implementation, and business with IoT. IoT cuts across different application domain verticals ranging from civilian to defence sectors. These domains include agriculture, space, healthcare, manufacturing, construction, water, and mining, which are presently transitioning their legacy infrastructure to support IoT. Today it is possible to envision pervasive connectivity, storage, and computation, which, in turn, gives rise to building different IoT solutions. IoT-based applications such as innovative shopping system, infrastructure management in both urban and rural areas, remote health monitoring and emergency notification systems, and transportation systems, are gradually relying on IoT based systems. Therefore, it is very important to learn the fundamentals of this emerging technology.

Student Enrolled: 49

Students Certified: 8

Outcomes of the Course:

At the end of this course the students will be to:

- Understand the application areas of IOT
- Realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks
- Understand building blocks of Internet of Things and characteristics.

Summary of Programming in Java

Course

With the growth of Information and Communication Technology, there is a need to develop large and complex software. Further, that 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. This course aims to cover the essential topics of Java programming so that the participants can improve their skills to cope with the current demand of IT industries and solve many problems in their own filed of studies.

Student Enrolled: 164 Students

Certified: 31 Students

Outcomes of the Course:

At the end of this course the students will be to

- Apply object-oriented programming features and concepts for solving given problem.
- Use java standard API library to write complex programs.
- Implement object-oriented programming concepts using java
- Develop interactive programs using applets and swings.
- Connect programs with database using JDBC and ODBC

Summary of "Design and Analysis of Algorithm" NPTEL Course(noc21-cs68)(2021-22)

Design and Analysis of Algorithm:

An Algorithm is a sequence of steps to solve a problem. Design and Analysis of Algorithm is very important for designing algorithm to solve different types of problems in the branch of computer science and information technology.

Student Enrolled: 28
Student Certified: 3

Outcome of the Course:

This course will cover basic concepts in the design and analysis of algorithms.

- Asymptotic complexity, O() notation
- Sorting and search
- Algorithms on graphs: exploration, connectivity, shortest paths, directed acyclic graphs, spanning trees
- Design techniques: divide and conquer, greedy, dynamic programming
- Data structures: heaps, union of disjoint sets, search trees
- Intractability

Summary of Data Base Management System

Course

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)

Student Enrolled: 142

Students Certified: 28 Students

Outcomes of the Course:

At the end of this course the students will be to:

- Understand concept of data structures, file organizations, concepts and principles of DBMS, data analysis, database design, data modelling, database management, data & query optimization, and database implementation.
- Implement relational data models; entity-relationship modeling, SQL, data normalization, and database design.
- Learn query coding practices using MySQL (or any other open system).
- Design of simple multi-tier client / server architectures based and Web-based database applications is also introduced.

Summary of Computer Architecture and Organization

Course

This course will discuss the basic concepts of computer architecture and organization that can help the participants to have a clear view as to how a computer system works. Examples and illustrations will be mostly based on a popular Reduced Instruction Set Computer (RISC) platform. Illustrative examples and illustrations will be provided to convey the concepts and challenges to the participants. Starting from the basics, the participants will be introduced to the state-of-the-art in this field.

Student Enrolled: 39

Students Certified: 3

Outcomes of the Course:

At the end of this course the students will be to:

- Understand the theory and architecture of central processing unit.
- Analyse some of the design issues in terms of speed, technology, cost, performance.
- Design a simple CPU with applying the theory concepts.
- Use appropriate tools to design verify and test the CPU architecture.
- Learn the concepts of parallel processing, pipelining and inter processor communication.
- Understand the architecture and functionality of central processing unit.
- Exemplify in a better way the I/O and memory organization.
- Define different number systems, binary addition and subtraction, 2's complement
- Representation and operations with this representation.

Summary of Data Mining Course

Data mining is study of algorithms for finding patterns in large data sets. It is an integral part of modern industry, where data from its operations and customers are mined for gaining business insight. It is also important in modern scientific endeavours. Data mining is an interdisciplinary topic involving, databases, machine learning and algorithms. The course will cover the fundamentals of data mining. It will explain the basic algorithms like data pre-processing, association rules, classification, clustering, sequence mining and visualization. It will also explain implementations in open source software. Finally, case studies on industrial problems will be demonstrated

Student Enrolled: 14 Students

Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will have an understanding of the basic algorithms and there implementation with various data sets in open source software.

Summary of "Introduction to Machine Learning" NPTEL Course (noc21-cs70)(2021-22)

Machine learning (ML):
It is a type of artificial intelligence (AI) that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so. Machine learning algorithms use historical data as input to predict new output values.

Student Enrolled: 42
Student Certified: 1

Outcome of the Course:

- Develop an appreciation for what is involved in Learning models from data
- Understand a wide variety of learning algorithms
- Understand how to evaluate models generated from data
- Apply the algorithms to a real problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models

Summary of Introduction to Algorithms and Analysis

Course

This course provides an introduction to mathematical modelling of computational problems. It covers the common algorithms, algorithmic paradigms, and data structures used to solve these problems. The course emphasizes the relationship between algorithms and programming, and introduces basic performance measures and analysis techniques for these problems.

Student Enrolled: 40 Students

Certified: 10 Students

Outcomes of the Course:

After the completion of this course, the student will be able to explain, apply and analyse various algorithms. The student will also find use of these algorithms in various application areas

Summary of 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.

Student Enrolled: 41

Students Certified: 4

Outcomes of the Course:

At the end of this course the students will be to:

- Understand basic life cycle model concepts
- Explain and discuss requirements specification, design, and testing issues.

Summary of Advanced Graph Theory Course

Advanced graph theory course features both the understanding and writing of proofs about graphs. Verifying that algorithms work is emphasized more than their complexity. Many algorithms and applications are included, but the focus is on understanding the structure of graphs and the techniques used to analyze problems in graph theory and taught to make coherent arguments in the fields of computer science on the topics of trees and distance, matchings and factors, connectivity and paths, graph coloring, edges and cycles, and planar graphs.

Student Enrolled: 5 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will have understanding about the advanced topics of Graph Theory and have an idea about the implementation areas

Summary of Computer Graphics

Course

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: 57 Students

Certified: 5 Students

Outcomes of the Course:

After completion of the course, the student will have detailed information about the graphics pipeline and its stages, and use of various modern day tools and techniques and OpenGL etc.

Summary of Compiler Design

Course

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. This course on compiler design is to address all these issues, starting from the theoretical foundations to the architectural issues to automated tools.

Student Enrolled: 23 Students

Certified: 3 Students

Outcomes of the Course:

The course follows 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 "Operating System Fundamentals" NPTEL Course(noc21-cs88)(2021-22)

Operating Systems:

An operating system acts as an intermediary between the user of a computer and computer hardware. The purpose of an operating system is to provide an environment in which a user can execute programs conveniently and efficiently.

An operating system is a software that manages computer hardware. The hardware must provide appropriate mechanisms to ensure the correct operation of the computer system and to prevent user programs from interfering with the proper operation of the system.

Student Enrolled: 44
Student Certified: 4

Outcome of the Course:

1. Understand fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc
2. Analyze important algorithms eg. Process scheduling and memory management algorithms
3. Categorize the operating system's resource management techniques, dead lock management techniques, memory management techniques.C5.

Summary of Ethical Hacking Course

Ethical hacking is a subject that has become very important in present-day context, and can help individuals and organizations to adopt safe practices and usage of their IT infrastructure. Starting from the basic topics like networking, network security and cryptography, the course will cover various attacks and vulnerabilities and ways to secure them. There will be hands-on demonstrations that will be helpful to the participants. The participants are encouraged to try and replicate the demonstration experiments that will be discussed as part of the course.

Student Enrolled: 63 Students

Certified: 2 Students

Outcomes of the Course:

After completion of the course, the students will adopt safe practices and usage of IT infrastructure. The students will also have a hands-on experience on Ethical Hacking.

Summary of Data Analytics with Python

Course

This course includes examples of analytics in a wide variety of industries, and students will learn how you can use analytics in their career and life. One of the most important aspects of this course is that the students will get hands-on experience by creating analytics models.

Student Enrolled: 47 Students

Certified: 1 Student

Outcomes of the Course:

After completion of the course, students will learn how to use analytics in their career and life.

Summary of Computer Architecture

Course

This is an introductory computer architecture course for beginners. We will start out with a discussion on binary representations, and a discussion on number systems (1's complement and 2's complement). Then, the course will move on to discuss assembly languages, and computer arithmetic. Once, we are done with the fundamentals, we shall look at the design of a simple processor, concepts of pipelining, and the design of a modern memory system.

Student Enrolled: 21 Students

Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will have understanding about the basics of Computer Architecture

Summary of "Python for Data Science" NPTEL Course(noc21-cs78)(2021-22)

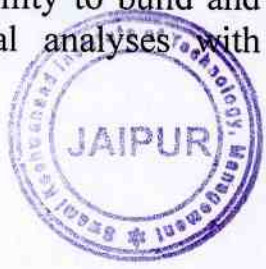
Python:

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: 28
Student Certified: 2

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. Students will develop relevant programming abilities. Students will demonstrate proficiency with statistical analysis of data. Students will develop the ability to build and assess data-based models. Students will execute statistical analyses with professional statistical software.



Summary of "Discrete Mathematics" NPTEL Course(noc21-cs80)(2021-22)

Discrete mathematics:

Discrete mathematics is the branch of mathematics dealing with objects that can consider only distinct, separated values. This tutorial includes the fundamental concepts of Sets, Relations and Functions, Mathematical Logic, Group theory, Counting Theory, Probability, Mathematical Induction, and Recurrence Relations, Graph Theory, Trees and Boolean Algebra.

Student Enrolled: 28

Student Certified: 1

Outcome of the Course:

Prove mathematical theorems using mathematical induction. Understand sets and perform operations and algebra on sets. Determine properties of relations, identify equivalence and partial order relations, sketch relations. Identify functions and determine their properties.

Summary of Getting Started with Competitive Programming

Course

This is a course on algorithm design with a focus on issues of modelling and implementation. Each lecture will be focused entirely on one or two problems that reveal the use of a specific algorithmic technique. The techniques themselves are chosen to be in line with those covered in existing NPTEL courses on data structures and algorithms, so that students who complete those courses can find in this course a natural follow up. This course is intended for anyone who wants to deepen their appreciation for algorithmic techniques that they have learned in a foundational course and/or would like to take a first step towards preparing for coding competitions such as the ICPC.

Student Enrolled: 44 Students

Certified: NIL

Outcomes of the Course:

After completion of the course, the students will have understanding of various algorithmic techniques and will be prepared for various coding competitions, placement drives etc

Summary of "Theory of Computation" NPTEL Course(noc21-cs83)(2021-22)

Theory of computation:

Theory of computation (TOC) is a branch of Computer Science that is concerned with how problems can be solved using algorithms and how efficiently they can be solved. Real-world computers perform computations that by nature run like mathematical models to solve problems in systematic ways.

Student Enrolled: 20
Student Certified: 1

Outcome of the Course:

Demonstrate advanced knowledge of formal computation and its relationship to languages. Distinguish different computing languages and classify their respective types. Recognise and comprehend formal reasoning about languages. Show a competent understanding of the basic concepts of complexity theory.

Summary of Software Testing

Course

Over the years program several testing techniques have developed and tools have become available. Also, testing has been acknowledged as the primary technique for ensuring software reliability. The course would provide a brief introduction to test process and techniques available for black box and white box test case design. Integration, system and regression testing would also be discussed. A few of the test tools would be discussed and the participants would be encouraged to use..

Student Enrolled: 45 Students

Certified: 1 Student

Outcomes of the Course:

After completion of the course, the students will have an understanding about the various tools used for Software Testing. Also students will have an idea about black box and white box testing.

Course: Cloud Computing and Distributed Systems

Course Abstract

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. The cloud computing and distributed systems concepts and models covered in course includes: 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. And while discussing the concepts and techniques, we will also 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

Student Enrolled: 12

Certified: 1

Outcomes of the Course:

After completion of the course, the students will have in-depth understanding of distributed computing "concepts", distributed algorithms, and the techniques, that underlie today's cloud computing technologies. solve dynamics problems. we will also 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.

Ecology and Environment

ABOUT THE COURSE:

The objective of the course is to introduce and sensitize all B.Tech 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: 25

Certified: 2

Outcomes of the Course: The students will be benefited in incorporating sustainability and a sensitivity to ecology and environment in their design of products, processes and systems. They will always incorporate the environmental safety conditions in their products .

Short Fiction in Indian Literature

COURSE OUTLINE : This course involves the study and analysis of fiction in English from different regions of India. The course will draw upon both short and long fiction. Students will be required to develop an understanding of both 19th century as well as contemporary Indian fiction. The objective of the course is to use literature as a point of entry into the nature of Indian identity and the Indian way of life.

Student Enrolled: 6

Certified: 3

Outcomes of the Course:

The student is able to develop the interest in fictions , writing their own fiction stories in Indian way of life. The student can have a comparison in English and hindi fiction also.

COURSE: THE PSYCHOLOGY OF LANGUAGE

COURSE OUTLINE :

The very basic form of exchanging information between two living beings is termed as communication. A highly developed form of communication is language, which is used mostly by human beings. The present course will introduce the concept of language and the psychology behind the learning and using of language

Student Enrolled: 23

Certified: 6

Outcomes of the Course:

For a successful person and particularly to grow as popular and leader it is required that he should command his language and should understand the psychology in making sentences which are accepted by most of listener. This course make him to do so.

Fundamentals of Artificial Intelligence

COURSE OUTLINE : What does automatic scheduling or autonomous driving have in common with web search, speech recognition, and machine translation? These are complex real-world problems that span across various practices of engineering! Aim of artificial intelligence (AI) is to tackle these problems with rigorous mathematical tools. The objective of this course is to present an overview of the principles and practices of AI to address such complex real-world problems. The course is designed to develop a basic understanding of problem solving, knowledge representation, reasoning and learning methods of AI.

Student Enrolled: 18

Certified: 0

Outcomes of the Course:

The course will provide the students to develop a basic understanding of problem solving, knowledge representation, reasoning and learning methods of AI.

COURSE NAME:Entrepreneurship and IP Strategy

ABOUT THE COURSE :

The objectives of the course are :

1. 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. They will be finally be provided brief exposure about the valuation techniques and audits of IP.

Student Enrolled: 16

Certified: 4

Outcomes of the Course:

The students will be able to develop and learn Entrepreneurship skills . they will be able to take commercial appreciation steps and strategies of IP. Help them to flourish their MSME with proper valuations of their work and commercial aspects.

COURSE: CONSUMER PSYCHOLOGY

COURSE OUTLINE : Human beings have basic needs that they full 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 behaviour patterns. Additionally, the present course also looks at various psychological factors that shape the behaviour and actions of the consumer in the global market.

Student Enrolled: 10

Certified: 1

Outcomes of the Course:

For a successful business man and particularly to grow the start-up to unicorn it is required not only your product is best selling product but this selling will get a stoppage if one will not be able to acknowledge the consumer psychology. This course helps the technocrats to understand the consumer psychology and apply it in their business.

DEVELOPING SOFT SKILLS AND PERSONALITY

COURSE OUTLINE:

The course aims to cause a basic 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.

Student Enrolled: 210

Certified: 61

OUTCOMES OF THE COURSE:

After this course the student's skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness and effective communication skills.

Computer Networks and Internet Protocol

Course Detail:

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 cope up with the demands for developing a secure and highly dependable information technology infrastructure. The broad objective of the course is 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. In this course, we'll broadly cover the basic TCP/IP protocol stack and touch on the next generation computer networks. We'll take a top-down approach to cover different protocols at the TCP/IP protocol stack.

Student Enrolled: 73

Certified: 9

Outcomes of the Course:

The students will be able to fully utilize the TCP/IP protocol and can look into next generation computer networks. They will immediately take up the top-down approach in designing their next generation networks.

COURSE: EDUCATIONAL LEADERSHIP

COURSE OUTLINE:

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. This course is aimed to mobilize human resources of education sector, educational administration, and prospective teachers.

Student Enrolled: 6

Certified: 2

Outcomes of the Course:

The students will be able to develop various skills, competencies, abilities to enhance their leadership skills. Will be able to develop awareness into their self-motivation, reflective practices, critical thinking and positive plans of actions for enhancing their leadership impact and institutional effectiveness.

Summary of Object Oriented Analysis and Design

Course

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, Behavior, Identity, Class, Operation, Interface, Inheritance, Association, Aggregation, Decomposition, Use-case, etc. have become the lingua franca for the software developers; ubiquitous notation of UML 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 adopted1 – Java (21%), C++ (6%), C# (4%), VB / VB.NET (4%), Python (3%), Perl (2.5%), Ruby (2.5%), Objective-C (2%), Delphi/Object Pascal (2%), D (1%) – to name a few. Even out of C (14%) developers, a large section today àdheres to OOAD / OOP principles.

Student Enrolled: 7

Students Certified: 1 Students

Outcomes of the Course:

At the end of this course the students will be to:

- Understand OOAD grounds up starting with breaking down the root cause of inherent software complexity.
- Understand and explain Object Models, Classes and their interactions.
- Draw diagrams of UML 2.0.
- Several systems examples help students understand the concept and tutorials offer quick practice.