Regulation 2018

DEPARTMENT OF CIVIL ENGINEERING

PROGRAMME OUTCOMES (POs):

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1: Employability Skills: Able to give sustainable solution to the real time problems of society by using technical and software skills.

PSO2: Career Growth: Able to exhibit ethically their managerial and professional skills as an individual or as a team in multidisciplinary environment.

COURSE OUTCOMES:

18LEH101J - Technical English

1.Identify types, modes, channels and barriers of communication. distinguish different speech sounds, pronounce correctly

2.Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills

3.Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills

4.Develop ideas into logical and coherent essays. Understand better the workplace culture |

5.Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation

18MAB101T - Calculus And Linear Algebra

1.Apply Matrices, Eigenvalues and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving

2.Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering

3.Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving

4.Solve the different types of Differential! Equations in Science and Engineering applications

5.Apply convergence and divergence of series using different tests and apply sequences and Series in the problem solving

18CYB101J - Chemistry

1.Identify the suitable polymeric materials fabrication processes in various application

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels

3.Apply the various thermodynamic and kinetics concepts to real system

4.Assemble a battery through the understanding of electrochemical principles

5.Catagorize the Engineering materials for their applications

18MES101J - Engineering Graphics

1.Apply engineering graphic fundamentals to draw / evaluate engineering Curves.

2.Draw the graphics of engineering parts with point, line and plane projections

3.Draw projection of solid objects like prisms, cylinders, pyramids and cones used in engineering objects

4.Develop the lateral surfaces of the sectional solids.

5.Create 3D part models using isometric and perspective projection

18EES101J - Basic Electrical And Electronics Engineering

1.Discuss basic theory utilized in electrical circuits and its circuits.

2.Describing working principle of direct current and alternative current machines such as transformers, motors and generators.

3.Operate the basic electronic devices. Identify their uses and construction features.

4.Interpret the concept of measuring devices like PMMC. MI .energy and wattmeter.

5.Apply binary logic and Boolean expressions for digital circuit design, Identity elements in a Integrated circuit

18MBH102L - General Aptitude

1.Build a strong base in the fundamental mathematical concepts

2.Identify the approaches and strategies to solve problems with speed and accuracy

3.Gain appropriate skills to succeed in preliminary selection process for recruitment

4.Collectively solve problems in teams and groups

5.Build vocabulary through methodical approaches

6.Enhance lexical skills through systematic application of concepts and careful analysis of style, syntax, semantics and logic.

18LEM101T - Constitution Of India

1.Identify the basic provisions in the Indian constitution

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions

4.Identify the power of states, its legislature, Governors role and the state judiciary

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST

18LEH102J - Professional English

1.Work in a team under any situation.

2.Practice interpersonal relationships in workplace

3.Face interviews confidently and successfully

4.Participate and excel in role plays, presentations and formal conversations

5.Read and infer the meanings of technical and aesthetic passages

6.Draft official letters, reports, memos, emails, etc.,

18MAB102T - Advanced Calculus And Complex Analysis

1.Evaluate multiple integrals using change of variables

2.Apply techniques of vector calculus in problems involving Science and Engineering

3.Apply complex analytic functions and its properties in solving problems

4.Evaluate improper integrals using Residue theorem involving problems in Science and Engineering

5.Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations

18PYB101J – Physics

1.Identify the effect of charge dynamics

2.Analyze electromagnetic induction

3.Apply quantum mechanics to basic physical problems

4.Apply ray propagation and optical effects

5.Identify the applications of lasers and optical fiber

18CSS101J - Programming For Problem Solving

1.Apply the problem solving techniques for solving numeric and string problems

2.Solve basic numeric problems using control statements in C

3.Develop the C program using the concepts of array and string.

4.Apply the concept of function prototypes and pointers. |

5.Compare the performance of structures and union in Memory management

18MES102J - Basic Civil And Mechanical Engineering

1.Identify the building materials and its applications

2.Identify different transportation system, water supply system and its applications

3.List the basic components and analyze the working of major power plants

4.Identify the working of IC engines and understand the need of various auxiliary systems

5.Identify manufacturing processes, casting, forming. List machining operations: lathe, drilling.

6.Identify process of welding

18MBH101L - Professional Skills And Practices

1.Make presentation in a formal way.

2.Speak with clarity and confidence, thereby enhancing their employability skills.

3.Enable students to understand different aspects of leadership and evaluate in their own strengths.

4.Clear the job interview successfully.

5.Realize that selecting goal is a fundamental component to long- term success of an individual.

18LEM102T-Value Education

1.Equipped with an awareness of their positive energy and power

2.Identify the meaning of ‘education’; have a clearer and better understanding in taking education to the masses

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances

4.Realize their professional responsibilities

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes

18MAB201T - Transforms And Partial Differential Equations

1.Expand a function in terms of Fourier Series and apply it for solving engineering problems.

2.Gain knowledge on Fourier Transforms.

3.Model and solve higher order partial differential equations

4.Apply the methods of solving PDE in practical problems.

5.Handle problems in Z transforms and apply it to solve difference equations

18CES201T - Engineering Mechanics

1.Recognize the various force systems and laws of mechanics

2.Apply the basic concepts of dynamics in Rectilinear motion

3.Compute simple stresses and strains and analyze of plane truss

4.Compute geometric properties of sections and Compute bending and shear stresses for various sections

5.Illustrate the torsional effect in shafts and springs

18CEC201J - Fluid Mechanics And Hydraulic Machinery

1.Understand the properties of fluids and fundamental concept of fluid mechanics.

2.Understand the principle of model analysis and dimensional analysis by using various methods.

3.Apply their knowledge of fluid mechanics in addressing problems in open channels.

4.Solve problems in uniform, gradually and rapidly varied flows in steady state conditions and flow in pipes.

5.Apply principles of fluid mechanics to the operation, design, and selection of fluid machinery such as pumps and turbines.

18CEC202T - Construction Materials And Techniques

1.Acquire the knowledge of the topographical formation, interior earth, gradational activities and weathering and also the theory of plate tectonics

2.Interpret minerals and rocks and assessment of its physical, mechanical and engineering properties.

3.Identify the appropriate materials used in construction

4.Sequence the various construction practices

5.Explore the sub structure and super structure construction techniques

18CEC203J – Surveying

1.Understand the basic classifications of surveying and to compute the linear measurement in chain surveying.

2.Compute angular measurements in compass surveying and to prepare plan with plane table surveying.

3.Determine the Reduced levels of various points on ground and to compute the areas and volumes using leveling principles.

4.Determine the distance and heights of the object by using theodolite and to setting out curves by various methods.

5.To learn on the principles of Electronic distance measurements, Total station and GPS

18CEC204J - Environmental Engineering I

1.Analyze quantity of water and needs of public water supply schemes.

2.Identify the sources of water and evaluate the storage capacity of the reservoir.

3.Relate water quality criteria and standards to public health.

4.Construct appropriate treatment schemes to remove certain pollutants present in water

5.Design and evaluate water distribution alternatives on basis of chosen criteria.

18MBM201L - Competencies In Social Skills

1.Students should be able to solve both analytical and logical problems in an effective manner

2.Students can design and deliver information in a proper manner

3.Presentation skills of students will be improved individually as well as a team member

18CYM201T - Environmental Science

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principles involved in the generation of different forms of energy

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution

5.Apply information technology in the control of human population and women and child welfare

18MAB204T - Statistics And Numerical Methods

1.Analyze and evaluate the accuracy of common numerical methods.

2.Apply numerical methods to obtain approximate solutions to mathematical problems.

3.Predict the solution of a given problem and confirm it with its corrector value and if it deviates to apply the corrector again.

4.Understand the problems of Students t-test for single mean and difference of means.

5.Identify the applications, various design and concepts of experiments.

18CES202L - Computer Aided Civil Engineering Drawing

1.Apply building bye-laws and NBC requirements in planning a building.

2.Prepare a plan suitable for approval by any regulatory body using Auto Cad

18CEC205J - Strength Of Materials

1.To impart knowledge on behaviour of structural elements subjected to transverse load

2.To recognize the behaviour of statically indeterminate beams.

3.To learn about the behavior of columns

4.To develop the concepts of unsymmetrical bending of beams and shear centre

5.To learn the concepts of stress in thick and thin cylinder and plane stresses

6.To able to obtain the material strength and stiffness properties of structural elements

18CEC206T - Concrete Technology

1.Identify Quality Control tests on concrete making materials

2.Know the Concepts of various Chemical and Mineral admixtures

3.Design the concrete mix as per IS Method

4.Understand the behavior of fresh and hardened concrete

5.Understand the need for special concretes

18CEC207J - Soil Mechanics

1.Identify the types of soil and expected behavior on application of load

2.Determine the permeability of soil, estimate soil stresses and prepare flow net diagram.

3.Estimate the stresses and displacement in soil mass due to various type of surface loading

4.Estimate the total settlement and time rate of settlement of the soil.

5.Analyze shear properties of cohesive and cohesion less soils and Analyze the slope failure

18CEC208T – Environmental Engineering II

1.Analyze quantity of wastewater and needs of sewerage system.

2.Identify the characteristics of wastewater and design the primary treatment units of wastewater.

3.Construct appropriate treatment schemes to remove certain pollutants present in wastewater

4.Adapt the suitable mode of disposal for the residual without endangering the environment.

5.Design and evaluate wastewater disposal alternatives on basis of chosen criteria.

18MBM202L - Critical And Creative Thinking Skills

1.Students can be able to solve both analytical and logical problems in an effective manner

2.Students can demonstrate an ability to design and deliver messages

3.The quality of student's communication with practical experience is improved

18LEM103T - Indian Tradition And Heritage

1.Understand the meaning of culture, trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4.Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18CEC301T - Analysis Of Structures

1.Analyse Indeterminate Structures using Moment Distribution Method and Slope Deflection Method.

2.Analyse the Arches under External Loads, Temperature Effects.

3.Analyse Structures using Stiffness Matrix Method.

4.Analyse Indeterminate Beams with Moving Loads.

5.Perform Plastic Analysis for Indeterminate Beams and Frames

18CEC302T - Design Of Steel Structures

1.Design of Bolted and Welded Connections

2.Design Tension Members and Splices

3.Design Compression Members, Lacings, Battens and Column Base

4.Design Laterally Supported and Unsupported Beams and Built-Up Beams.

5.Acquire Knowledge about Components of Industrial Structures and Design of Purlins.

18CEC303T - Highway And Railway Engineering

1.Plan for a highway and its alignment

2.Understand the geometric design of highways

3.Know about the construction and maintenance of pavements

4.Comprehend the desirable properties of permanent way components

5.Understand the construction and maintenance of railway tracks

18CEC304T - Irrigation And Water Resource Engineering

1.Review the irrigation needs based crops and irrigation efficiency

2.Explain irrigation structure and other structures related to irrigation

3.Interpret the irrigation methods based on requirement and given conditions

4.Outline the water resources engineering importance and effective utilization

5.Paraphrase water resource plans, water policy of nations for water resources management

18CEC305L - Concrete And Highway Engineering Laboratory

1.Assure the quality of coarse aggregate used in concrete.

2.Various workability tests on fresh concrete.

3.Ensure the strength characteristics of the given concrete.

4.Understand quality and grade check on bitumen.

5.Choose the correct grade bitumen for road works.

18CEP105L - Minor Project III

1.Identify the requirement and develop the concepts or models through standard procedure and preparation of report

18CEP101N - MOOC I / Industrial Training I

1.Develop their carrier skill through online resources

2.Extend their skills and techniques applicable to field resources.

18CEC306T - Foundation Engineering

1.Enumerate methods of subsurface exploration and site investigation

2.Estimate the load carrying capacity of different types of foundation

3.Propose and design of shallow foundation

4.Calculate the load carrying capacity and design of pile foundation

5.Compute the earth pressure and stability of retaining walls

18CEC307T - Design Of Reinforced Concrete Structures

1.Design flexural members using limit state method under different loading conditions.

2.Design of slab for various end condition and design of staircase.

3.Design flexural members for shear, bond, and torsion.

4.Design RC columns of any cross section with different end conditions.

5.Design the footing according to column positioning

18CEC308L - Survey Camp

1.Measure the length and area of field by using Modern Equipment.

2.Obtain the horizontal and vertical angles in field by using Theodolite.

3.Know the earth work required for levelling.

4.Know how to rectify the errors in measurement while measuring in the field.

5.Give the practical exposure about the survey work before the construction.

18CEC309L - Computer Aided Design And Drafting Laboratory

1.Understand the Different end Boundary Condition for Slab and Staircase.

2.Familiarize the Concept Adopted in Different Types of Column and Footing.

3.Design Flexural Members Using Limit State Method Under Different Loading and End Conditions.

4.Have Fundamental Understanding of Tension Member Using Bolted and Welded Connection.

5.Solve Various Elements of Compression Member.

18CEP106L - Minor Project IV

1.Identify the requirement and develop the concepts or models through standard procedure and preparation of report

18CEP101N - MOOC II / Industrial Training II

1.Develop their carrier skill through online resources

2.Extend their skills and techniques applicable to field resources.

18CEC401J - Estimation And Quantity Surveying

1.Prepare various types of estimation and find out the quantity of works involved.

2.Carry out analysis of rates and bill preparation using spreadsheets.

3.Prepare specifications for various items of construction works

4.Estimate the quantity of works involved in road works, water supply and sanitary works.

5.Estimate the value of buildings

18CEC402T - Construction Engineering And Management

1.Identify the principles of management hierarchy of organization

2.Extend the principles to planning and cash flow

3.Compute the process of planning and scheduling methods

4.Describe about basic ability to plan, control and monitor construction projects with respect to time and cost

5.Outline the safety and quality procedure in construction

18CEP107L - Design Project

1.Formulate a real-world problem, identify the requirement and develop the design solutions, preparation of report and present the oral demonstration

18CEP108L - Main Project

1.On Completion of the project work students will be able to take up any difficult practical problems and discover it by formulating proper methodology

18CEE001T - Airport And Harbour Engineering

1.Plan various components of an airport and it's layout

2.Understand design of runway and taxiway geometrics of an airport

3.Know about air traffic control and lighting pattern

4.Apply knowledge on planning of harbour and construction of port

5.Understand the importance of various coastal structures

18CEE002T - Traffic Engineering And Management

1.Analyze traffic problems and plan for traffic systems for various uses.

2.Understand the traffic surveys and traffic forecasting

3.Design traffic intersections and traffic signs

4.Plan for traffic safety and promote the integration of public transport system

5.Develop Traffic Management Systems

18CEE003T - Urban Planning And Transportation

1.Describe basic issues in urban planning

2.Perform the skills to formulate plans for urban and rural development

3.Apply and analyse socio economic aspects of urban and rural planning

4.Prepare and design of urban development projects

5.Implementation of transportation planning in urban development projects

18CEE004T - Remote Sensing And Gis Application For Civil Engineering

1.Analyse the principles and components of photogrammetric and remote sensing

2.Process of data acquisition of satellite images and their characteristics

3.Model soil characteristics, soil degradation assessment and management

4.Monitor urban growth and management of transport infrastructure

5.Model catchments and management of water resources

18CEE005T - Sustainable Construction Methods

1.Know the principles and criteria of sustainable construction

2.Basic technologies and basic materials used in sustainable construction

3.Identify the suitable building materials for sustainable construction

4.Concept of Environment and Environmental Impact Factors considering for various projects

5.Get the aware of the energy efficient buildings concept

18CEE006T - Construction Equipment And Automation

1.Compute planning and management process in equipment’s operation

2.Illustrate the types of equipment’s and their process

3.Extend the other types of equipment’s used in construction

4.Produce a maintenance and safety guidelines for equipment usage

5.Characterise the automations in construction equipment’s

18CEE007T - Quality Control And Assurance In Construction

1.Enhance the Sequence the quality process

2.Augment the available quality systems

3.Outline the quality planning with codes and standards

4.Illustrate the different aspects of quality appraisal and factors

5.Explain the improvement techniques in quality

18CEE008T - Project Safety Management

1.Develop the knowledge on accidents and their causes.

2.Develop the knowledge about safety programmes and safety assessments.

3.Apply the knowledge contractual obligations.

4.Explain about designing for safety procedures.

5.Develop the information on owner's responsibility.

18CEE009T – Hydrology

1.Measure the rainfall intensity, duration and frequency.

2.Measure probable maximum precipitation.

3.Prepare the unit hydrograph for surface runoff.

4.Solve the flood routine and channel routine problems.

5.Understand the concept and methods of ground water management.

18CEE010T - Ground Improvement Techniques

1.Choose the suitable dewatering techniques

2.Identify the soil and select suitable compaction method

3.Monitor consolidation of soil

4.Apply suitable techniques for improving the soil properties in the field

5.Use various types of techniques to strengthen the soil

18CEE011T - Integrated Water Resource Management

1.Gain knowledge on various processes involved in participatory water resource management.

2.Understand famers participation in water resources management.

3.Aware of the issues related to water conservation and watershed Development

4.The students will gain knowledge about economic aspects of water

5.They will gain a broad understanding of the complexities of dealing with water resources problems.

18CEE012T - Solid And Hazardous Waste Management

1.Summarize the characteristics of solid waste and the effects of solid waste public and economic aspects

2.Identify the storage containers and processing techniques for municipal solid waste.

3.Explain how to identify collection options for municipal solid waste and transfer process.

4.Illustrate the possible solution to reuse and energy management. To Develop the disposal alternative methods through case studies and team-oriented technical presentations.

5.Identify and Classify the hazardous waste and know about storage and disposal options for hazardous wastes.

18CEE013T - Air And Noise Pollution And Control

1.Relate the basic concepts of air pollution and its effects on human and ecosystem health.

2.Adopt interpretation of meteorological data for atmospheric stability and sampling of air pollutants

3.Find the major air pollution control technologies

4.Compute modelling techniques and to determine the fate of air pollutant with respect to time and space

5.Analyse the effects of noise pollution and its control.

18CEE014T - Industrial Waste Management

1.Infer the characteristics of Industrial Waste and their impact at the surroundings.

2.Summarize cleaner production techniques for reuse, recycle and recovery

3.Analyse the characteristics of wastewater from major Industries and their reclamation concept

4.Recognize the appropriate treatment and disposal method based on the characteristics of Wastewater.

5.Specify Hazardous waste and identify suitable treatment techniques

18CEE015T - Repair And Rehabilitation Of Concrete Structures

1.Understand the various patterns of cracks for different failure.

2.Restrict moisture movement internally and externally.

3.Select suitable Repair techniques for different deterioration.

4.Pick right techniques to eliminate distressing in steel arrangements.

5.Comparison of verities of rehabilitation techniques according to requirement.

18CEE016T - Prefabricated Structures

1.Understand the general principles of fabrication

2.Design of simple rectangular beams and I beams

3.Understand the procedure of production technology

4.Demonstrate the suitable techniques for erection of different types of members like beams, slabs, wall panels and columns

18CEE017T - Advanced Design Of Concrete Structures

1.Design the Cantilever and Counter fort retaining walls.

2.Design the staging, foundations and other parts of water retaining structures.

3.Design of Concrete Bunkers and Silos

4.Design the flat slab and grid slab based on their provisions

5.Design of RC wall , Deep Beam and Concrete Chimney

18CEE018T - Advanced Design Of Steel Structures

1.Analyse and design chimneys.

2.Design circular and rectangular water tanks.

3.Design compression and tension members in light gauge sections.

4.Apply the concepts of steel bunkers and silos.

5.Design of Composite structural Components

18CEE019T - Basics Of Dynamics And Aseismic Design

1.Understand the principles of vibration and degrees of freedom.

2.Summarize the phenomenon, causes and measurement of earthquakes.

3.Identify the codal provisions for design of structures.

4.Apply the design considerations in ductile detailing.

5.Identify the importance of structural integrity of a masonry structure.

18CEE020T - Prestressed Concrete Structures

1.Understand the concepts and materials used in prestressed concrete.

2.Evaluate the various losses occurring due to Pre-tensioning and Post-tensioning.

3.Design the Prestressed Concrete tanks, Sleepers and Poles.

4.Design the Prestressed Concrete structure for Flexure.

5.Design the Prestressed Concrete Bridges.

18CEE021T - Bridge Structures

1.Importance bridge components

2.Design various types of plate girder bridges.

3.Design of through type and deck type steel highway bridges.

4.Design various types of RC slab bridges for IRC loading.

5.Design prestressed concrete bridges.

18CEE022T - Metro System And Civil Engineering Application

1.Understand the necessity of metro system for urban transport

2.Acquire the construction of metro system

3.Understand metro electrification systems

4.Gather information on metro rolling stock

5.Analyse on metro signaling system

18CEE023T - Disaster Mitigation And Management

1.Explore more about disaster, vulnerability of natural hazards

2.Develop the disaster preparedness plan with government authorities

3.Identify the disaster rescue plan with recovery organisations.

4.Explain about rehabilitation, reconstruction and recovery measures, various roles about disaster recovery in long term

5.Study about disaster case studies and about space based inputs

18CEE024T - Environmental Impact And Risk Assessment

1.Carry out scoping and screening of developmental projects for environmental and social assessments

2.Prepare terms of reference for environmental impact and socio-economic impact for any development project.

3.Prepare the environmental management plan and its various impact mitigation

4.Prepare the Environment audit report development projects

5.Describe the legal requirements of environment risk assessment and its evaluation measures

ONE CREDIT COURSE

18CEX001J - Building Planning And Vaasthu

1.Students can be able to implement the principles of vaasthu in real time

2.Students can draw the building approval plan for residential buildings

18CEX002L - Tekla Structures

1.Use TEKLA for analyse, design of concrete and steel structure

2.Development and implement of software program for concrete elements and detailing of structures

18CEX003L - Advanced Surveying Using Total Station

1.Understand the basic principles, operation of total station, ability to take measurements and make a construction layout

2.Use techniques, skills necessary for surveying by using total station and preparing the drawings

18CEX004L - Structural Analysis And Design Using Staad Pro

1.Use STAAD PRO for analyse, design of concrete and steel structure

2.Development and implement of software program for concrete elements and detailing of structures

18CEX005L - Building Analysis And Design Using Etabs

1.Use ETABS for analyse, design of concrete and steel structure

2.Development and implement of software program for concrete elements and detailing of structures

18CEX006L - Building Information Modelling Using Revit Architecture

1.Use basic Revit commands and features to create parametric models and produce architectural drawings

2.Display basic Revit skills needed for an intermediate level course

18CEX007L - Project Management Using Ms Project

1.Create a new plan and milestones, allocate resources and levelling of resources

2.Prepare schedule and track the progress, analyse the costs involved and manage the budget

18CEX008L - Project Management Using Primavera

1.Plan and manage your project activities effectively through tracking ofbudget and other project expenses

2.Optimize the various resources involved in the project, reduce the risk of schedule and cost over run

18CEX009L –Sketchup

1.Prepare accurate, organized, efficiently constructed three-dimensional models of objects, architectural forms, interior spaces and importing measured drawings and other objects into SketchUp

2.Use SketchUp, Photoshop and rendering plugins, combined with traditional drawing methods, to enhance visual communication throughout the process

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PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1: Professional Skills: Ability to apply the knowledge of computing techniques to design and develop computerized solutions for the problems.

PSO2: Successful career: Ability to utilize the computing skills and ethical values in creating a successful career.

COURSE OUTCOMES:

18LEH101J- Technical English

1. Identify types, modes, channels and barriers of communication. distinguish different speech sounds, pronounce correctly.

2. Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills.

3. Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills.

4. Develop ideas into logical and coherent essays. Understand better the workplace culture.

5. Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation.

18MBH102L - General Aptitude

1. Build a strong base in the fundamental mathematical concepts.

2. Identify the approaches and strategies to solve problems with speed and accuracy.

3. Gain appropriate skills to succeed in preliminary selection process for recruitment.

4. Collectively solve problems in teams and groups.

5. Build vocabulary through methodical approaches.

6. Enhance lexical skills through systematic application of concepts and careful analysis of style, syntax, semantics and logic.

18CYB101J-Chemistry

1.Identify the suitable polymeric materials fabrication processes in various application.

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels.

3.Apply the various thermodynamic and kinetics concepts to real system.

4.Assemble a battery through the understanding of electrochemical principles.

5.Categorize the Engineering materials for their applications.

18MAB101T - Calculus And Linear Algebra

1.Apply Matrices, Eigen values and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving.

2.Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering.

3.Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving.

4.Solve the different types of Differential Equations in Science and Engineering applications.

5.Apply convergence and divergence of series using different tests and apply sequences and

Series in the problem solving.

18MES101J - Engineering Graphics

1.Apply engineering graphic fundamentals to draw/evaluate engineering curves.

2.Draw the graphics of engineering parts with point, line and plane projections.

3.Draw projection of solid objects like prisms, cylinders, pyramids and cones used in engineering objects

4.Develop the lateral surfaces of the sectional solids.

5.Create 3D part models using isometric and perspective projection.

18EES101J - Basic Electrical And Electronics Engineering

1.Discuss basic theory utilized in electrical circuits and its circuits.

2.Describing working principle of direct current and alternative current machines such as transformers, motors and generators.

3.Operate the basic electronic devices. Identify their uses and construction features.

4.Interpret the concept of measuring devices like PMMC, MI , energy and wattmeter.

5.Apply binary logic and Boolean expressions for digital circuit design, Identify elements in

a Integrated circuit.

18LEM101T – Constitution Of India

1.Identify the basic provisions in the Indian constitution.

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation.

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions.

4.Identify the power of states, its legislature, Governors role and the state judiciary

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST.

18LEH102J - Professional English

1.Work in a team under any situation.

2.Practice interpersonal relationships in workplace

3.Face interviews confidently and successfully

4.Participate and excel in role plays, presentations and formal conversations.

5.Read and infer the meanings of technical and aesthetic passages.

6.Draft official letters, reports, memos, emails, etc.,

18MBH101L- Professional Skills And Practices

1.Make presentation in a formal way.

2.Speak with clarity and confidence, thereby enhancing their employability skills.

3.Enable students to understand different aspects of leadership and evaluate in their own strengths.

4.Clear the job interview successfully.

5.Realize that selecting goal is a fundamental component to long- term success of an individual.

18PYB101J - Physics

1.Identify the effect of charge dynamics.

2.Analyze electromagnetic induction.

3.Apply quantum mechanics to basic physical problems.

4.Apply ray propagation and optical effects.

5.Identify the applications of lasers and optical fiber.

18MAB102T - Advanced Calculus And Complex Analysis

1.Evaluate multiple integrals using change of variables

2.Apply techniques of vector calculus in problems involving Science and Engineering.

3.Apply complex analytic functions and its properties in solving problems

4.Evaluate improper integrals using Residue theorem involving problems in Science and Engineering

5.Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations

18CSS101J - Programming For Problem Solving

1.Apply the problem solving techniques for solving numeric and string problems

2.Solve basic numeric problems using control statements in C

3.Develop the C program using the concepts of array and string.

4.Apply the concept of function prototypes and pointers.

5.Compare the performance of structures and union in memory management.

18MES102J - Basic Civil And Mechanical Engineering

1.Identify the building materials and its applications

2.Identify different transportation system, water supply system and its applications

3.List the basic components and analyze the working of major power plants

4.Identify the working of IC engines and understand the need of various auxiliary systems

5.Identify manufacturing processes; casting, forming. List machining operations; lathe, drilling. Identify process of welding

18LEM102T - Value Education

1.Equipped with an awareness of their positive energy and power

2.Identify the meaning of ‘education’; have a clearer and better understanding in taking education to the masses

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances

4.Realize their professional responsibilities

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes

18MBA203T - Probability Statistics And Queuing Theory

1.Apply basic probability techniques and models to analyze the performance of computer systems .

2.Illustrate and apply the concept of pairs of random variables from the knowledge of sampling distributions.

3.Understand the problems of Students T test for single mean and difference of means.

4.Use discrete time Markov chains to model computer systems.

5.Understand basic characteristic features of a queuing system and acquire skills in analyzing queuing model.

18ECS202J - Analog And Digital Electronics

1.Review various biasing techniques used in BJT and its characteristics.

2.Illustrate the Boolean functions and Boolean Expressions.

3.Design and Analyze the combinational circuits.

4.Design and Analyze the sequential circuits.

5.Analyze the characteristics and structure of different memory systems and programmable logic Devices

18CSC201J - Data Structures And Algorithms

1.Explain the Concepts of List and its applications

2.Illustrate Stack and Queue data structures with its applications

3.Summarize the basic operations in Binary Tree, Binary Search and AVL Tree

4.Solve the graph problem using various graph algorithms

5.Apply various sorting and searching algorithms for solving problems

18CSC202J - Object Oriented Programming

1.Make use of Object Oriented programming concepts to solve real time problems.

2.Construct the programs with inheritance, packages and string handling mechanisms.

3.Utilize the different collections and Input/output streams.

4.Make use of exception handling mechanisms and multithreading to solve real time problems.

5.Develop simple applications using event handling.

18CSC203T - Operating Systems

1.Explain the concepts of OS, Process and Threads

2.Apply various CPU Scheduling algorithms and Synchronization Techniques

3.Utilize various schemes for deadlock handling and memory management

4.Make use of various file and disk management strategy

5.Explain the design principles of Linux and windows 7 Operating systems

18CSC204T - Computer Architecture And Organization

1.Explain the organization and working principle of computer hardware components

2.Solve the problems using various arithmetic algorithms

3.Analyze the execution sequence of instruction

4.Explain the hierarchy of memory systems

5.Summarize the concepts of I/O organization

18MBM201L - Competencies In Social Skills

1.Students should be able to solve both analytical and logical problems in an effective manner

2.Students can design and deliver information in a proper manner

3.Presentation skills of students will be improved individually as well as a team member

18LEM103T- Indian Tradition And Heritage

1.Understand the meaning of culture, trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4.Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18MAB206T - Discrete Mathematics

1.Demonstrate their knowledge in propositional calculus

2.Demonstrate their knowledge in predicate calculus

3.Obtain the perception in the area of sets and the knowledge about functions.

4.Obtain perception in the area of combinations

5.Obtain perception in the area of graph theory

18ECS203J - Microprocessor And Microcontroller

1.Observe the architecture, instruction set and addressing modes of 8086.

2.Record the configurations of multiprocessor.

3.Describe the various interfaces such as 8255, 8251, 8254 etc.,

4.Discuss the architecture of 8051 and apply the fundamentals of assembly level programming of 8051 controller.

5.Know various real time applications of Microcontrollers.

18CSC205J- Database Management Systems

1.Explain database and various data models

2.Illustrate the features of SQL and PLSQL commands

3.Apply the concepts of normalization to eradicate anomalies from the database

4.Outline the significance of various concurrency control techniques

5.Summarize the techniques to optimize a query for reducing the cost of execution

18CSC206J -Computer Networks

1.Understand the basic layers and its functions in computer networks.

2.Evaluate the performance of a network.

3.Analyze and design routing algorithms

4.Design protocols for various functions in the network.

5.Understand the working of various application layer protocols

18CSC207T - Design And Analysis Of Algorithms

1.Solve recurrence equations using Iteration Method, Recurrence Tree Method and Master's Theorem.

2.Design algorithms using Divide and Conquer Strategy and Greedy strategy.

3.Design efficient algorithms using Dynamic Programming, Back Tracking and Branch Bound Techniques for solving problems.

4.Solve Optimization problems using Flow networks and String matching.

5.Classify computational problems into P, NP, NP-Hard and NP-complete.

18CSC208T- Human Computer Interaction

1.Explain basics of human computer interacting criterion

2.Outline standard design heuristics for making human computer interactive systems

3.Evaluating strategies and assisting methodologies of HCI systems

4.Explain user models and task models to study various norms available in human computer interactions

5.Explain impact and necessity of dialogs and groupware prospective in HCI systems

18MBM202L- Critical And Creative Thinking Skills

1.Students can be able to solve both analytical and logical problems in an effective manner

2.Students can demonstrate an ability to design and deliver messages

3.The quality of student's communication with practical experience is improved

18CYM201T - Environmental Science

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principles involved in the generation of different forms of energy

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution

5.Apply information technology in the control of human population and women and child welfare

18CSC301J- Machine Learning

1.Explain the fundamentals of Machine Learning.

2.Demonstrate various concepts of Descriptive Statistics.

3.Apply Machine Learning techniques such as Classification, Regression.

4.Apply Machine Learning techniques such as Clustering.

5.Outline the basics of Neural Networks, Data Science and Deep Learning.

18CSC302T- Compiler Design

1.Explain the phases of a compiler and lexical analyzer.

2.Identify the similarities and differences among various parsing techniques and grammar transformation techniques.

3.Translate given input to intermediate code.

4.Apply the techniques for code generation.

5.Identify the various types of optimizations for language transformation

.

18CSC303J- Web Programming

1.Build web pages using HTML and Cascading Style Sheets.

2.Build Dynamic Web Pages using JavaScript, XML and Node.js.

3.Develop Dynamic Web Page using Servlet and JSP.

4.Develop Client Server application with Database Connectivity using PHP.

5.Describe different methodologies of Web Services.

18CSC304J- Big Data And Analytics

1.Explain the concepts of Big Data and Analytics.

2.Explain the working procedure of Hadoop ecosystem.

3.Make use of Map Reduce Framework and Pig Scripting to process real time data.

4.Explain different forms of databases used in Big Data.

5.Apply the concepts of Big Data to solve real world problems.

18CSE001T- Adhoc And Sensor Networks

1.Describe the concepts, network architectures and applications of AdHoc and Wireless Sensor Networks.

2.Describe the protocol design issues of AdHoc and Sensor Networks.

3.Design routing protocols for AdHoc and Wireless Sensor Networks with respect to some protocol design issues.

4.Explain hardware and software components of AdHoc and Sensor Networks.

5.Evaluate the QoS related performance measurements of AdHoc and Sensor Networks.

18CSE00- Agile Methodology

1.Understand the fundamentals of SDLC Models and Agile Software Development.

2.Understand the concepts of Agile Scrum Framework.

3.Perform Testing Activities within an Agile Project.

4.Summarize Agile Software Design Development and Industry Trends.

5.Gain practical knowledge of a tool that implements Agile Methodology– JILE

.

18CSE003T- Artificial Intelligence And Robotics

1.Identify the problems that are amenable to solution by Artificial Intelligence methods.

2.Identify appropriate Artificial Intelligence methods to solve a given problem.

3.Formalise a given problem in the language/framework of different Artificial Intelligence methods.

4.Implement basic Artificial Intelligence algorithms.

5.Identify appropriate Robotics basic methods to solve a given problem.

18CSE004T- Bioinformatics

1.Explain the introductory concepts of Bioinformatics.

2.Summarize the concepts of Search Engines and Visualization.

3.Classify the various methods of Statistics and Data Mining.

4.Summarize the basics of Pattern Matching.

5.Understand the concepts of Modelling and Simulation.

18CSE005T- Block chain

1.Describe the technology components of Block chain and different approaches for Decentralization.

2.Understand Bitcoin and its limitations by comparing with other alternative coins.

3.Discover solutions using the Ethereum model.

4.Make use of Web3 development framework and Hyperledger.

5.Summarize alternative Blockchain and Emerging Trends in Blockchain.

18CSE006T- Building Enterprise Applications

1.Describe the basics of Enterprise Applications.

2.Familiarize with concept of Enterprise Analysis and Business Modelling, requirements validation, planning and estimation.

3.Discuss about Enterprise Application Architecture and Design elements.

4.Develop different solution layers and perform Code review, Code analysis, build process

5.Understand different testing involved with enterprise application and the process of rolling out an enterprise application.

18CSE007T- Computer Vision

1.Understand the basics and fundamentals of Image Processing for Computer Vision.

2.Discuss Shape analysis, Boundary tracking techniques, Chain codes and Region descriptors.

3.Apply Hough Transform for line, circle, and ellipse detections.

4.Summarize 3D vision and motion related techniques.

5.Discuss various applications of Computer Vision.

18CSE008T- Cryptography And Network Security

1.Understand the fundamentals of Network Security, Security Architecture, Threats and Vulnerabilities.

2.Apply the different Cryptographic operations of Symmetric Cryptographic Algorithms.

3.Apply the different Cryptographic operations of Public Key Cryptography.

4.Apply the various Authentication schemes to simulate different applications.

5.Understand various Security Practices and System Security Standards.

18CSE009- Cyber Forensics

1.Understand about the basic concepts of Forensic, Forensic technology & services.

2.Work with court – approved tools / Hardware tools / Nontechnical tools and to prepare the report based on law and privacy concerns.

3.Understand the concept of Crime, Data Acquisition and Report Writing.

4.Understand Computer Forensic tools and Case Studies.

18CSE010J- Data Science

1.Explain and work with the basic concepts of Data Science.

2.Apply Data Preprocessing Techniques to handle missing and inconsistent data.

3.Utilize appropriate Feature Selection and Dimensionality Reduction Techniques.

4.Apply Classification Algorithms for an application and analyze the results.

5.Explain Time Series model and use appropriate algorithms for various applications.

18CSE011T- Data Warehousing And Data Mining

1.Design the Data warehouse Schema and OLAP operations for a given problems.

2.Explain the functions involved in the Data Mining process.

3.Apply the Association Rule Mining techniques and Classification algorithms to solve the real world problems.

4.Apply the various Clustering algorithms for partitioning the given data.

5.Use the WEKA tool in Data Mining applications.

18CSE012T- Database Security And Privacy

1.Explain the concepts of security for database application development.

2.Explain the authentication process in the database.

3.llustrate the database application security models and virtual private databases.

4.Illustrate the security audit methods.

5.Explain the privacy preserving and data mining techniques.

18CSE013T- Deep Learning

1.Discuss the foundation of Neural Networks.

2.Describe the fundamentals of Deep Networks.

3.Select the appropriate Deep Network Architecture.

4.Analyze the performance of a deep learning network.

5.Apply deep learning for solving real world problems.

18CSE014J- Developing Web Applications In .Net

1.Understand the basics concepts of .Net Framework.

2.Discuss the object oriented concepts in C#.

3.Summarize the functions of SQL Server Queries.

4.Make use of ADO.NET data access concepts to develop applications.

5.Develop and deploy a web application.

18CSE015T- Digital Image Processing

1.Understand the basics and fundamentals of Image Processing.

2.Illustrate Image Enhancement Techniques.

3.Demonstrate the Restoration concepts and Filtering Techniques.

4.Illustrate Feature Extraction methods and Image Segmentation Algorithms.

5.Discuss about Image Compression Techniques and Applications.

18CSE016T- Distributed Computing Systems

1.Distinguish Distributed Computing Paradigm from other Computing Paradigms.

2.Illustrate the mechanisms of Inter Process Communication in Distributed System.

3.Identify the core concepts of Distributed Systems.

4.Apply appropriate Distributed System Principles in ensuring Transparency, Consistency and Fault-tolerance in Distributed File System

5.Compare the Concurrency Control Mechanisms in Distributed Transactional Environment.

18CSE017T- Embedded Computing Systems

1.Describe the Architecture and Programming of ARM processor and Microcontroller.

2.Explain the basic concepts of Real Time Operating System design.

3.Compare programming in Assembly Language and in High Level Language like C.

4.Illustrate simple Embedded Computing platform such as bus, memory, I/O devices and software tools.

5.Describe Embedded System design methodologies and Fault Tolerance Techniques.

18CSE018T- Free Open Source Software

1.Analyze the components of Linux operating system with the basic commands that are used to perform operations with the terminal in Linux.

2.Apply the steps to install Linux in a system and explore the software to be used with the Linux system.

3.Implement networking in Linux for user account management and user account protection.

4.Demonstrate how to compile C and C++ programs in Linux using GNU Debugger on consideration with make files.

5.Develop programs using ruby, python and GTK for working with Linux and explore the architecture of X Windows in Linux.

18CSE019T- Green Computing

1.Discuss about Green Computing practices to minimize negative impacts on the environment.

2.Apply the skill in energy saving practices in their use of hardware.

3.Discuss Green Computing Framework techniques.

4.Use the technology tools that can reduce paper waste and carbon footprint by the stakeholders.

5.Understand the ways to minimize equipment disposal requirements.

18CSE020T- Information Retrieval Techniques

1.Use an Open Source Search Engine Framework and explore its capabilities.

2.Describe models like Boolean Model, Probabilistic Model and Neural Network Model to identify the similarity of query and document.

3.Apply appropriate method of Classification or Clustering techniques.

4.Illustrate various Search Engine architectures and its ranking.

5.Explain how matrix Factorization Models and Neighborhood Models applied to Recommender system.

18CSE021T - Information Security

1.Discuss the basics of Information Security.

2.Illustrate the legal, ethical and professional issues in Information Security.

3.Demonstrate the aspects of Risk Management.

4.Summarize various standards in the Information Security System.

5.Design and Implementation of Security Techniques.

18CSE022J- Insight Into Cloud Computing

1.Discuss the overview of Cloud Computing.

2.Explain about Virtualization.

3.Describe the Building blocks of Private Cloud and its deployment models.

4.Explain about the various Players of Public Cloud and their offerings.

5.Describe Security concerns of Cloud Computing and various vendors of a secure Cloud model.

18CSE023T- Intellectual Property Rights

1.Ability to manage Intellectual Property Portfolio to enhance the value of the firm.

2.Review an Intellectual Property Portfolio and comprehend the extent of their protection.

3.Develop a business plan that advances the value of their Intellectual Property Portfolio.

4.Develop a strategy of marketing their intellectual property and understand some negotiation basics.

5.Explain some of the limits of their Intellectual Property Rights and comprehend some basic legal Pitfalls.

18CSE024T- Internet Of Things

1.Summarize various Protocols and Standards of Internet of Things.

2.Understand simple IoT Systems using Arduino.

3.Build simple IoT Systems using Raspberry Pi.

4.Understand Data Analytics and Cloud in the context of IoT.

5.Design and develop Smart Devices using IoT.

18CSE025J- Iot And Smart Appliances

1.Explain the basics of IoT Eco System.

2.Identify the various IoT connecting devices: Arduino, Raspberry Pi, Bluetooth, Wi-Fi.

3.Summarize the various IoT communication protocols.

4.Understanding the basic programs in Arduino.

5.Experiment Various IoT Case Studies.

18CSE026J- Mobile Computing

1.Explain the basics of Mobile Computing Systems.

2.Illustrate the generations of Telecommunication Systems in Wireless Networks.

3.Explain the Concepts of Mobile Network Layer.

4.Explain the functionality of Transport and Application layers.

5.Understand the Mobile Application using Android/Blackberry/iOS/Windows SDK.

18CSE027T- Parallel Computing

1.Discuss about the fundamentals of Parallel Computing.

2.Understand the ways to minimize the challenges in Parallel Computing.

3.Describe shared memory models and open MP programming.

4.Use the skills in MPI programming.

5.Understand the heterogeneous processors and its programming

18CSE028J- Python Programming

1.Illustrate the basic constructs of Python programming language.

2.Solve problems using Function, String and Collections.

3.Demonstrate various OOPs concepts and File handling techniques.

4.Develop GUI applications using Tkinter and Database Connectivity.

5.Make use of Numpy and Pandas Libraries to solve real world problems.

18CSE029J- Simulation And Modelling

1.Explain the fundamentals of Simulation and its principles.

2.Apply the Simulation and Modelling concepts in real time problems.

3.Analyze the input data using Statistical models.

4.Analyze the output data using Statistical models.

5.Apply the Simulation and Modelling concepts in Inventory systems.

18CSE030T- Soft Computing

1.Understand Soft Computing Frameworks.

2.Learn the concepts of Artificial Neural Networks.

3.Explain the logics of Fuzzy systems and Fuzzy Arithmetic.

4.Explain the concepts of Genetic Algorithm in Intelligent Systems.

5.Understand the Hybrid Systems in solving Real time problems.

18CSE031T- Software Engineering

1.Identify a suitable software development life cycle model for an application.

2.Determine the software requirements specification and cost estimation for an application.

3.Interpret the design models and various testing techniques for implementing software.

4.Learn the Object Orientation concepts in Software Development.

5.Summarize the concepts of Object Oriented methodologies and Unified Modeling Language in Software development.

18CSE032T- Software Project Management

1.Estimate project cost and perform Cost-Benefit evaluation among projects.

2.Apply quality models in software projects for maintaining software quality and reliability.

3.Perform project scheduling, activity network analysis and risk management.

4.Apply schedule and cost control techniques for project monitoring including contract management.

5.Use suitable project organization structure, leadership, decision and motivation styles, proper safety and ethical practices and be responsible to the society.

18CSE033T- Software Testing

1.Understand the Test plan, Design test cases and Team development.

2.Design test cases suitable for a Software Development for different domains.

3.Perform functional and Non Functional tests in the life cycle of the Software Product.

4.Understand System Testing and Test Execution Process.

5.Understand the Test Automation using Automation Tools.

18CSE034T- TCP / IP And Internet Programming

1.Understand the Basics of Networking with IEEE Standards.

2.Illustrate various protocols header formats and its operations.

3.Discuss the basics of TCP/IP Socket Programming with functions.

4.Describe Stream Socket establishment and various I/O Models.

5.Summarise IPV4, IPv6 Interoperability & Raw Socket Development.

18CSE035T- User Interface Technologies - Part I

1.Describe the functionalities of World Wide Web.

2.Explore Markup language features and create Interactive Web Pages.

3.Design Client-side validation using Scripting Languages.

4.Make use of Open source JavaScript Libraries.

5.Able to design Front-End Web Page.

18CSE036T- User Interface Technologies – Part II

1.Implement NoSQL Database CURD operations.

2.Make use of Server-side JS framework to make Database Connectivity.

3.Describe various concepts in TypeScript.

4.Explore Angular features and create component based Web pages .

5.Design Front-end Web pages using Forms.

18CSE037T- Visualization Techniques

1.Explain the basics of Data Visualization and principle of Perception.

2.Summarize the concept of Computer Visualization.

3.Make use of various Multidimensional Visualization Techniques in real time system.

4.Summarize the basics of textual methods of Abstraction.

5.Illustrate the Animation Design for the real time systems.

18CSO001T- Basics Of Data Structures And Algorithms

1.Explain the Fundamentals of Algorithms.

2.Illustrate List, Stack and Queue ADT with its applications.

3.Summarize the basic operations in Binary Tree, Binary Search and AVL Tree.

4.Solve the graph problem using various Graph Algorithms.

5.Apply various Sorting and Searching Algorithms for solving problems.

18CSO002J- Fundamentals Of Python Programming

1.Illustrate the basic constructs of Python programming.

2.Demonstrate simple problems using Control Flow, Functions and String concepts.

3.Solve real time problems using various concepts in Collections.

4.Explain the concepts in Files, Modules and Packages.

5.Implement OOPs concepts.

18CSO003J- Fundamentals Of Java Programming

1.Explain the concepts of Object Oriented programming.

2.Construct the programs with inheritance, Packages and String handling mechanisms.

3.Utilize the different Collections and type wrappers to solve logical building problems.

4.Make use of Exception handling mechanisms and Multithreading to solve real time problems.

5.Develop simple applications using Event handling.

18CSO004J- Mobile Application Development

1.Describe the requirements for Mobile Applications.

2.Explain the challenges in Mobile Application design and development.

3.Develop design for Mobile Applications for specific requirements.

4.Implement the design using Android SDK.

5.Implement the design using Objective C and iOS.

18CSO005T- Software Development Using Agile

1.Understand the fundamentals of SDLC Models and Agile Software Development.

2.Understand the concepts of Agile Scrum Framework.

3.Explain various Agile Testing Methods and its Process.

4.Understand the techniques and tools for improving Team Collaboration and Software Quality.

5.Discuss the Metrics and Quality Assurance in Agile Software Development.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

PROGRAM OUTCOMES(POs)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Professional Skills: Comprehend the technological advancements and practice professional ethics and the concerns for societal and environmental well-being.

PSO2: Competency Skills: Design software in a futuristic approach to support current technology and adapt cutting-edge technologies.

PSO3: Successful career: Apply knowledge of theoretical computer science to assess the hardware and software aspects of computer systems.

COURSE OUTCOMES:

18LEH101J -Technical English

1.Identify types, modes, channels and barriers of communication. distinguish different speech sounds, pronounce correctly

2.Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills.

3.Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills

4.Develop ideas into logical and coherent essays. Understand better the workplace culture.

5.Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation

18MBH101L-Professional Skills And Practices

1.Make presentation in a formal way

2.Speak with clarity and confidence, thereby enhancing their employability skills

3.Enable students to understand different aspects of leadership and evaluate in their own strengths

4.Clear the job interview successfully

5.Realize that selecting goal is a fundamental component to long- term success of an individual

18MAB101T-Calculus And Linear Algebra

1.Apply Matrices, Eigen values and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving

2.Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering

3.Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving

4.Solve the different types of Differential Equations in Science and Engineering applications

5.Apply convergence and divergence of series using different tests and apply sequences and Series in the problem solving

18PYB101J – Physics

1.Identify the effect of charge dynamics

2.Analyze electromagnetic induction

3.Apply quantum mechanics to basic physical problems

4.Apply ray propagation and optical effects

5.Identify the applications of lasers and optical fibre

18CSS101J - Programming For Problem Solving

1.Apply the problem solving techniques for solving numeric and string problems

2.Solve basic numeric problems using control statements in C

3.Develop the C program using the concepts of array and string

4.Apply the concept of function prototypes and pointers

5.Compare the performance of structures and union in memory management

18MES102J-Basic Civil And Mechanical Engineering

1.Identify the building materials and its applications

2.Identify different transportation system, water supply system and its applications

3.List the basic components and analyze the working of major power plants

4.Identify the working of IC engines and understand the need of various auxiliary systems

5.Identify manufacturing processes; casting, forming. List machining operations; lathe,

drilling.

6.Identify process of welding

18LEM101T-Constitution Of India

1.Identify the basic provisions in the Indian constitution

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions

4.Identify the power of states, its legislature, Governors role and the state judiciary

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST

18LEH102J-Professional English

1.Work in a team under any situation

2.Practice interpersonal relationships in workplace

3.Face interviews confidently and successfully

4.Participate and excel in role plays, presentations and formal conversations

5.Read and infer the meanings of technical and aesthetic passages

6.Draft official letters, reports, memos, emails, etc

18MAB102T-Advanced Calculus And Complex Analysis

1.Evaluate multiple integrals using change of variables

2.Apply techniques of vector calculus in problems involving Science and Engineering

3.Apply complex analytic functions and its properties in solving problems

4.Evaluate improper integrals using Residue theorem involving problems in Science and Engineering

5.Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations

18LEM102T-Value Education

1.Equipped with an awareness of their positive energy and power

2.Identify the meaning of 'education'; have a clearer and better understanding in taking education to the masses

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances

4.Realize their professional responsibilities

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes

18MBH102L - General Aptitude

1.Build a strong base in the fundamental mathematical concepts

2.Identify the approaches and strategies to solve problems with speed and accuracy

3.Gain appropriate skills to succeed in preliminary selection process for recruitment

4.Collectively solve problems in teams and groups

5.Build vocabulary through methodical approaches

6.Enhance lexical skills through systematic application of concepts and careful analysis of style, syntax, semantics and logic

18CYB101J – Chemistry

1.Identify the suitable polymeric materials fabrication processes in various application

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels

3.Apply the various thermodynamic and kinetics concepts to real system

4.Assemble a battery through the understanding of electrochemical principles

5.Catagorize the Engineering materials for their applications

18MES101J-Engineering Graphics

1.Apply engineering graphic fundamentals to draw/evaluate engineering curves

2.Draw the graphics of engineering parts with point, line and plane projections

3.Draw projection of solid objects like prisms, cylinders, pyramids and cones used in engineering objects

4.Develop the lateral surfaces of the sectional solids

5.Create 3D part models using isometric and perspective projection

18EES101J - Basic Electrical And Electronics engineering

1.Discuss basic theory utilized in electrical circuits and its circuits.

2.Describing working principle of direct current and alternative current machines such as transformers, motors and generators.

3.Operate the basic electronic devices. Identify their uses and construction features

4.Interpret the concept of measuring devices like PMMC, MI,energy and wattmeter

5.Apply binary logic and Boolean expressions for digital circuit design, Identify elements in an Integrated circuit.

18MAB202T-Partial Differential Equations And Linear Algebra

1.Familiarize the students with the concept of Fourier series

2.Apply partial derivative equation techniques to predict the behavior of certain phenomena

3.Solve various types of partial differential equations. To apply the acquired knowledge in signals and Systems, Digital Signal Processing. Etc

4.Explain the fundamental concepts of advanced algebra and their role in modern 38 mathematics and applied contexts.

5.Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon

18ECS201J-Digital Electronics

1.Analyze the Boolean functions and Boolean Expressions

2.Analyze the combinational circuits

3.Analyze the sequential networks

4.Analyze the characteristics and structure of different memory systems and programmable logic devices

5.Analyze digital circuits by using hardware description languages

18ECC201T - Electromagnetic Fields

1.Summarize various coordinate systems

2.Calculate the Electric Flux density due to various charge distributions

3.Describe Magnetic Flux density due to various current distributions

4.Explain various boundary conditions for electric and magnetic fields

5.Discuss Maxwell's equations and electromagnetic waves

18ECC202J - Analog Electronics

1.Review the stability factors of various biasing techniques used in BJT and FET

2.Compute the hybrid model for different amplifiers

3.Manipulate the high frequency analysis of single and multi stage amplifiers

4.Describe the hybrid model-π for different amplifiers

5.Discuss the distortion and performance of different categories large signal amplifiers

18ECC203T - Measurements And Instrumentation

1.Analyze the performance characteristics of an instrument, standards and calibration.

2.Understand DC and AC measuring instruments.

3.Discriminate the functions of various storage and display devices.

4.Measuring the R, L, and C using bridges.

5.Measure electrical and non-electrical quantities by transducers.

18ECC204T - Network Analysis And Synthesis

1.Analyze the transient response of circuits

2.Construct various network topologies

3.Solve one port and two port networks

4.Analyze different types of filters

5.Develop the RL,RC and LC networks

18MBM201L - Competencies In Social Skills

1.Students should be able to solve both analytical and logical problems in an effective manner

2.Students can design and deliver information in a proper manner

3.Presentation skills of students will be improved individually as well as a team membe

18CYM201T/ 18LEM103T Environmental Science/ Indian Tradition And Heritage

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principles involved in the generation of different forms of energy

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution

5.Apply information technology in the control of human population and women and child welfare

18MAB205T - Probability Theory And Random Processes

1.Identify and Analyze the given data's by using standard distributions.

2.llustrate and apply the concept of pairs of random variables from the knowledge of sampling distributions

3.Learners will understand the problems of Students T test for single mean, difference of means.

4.Study random processes, auto correlation and cross correlation applicable in the field of electronics and communication engineering.

5.Understand and analyze the problems associated with engineering applications.

18ITS201J - Data Structures And Object Oriented Programming

1.Describe various operation on the Abstract Data types

2.Discuss about the various operations performed in tree and graph data structures

3.Explain about various sorting methods and algorithm design techniques

4.Understand the concept of basics of OOPs , classes and objects

5.Explain inheritance, polymorphism and handling of exceptions

18ECC205J - Analog Integrated Circuits

1.Illustrate the op-amp's basic construction, characteristics, parameter limitations, various configurations and few applications of op-amp.

2.Analyze the timer circuits, PLL and Analog to digital and Digital to Analog Convertors

3.Analyze the special functions of IC's.

4.Summarize the concept of concept of Feedback amplifiers.

5.Review the concepts of Wave shaping circuits and tuned amplifier

18ECC206T - Transmission Lines And Waveguides

1.Able to analyze the different types of transmission line

2.Able to understand the different impedance matching techniques

3.Able to analyze the characteristics of TE,TM,TEM of parallel Planes

4.Able to analyze the rectangular and circular waveguide to meet the frequency requirements

5.Able to analyze the Rectangular and circular cavity resonators

18ECC207T - Signals And Systems

1.Deliver the definition of signals and systems

2.Apply the Fourier series /Transform and Laplace transform to analyse the CT signals

3.Apply the Fourier Transform and Laplace transform for system design and analyse

4.Apply the Z-transform and DTFT for DT signal analysis

5.Apply the Z transform and DTFT for DT system design

18ECC208J - Microprocessor And Microcontroller

1.On successful completion of this course, the student should be able to

2.Design and implement programs on 8086 microprocessor.

3.Design Memory Interfacing circuits.

4.Design and implement 8051 microcontroller based systems

5.Able to discuss about the interfacing in micro controller

6.Identify the fundamental need of Low power embedded system

18MBM202L- Critical And Creative Thinking Skills

1.Students can be able to solve both analytical and logical problems in an effective manner

2.Students can demonstrate an ability to design and deliver messages

3.The quality of student’s communication with practical experience is improved

18CYM201T /18LEM103T - Environmental Science / Indian Tradition And Heritage

1.Understand the meaning of culture, trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4.Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18BECC301J - Digital Signal Processing

1.Design the Digital FIR and IIR filters.

2.Apply the concept of quantization noise in digital filters.

3.Understand the Multirate Digital Signal Processing.

4.Describe the Architecture and write programming using DSP Processor.

18BECC302T - Antennas And Wave Propagation

1.Review the working of antenna and various antenna parameters.

2.Describe the radiation fields of various antennas.

3.Analyze the importance of Resonant and Non-Resonant antennas.

4.Explain the various antenna parameters measurements techniques.

5.Identify the various types of wave propagation in different layers of atmosphere.

18BECC303T - Analog Communication

1.Describe the generation and detection of amplitude modulation systems

2.Discuss the narrowband and wide band frequency signals and implement the FM system for the purpose of broadcasting.

3.Summarize the concepts of random process by analyzing the effect of noise in communication systems.

4.Review of noise performance of various receivers in communication systems.

5.Apply the coding schemes in Information theory.

18ECC402T - Wireless Communication

1.Describe the basic concept of Wireless Communication Systems

2.Illustrate the fundamentals of Cellular Concepts

3.Characterize the Wireless Channel in terms of large scale path loss and fading and the rapid fluctuations of Wireless Channel in terms of small scale fading and multipath parameters

4.Comprehend the basic Equalization schemes, Diversity and Multiple Access techniques used for the wireless systems

5.Construct the wireless system, as per the Wireless Standards and Specifications

18ECE001J -VLSI Design

1.Model the digital system using Verilog Hardware Description Language.

2.Demonstrate CMOS Fabrication process and Layout Design.

3.Analyse MOS Circuit process using various technologies.

4.Design and expose the CMOS circuits using various logic styles and Memory.

5.Construct arithmetic building blocks.

18ECE002J - Embedded System Design

1.Acquire knowledge about ARM Embedded systems and processor fundamentals

2.Perform ARM Organizations, Implementations and Processor cores.

3.Learn the concepts of ARM CPU cores and the AMULET asynchronous ARM processors.

4.Understand the concepts of EMBEDDED communication protocols and RTOS.

5.Understand the concepts of various Case studies based on Embedded systems.

18ECE003T - Real Time Operating Systems

1.Describe the differences between the general computing system and the embedded system, also recognize the classification of embedded systems.

2.Design real time embedded systems using the concepts of the RTOS.

3.Describe Various Real time models

4.Describe Principles and design issues in Various Kernels

5.Describe Applications of RTOS

18ECE004T - Advanced Microprocessors And Microcontrollers

1.Interpret the addressing capabilities and data types

2.Infer the addressing and multitasking concepts of Pentium interface.

3.Illustrate the hardware architecture of Special Purpose Processors.

4.Interpret the architecture and memory organization of the PIC.

5.Outline the RISC machine and its real time applications.

18ECE005J - Computer Networks

1.Understand and explain Data Communications System and its components.

2.Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.

3.Identify the different types of network devices and their functions within a network

4.Understand and building the skills of sub netting and routing mechanisms.

5.Familiarity with the addressing protocols and applications, and how they can be used to assist in network design and implementation.

18ECE006T - Automotive Embedded Systems

1.On completion of the course, the students will be able Study about of basics of Electronics in the Automobile with management techniques

2.Study and, apply drive by wire of Automotive Embedded system and its system & design requirements, steer-by-wire, brake-by-wire, suspension-bypwire, gas-by-wire , power-by-wire and shift by wire

3.Study, analyse and solve problems of the Hardware Modules of Automotive

4.Embedded system and such as Automotive sensors.

5.Understand the hardware need to build Electronic Ignition systems

6.Understand Examples of Automotive Embedded System using CAN. GPSS, GMS and GLS.

18ECE007T - Testing Of VLSI Design

1.Summarize the concepts of basics of testing and fault modeling.

2.Review the test generation for combinational and sequential circuits.

3.Summarize the design for testability.

4.Summarize the concepts of self – test and test algorithms.

5.Review the concepts of fault diagnosis.

18ECE008T - ASIC Design

1.Explain the different types of ASICs and logic cells used in ASIC design

2.Comprehend the different logic cell architecture

3.Explain design tools and interconnects in programmable logic cells

4.Understand about ASIC testing and construction.

5.Analyze floor planning, placement and routing in ASIC

18ECE010T - Machine Learning

1.Understand learning system and concept learning task

2.Illustrate the supervised learning algorithms

3.Explore different unsupervised learning algorithms

4.Understand learning set of rules and reinforcement learning

5.Apply the machine learning algorithms to solve a problem with python programming

18ECE011T - Digital Image Processing

1.Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms.

2.Explore enhancement techniques using spatial and frequency filers.

3.Apply the restoration technique in the presence of noise and degradation

4.Learn the basics of segmentation and representation.

5.Compute various compression and recognition methods.

18ECE012T - Cognitive Radio

1.Identify the difference between SDR and HDR

2.Discuss the functions and modules of SDR architecture.

3.Describe the cognitive techniques and artificial intelligence techniques.

4.Summarize the cognition cycle, functions and architecture maps.

5.Use the cognitive radio concept in next generation wireless networks.

18ECE014T - High Speed Networks

1.Recognize various types of High speed networks.

2.Analyze the congestion control techniques for ATM and TCP networks

3.Identify the traffic management schemes

4.Discuss Integrated and Differentiated services

5.Assess different protocols to achieve the required QOS

18ECE015T - Biomedical Instrumentation

1.To understand the Origin of Bioelectric potential and their measurements using appropriate electrodes and Transducers.

2.To understand how to measure various biochemical and nonelectrical parameters of human system

3.To understand the of various Assist and Therapeutic Devices

4.To understand the working principles of various Imaging techniques

5.To understand the recent trends in medical instrumentation

18ECE017T - Digital Control Systems

1.Understand the sampling process and reconstruction.

2.Explain the modelling and analysis by pulse transformation.

3.Understand the stability analysis in Z Plane.

4.Designing the discrete compensator.

5.Explain the designing of state feedback controller.

18ECE018T - Medical Image Processing

1.Able to acquire knowledge about Acquisition of Images and mathematical transforms required for image processing.

2.Able to perform image Reconstruction by Mathematical Preliminaries.

3.Able to learn the concepts of Neuro magnetic Imaging, Magnetic Resonance Imaging.

4.Able to understand the concepts of Fluoroscopy, CT, Image quality.

5.Able to understand the concepts of various ultrasound and Future imaging techniques.

18ECE019J - PCB Design Engineering

1.Illustrate Basics of Printed circuit board design engineering

2.Knowledge on PCB design process, rules, routing

3.Design PCB design parameters using CAE tools

4.Design the electrical parameters and design

5.Knowledge on Manufacturing and advanced PCB techniques

18ECE022T - Robotics & Automation

1.Gain basic knowledge about generation and types of robotics.

2.Examine different sensors and actuators for applications like maze solving and self-driving cars.

3.Understanding the basic function of manipulators, actuators and grippers

4.Explain navigation and path planning techniques along with the control architectures adopted for robot motion planning.

5.Describe the impact and progress in AI and other research trends in the field of robotics.

18ECE024T - Optical Networks

1.Identify with various optical system components.

2.Realize the concept of optical network architecture.

3.Explain the basics of wavelength routing techniques

4.Analyze the photonic packet switching and access networks

5.Gain knowledge of network design management.

18ECE026T - High Performance Communication Networks

1.Recognize various types of High speed networks.

2.Analyze the congestion control techniques for ATM and TCP networks

3.Identify the traffic management schemes

4.Discuss Integrated and Differentiated services

5.Assess different protocols to achieve the required QOS

18ECE027T - Lora WAN

1.On completion of the course, the students will be able study about IoT Networks with LoRa WAN, its Hardware Components and Software libraries. Learn about ARM mbed OS, Semtech LoRa MAC and LMIC Library ,Low Power Optimization and Analysis of Improving the operating range.

2.Study and, apply IOT in LoRa and LoRaWAN and how to Connecting with IOT servers using MQTT, how to Building a LoRa Gateway , how to obtaining and preparing hardware and how to connecting with IOT servers using RESTful API. Learn about GPS tracking.

3.Study, analyse and solve problems of Long Range & Low Power Networks for the Internet of Things and The LoRaWAN Protocol - LoRaWAN Analysis.

4.Understand the hardware need to build LoRaWAN, Setup networks with LoRa gateway, Show real time track with tail and path history.

5.Understand Testing of LORA for food application and learn Low power air velocity measurement , Radio performance criteria, Applied radio modules and Air velocity measurements

18ECE029T - Satellite Communication

1.Identify the spacecraft sub system used in satellite communication

2.Analyze various subsystems of spacecraft

3.Design and analyze the characteristics satellite links

4.Analyze the various medium access techniques

5.Apply different types of broadcasting/military applications and multimedia services

18ECE030T - Radar And Navigational Aids

1.Discuss principles of radar

2.Describe the operation of Moving Target Indicator and pulse Doppler radar

3.Explain the building blocks of Radar transceiver

4.Explain concepts of navigational system and Compare different navigation systems

5.Discuss instrument landing system and distance measuring equipment

18ECE032T - Pattern Recognition

1.Understand the basic concepts in pattern recognition.

2.Summarize the various techniques involved in pattern recognition.

3.Categorize the various pattern recognition techniques into supervised and unsupervised.

4.Illustrate the artificial neural network based pattern recognition.

5.Discuss the applications of pattern recognition in various applications.

18ECE034T – Nanotechnology

1.Know what it takes to have a career in nanotechnology

2.Understand the need to increase Nanotechnology awareness

3.Understand the definition of Nanotechnology

4.Know the processing of Nano particles and Nano materials

5.Know the application of Nanotechnology and nano materials

18BECO005T - Signal And Image Processing

1.Apply the concept of DT Signal and DT Systems.

2.Classify and analyze discrete time signals and systems

3.Implement Digital Signal Transform techniques DFT and FFT.

4.Use the enhancement techniques for digital Image Processing

5.Differentiate between the advantages and disadvantages of different edge detection techniques.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Apply the basic concepts of mathematics and science to analyse and design circuits, controls, Electrical machines and drives to solve complex problems.

PSO2: Apply relevant models, resources and emerging tools and techniques to provide solutions to power and energy related issues & challenges.

PSO3: Design, Develop and implement methods and concepts to facilitate solutions for electrical and electronics engineering related real world problems.

COURSE OUTCOMES:

18LEH101J - Technical English

1.Identify types, modes, channels and barriers of communication. distinguish different speech sounds, pronounce correctly

2.Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills

3.Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills

4.Develop ideas into logical and coherent essays. Understand better the workplace culture |

5.Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation

18MAB101T - Calculus And Linear Algebra

1.Apply Matrices, Eigenvalues and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving

2.Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering

3.Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving

4.Solve the different types of Differential! Equations in Science and Engineering applications

5.Apply convergence and divergence of series using different tests and apply sequences and Series in the problem solving

18CYB101J - Chemistry

1.Identify the suitable polymeric materials fabrication processes in various application

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels

3.Apply the various thermodynamic and kinetics concepts to real system

4.Assemble a battery through the understanding of electrochemical principles

5.Categorize the Engineering materials for their applications

18MES101J - Engineering Graphics

1.Apply engineering graphic fundamentals to draw / evaluate engineering Curves.

2.Draw the graphics of engineering parts with point, line and plane projections

3.Draw projection of solid objects like prisms, cylinders, pyramids and cones used in engineering objects

4.Develop the lateral surfaces of the sectional solids.

5.Create 3D part models using isometric and perspective projection

18EES101J - Basic Electrical And Electronics Engineering

1.Apply the concepts of ohm's and kirchhoff's law in DC and AC circuits

2.Explain the basic concepts of DC motor,DC Generator,Transformer and induction motor.

3.Summarize the nature of semiconductor devices

4.Interpret the concept of measuring devices like PMMC,MI,energy meter and wattmeter

5.Infer the concept of electronic devices and conversion techniques

18MBH102L - General Aptitude

1.Build a strong base in the fundamental mathematical concepts

2.Identify the approaches and strategies to solve problems with speed and accuracy

3.Gain appropriate skills to succeed in preliminary selection process for recruitment

4.Collectively solve problems in teams and groups

5.Build vocabulary through methodical approaches

6.Enhance lexical skills through systematic application of concepts and careful analysis of style, syntax, semantics and logic.

18LEM101T - Constitution Of India

1.Identify the basic provisions in the Indian constitution

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions

4.Identify the power of states, its legislature, Governors role and the state judiciary

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST

18LEH102J - Professional English

1.Work in a team under any situation.

2.Practice interpersonal relationships in workplace

3.Face interviews confidently and successfully

4.Participate and excel in role plays, presentations and formal conversations

5.Read and infer the meanings of technical and aesthetic passages

6.Draft official letters, reports, memos, emails, etc.,

18MAB102T - Advanced Calculus And Complex Analysis

1.Evaluate multiple integrals using change of variables

2.Apply techniques of vector calculus in problems involving Science and Engineering

3.Apply complex analytic functions and its properties in solving problems

4.Evaluate improper integrals using Residue theorem involving problems in Science and Engineering

5.Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations

18PYB101J – Physics

1.Identify the effect of charge dynamics

2.Analyze electromagnetic induction

3.Apply quantum mechanics to basic physical problems

4.Apply ray propagation and optical effects

5.Identify the applications of lasers and optical fiber

18CSS101J - Programming For Problem Solving

1.Apply the problem solving techniques for solving numeric and string problems

2.Solve basic numeric problems using control statements in C

3.Develop the C program using the concepts of array and string.

4.Apply the concept of function prototypes and pointers. |

5.Compare the performance of structures and union in Memory management

18MES102J - Basic Civil And Mechanical Engineering

1.Identify the building materials and its applications

2.Identify different transportation system, water supply system and its applications

3.List the basic components and analyze the working of major power plants

4.Identify the working of IC engines and understand the need of various auxiliary systems

5.Identify manufacturing processes, casting, forming. List machining operations: lathe, drilling. Identify process of welding

18MBH101L - Professional Skills And Practices

1.Make presentation in a formal way.

2.Speak with clarity and confidence, thereby enhancing their employability skills.

3.Enable students to understand different aspects of leadership and evaluate in their own strengths.

4.Clear the job interview successfully.

5.Realize that selecting goal is a fundamental component to long- term success of an individual.

18LEM102T - Value Education

1.Equipped with an awareness of their positive energy and power.

2.Identify the meaning of ‘education’; have a clearer and better understanding in taking education to the masses.

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances.

4.Realize their professional responsibilities.

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes.

18MAB201T - Transforms And Partial Differential Equations

1.Expand a function in terms of Fourier Series and apply it for solving engineering problems.

2.Gain knowledge on Fourier Transforms.

3.Model and solve higher order partial differential equations

4.Apply the methods of solving PDE in practical problems.

5.Handle problems in Z transforms and apply it to solve difference equations

18EES103T/18EE201T - Analog Electronics

1.Apply and analyze the principle of operation of transistor as an amplifier, diode in the rectifiers, multipliers, clipper & clamper circuits

2.Determine the frequency and gain value of various types of oscillators and Analyze the various switching circuits with its waveforms.

3.Design amplifier circuit for electronic application

4.Design application based circuit using IC741

5.Design timer circuit, voltage regulator and waveform generator using analog IC

18EEC201T - Electro Magnetic Theory

1.Explain the basic concepts of electric field lines in and around the space, potential distribution due to various charges and its applications using gauss law.

Apply the properties of conductors, dielectrics and capacitance in various applications and basic 2.concepts of Poisson's and Laplace equations.

3.Interpret the concept of magnetic field lines, density and intensity by using Biot- Savart law and Ampere's circuital law.

4.Summarize the nature of magnetic materials, magnetism boundary conditions, force and torque concept u sing Lorentz force equation, inductance and mutual inductance

5.Infer the concept of Maxwell's equation in static and time varying fields, applications of Poynting theorem and also show the relation between circuit equations (Kirchhoff's laws) and Maxwell's equations.

18EEC202T - Electrical Machines I

1.Illustrate Commutation & Armature Reaction in DC generator

2.Describe the starting methods and speed control methods of DC motors

3.Analyze the performance of the DC motor by different testing methods

4.Describe the working of transformer under no load & loaded condition by Phasor diagram

5.Analyze the performance of Transformers by different testing methods

18EEC203J – Measurements And Instrumentation

1.Explain the performance characteristics of functional elements of an instrument, standards and calibration.

2.Enumerate the working of Analog and Digital measuring instruments.

3.Measuring the R, L, C using bridges.

4.Differentiate the functions of various storage and display devices

5.Measure electrical and non electrical quantities by transducers.

18EEC204T - Electric Power Generation

1.Describe the working of thermal and hydel power station using single line diagram and state the functions of the major equipment and auxiliaries of it

2.Explain the layout, construction and working of the components of nuclear power plants.

3.Describe the working of the components of Diesel and Gas Power plants.

4.Identify different solar power generation methods & various components of Wind Energy Conversion system.

5.Compare various economic aspects of different costs of power generation & types of Tariffs.

18EEC205L - Electrical Machines I Laboratory

1.Analyze the performance of Different types DC generators

2.Analyze the performance of Different types DC motors

3.Estimate the performance of DC Machines by indirect testing methods

4.Analyze the speed control methods of DC Motors

5.Estimate the performance of Transformers by direct & indirect testing methods

18EEC206L - Analog Electronics Laboratory

1.Determine the frequency and gain value of various types of oscillators and amplifiers.

2.Simulate the circuit in PSPICE software

3.Explain the operational of inverter and non-inverter amplifier.

4.Explain the various application of operational amplifier.

5.Explain the operation of Astable and Monostable Timer

18MBM201L - Competencies In Social Skills

1.Solve both analytical and logical problems in an effective manner

2.Design and deliver information in a proper manner

3.Improve their presentation skills individually as well as team member

18CYM201T - Environmental Science

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principles involved in the generation of different forms of energy

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution

5.Apply information technology in the control of human population and women and child welfare

18MAB204T - Statistics And Numerical Methods

1.Analyze and evaluate the accuracy of common numerical methods

2.Apply numerical methods to obtain approximate solutions to mathematical problems.

3.Predict the solution of a given problem and confirm it with its corrector value and if it deviates to apply the corrector again.

4.Understand the problems of Students t-test for single mean and difference of means.

5.Identify the applications, various design and concepts of experiments.

18EES104J /18EES202J - Digital Electronics

1.Design of combinational logic circuits

2.Design and analyze the behaviour of synchronous sequential logic circuits.

3.Design and analyze the various behaviours of Asynchronous Sequential Logic Circuits.

4.Interpret different memory devices, programmable logic devices and digital logic families.

5.Design of combinational circuits using VHDL

18EEC207T - Electrical Machines II

1.Illustrate the working principle of synchronous generators and analyze the different types of voltage regulation methods

2.Illustrate the principle of operation and performance of synchronous motor

3.Illustrate the features and testing of induction motors

4.Analyze performance and speed control of three phase induction motors

5.Explain different starting methods of induction motor and performance of special motors

18EEC208T - Transmission And Distribution

1.Outline the distribution system connection scheme.

2.Analyse the line parameters of transmission lines

3.Analyse the features and performance of the short, medium and long transmission lines.

4.Label the features of different types of cables

5.List the need for electrical substations and its layouts

18EEC209T - Control Systems

1.Develop the transfer function modeling for analysis of physical systems

2.Determine the time response of various models of linear system subjected to standard test signals.

3.Infer the concept of frequency domain specifications applied to systems using various analysis techniques

4.Analyze the performance and stability of linear control system and design appropriate compensator for the given specifications

5.Develop the Matlab program to indicate time domain and frequency domain performance.

18EEC210T – Power Electronics And Converters

1.Ability to express characteristics of SCR, BJT, MOSFET, IGBT and IGCT.

2.Design a suitable Power Converter for given DC load specification from AC input.

3.Design and analyze of various DC – DC converters.

4.Design and analyze the Single and Three Phase Inverters.

5.Analyze different AC to AC converters.

18EEC211L – Electrical Machines II Laboratory

1.Analyze the performance of Synchronous machines

2.Estimate the voltage regulation of alternators by indirect testing methods

3.Estimate the losses & efficiency of Single phase & Three phase Induction machines by direct & indirect methods

4.Analyze the performance of Single phase & Three phase Induction machines

5.Analyze the speed control methods of Three phase Induction motors

18EEC212L – Control System Laboratory

1.Ability to formulate transfer function of DC motor

2.Ability to formulate transfer function of DC generator.

3.Ability to formulate transfer function of servo motors.

4.Determine the time and frequency response.

5.Expose the knowledge on stability of linear systems.

18MBM202L - Critical And Creative Thinking Skills

1.Solve both analytical and logical problems in an effective manner

2.Demonstrate an ability to design and deliver messages

3.Improve their communication with practical experience

18LEM103T - Indian Tradition And Heritage

1.Understand the meaning of culture, trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4.Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18EEC301T - Power System Analysis

1.Relate single line diagram, per unit Computations and network matrices of power system

2.Carry out power flow analysis by iterative techniques

3.Formulate and Analyse symmetrical faults occurring in power system network

4.Formulate and Analyse various type of unsymmetrical faults occurring in power system network

5.Explain the role of stability, swing equation and equal area criterion

18EEC302T-Microcontroller And Embedded System

1.Explain the architecture of microprocessor 8085

2.Describe the 8051 architecture and the function of on-chip hardware units in 8051

3.Explain the architecture and hardware features of PIC 16F877 and ARM 7 (LPC2148).

4.Describe the basic concept of embedded system architecture and its communication networks.

5.Explain the methods of scheduling, multitasking and the application of embedded systems

18EEC303L-Power Electronics And Converters Laboratory

1.Experiment about characteristics of power semi conductor devices

2.Acquire knowledge on DC to DC Circuits

3.Construct the DC to AC Circuits

4.Demonstrate on AC to AC Circuits

5.Acquire knowledge on simulation tool to construct converter topologies

18EEC304L-Microcontroller And Embedded System Laboratory

1.Demonstrate the arithmetic operations that can be implemented using Microcontroller

2.Describe the interfacing methods that can be used in Microcontroller

3.Understand the functional block of 8051 Microcontroller and PIC Microcontroller

4.Demonstrate a program to interface application oriented control using 8051

5.Describe the display and voltage control module using PIC Microcontroller

18MBM301L-Analytical And Logical Thinking Skills

1.Solve both analytical and logical problems in a fruitful manner

2.Organize and convey the information in such an incomparable way

3.Improve their presentation skills

18LEM301T-Indian Art Forms

1.Identify aesthetics traits found through Indian art

2.Demonstrate understanding of the social and artistic movements that have shaped theatre and dance

3.Recognize different concepts involved in music and dance

4.Identify and appreciate the salient features and various styles of Indian architecture , sculpture and painting at different times

5.Demonstrate a broad understanding of Indian literary arts and appreciate the role that historical context plays in a creation and interpretation of literary works

18MBH201T-Management Principles For Engineers

1.Acquired the knowledge and fundamental concept of management and its various functions

2.Gained knowledge on planning and decision making process

3.Attained the knowledge of organization structure and career planning

4.Demonstrate the ability to directing , leadership and communicate effectively

5.Analysis isolates issues and formulates best control methods

18EEC305T-Power System Protection And Switchgear

1.Analyze the causes of different types of faults and choose a suitable protection schemes.

2.Analyze the working principles of various types of protective relays.

3.Apply suitable protection schemes of various power system components like alternators, transformers, feeders, transmission lines, bus bars and motors.

4.Examine the concept of circuit theory interruption and its impact on power system safety.

5.Summarize the various types of circuit breakers operation.

18EEC306T-Solid State Drives

1.Illustrate the choice of electric drives & types ,dynamics of electrical drives

2.Explain the concept of phase controlled ,chopper controlled DC motor drives

3.Apply open and closed loop speed control to induction motor

4.Apply open and closed loop speed control to synchronous motor

5.Illustrate the applications of DC and AC drives

18EEC307L-Power System Simulation Laboratory

1.Analyze the performance of transmission lines.

2.Design and form network matrices for any power system network.

3.Design and get power flow solution for any power system network.

4.Analyze fault analysis for given simple power system network.

5.Analyze stability of power system network using given software.

18EEC308L-Solid State Drives Laboratory

1.Construct and simulate power converters for DC motor drives.

2.Construct and simulate power converters for AC motor drives.

3.Employ various control strategies for motor drives.

4.Perform speed control of various motor drives.

5.Analyse drive circuit for switched reluctance motor drive.

18MBM302L-Employability Skills And Practices

1.Solve both analytical and logical problems in a productive manner

2.Launch their ability of comprising and delivering the information

3.Upgrade their communication quality in near future

18LEM302T-Self Development And Entrepreneurship

1.Identify entrepreneurial quality.

2.Know the entrepreneurial support agencies.

3.Prepare project setup planning and project report.

4.Select appropriate agencies for technical and financial support.

5.Explain SWOT analysis and strategies to achieve goals.

18MBH202T-Social Engineering

1.Understand the concept of social engineering and types of attacks

2.Identify the key security concepts, CIA and IT governance and best practices

3.Understands the principles of Social Engineering.

4.Exhibit the ethical hacking concepts and scopes, threats and attack vectors and common areas of vulnerability

5.Gain knowledge of attacks against individuals and organizations

18EEE001T-Power System Operation And Control

1.Understand the day-to-day operation of electric power system.

2.Derive the real power frequency control technique

3.Derive the reactive power voltage control technique

4.Calculate the economic load dispatch for a system comprising of 'n' thermal plants

5.Describe the system involved in computer control of power systems

18EEE002T-Design Of Electrical Machines

1.Calculate the mmf for dc and ac machines.

2.Estimate the suitable armature and field system parameters for DC machines.

3.Determine the design parameters involved in transformer.

4.Calculate the design parameters of induction machines.

5.Evaluate the design parameters of synchronous machines.

18EEE003T-Electric Power Utilization And Energy Auditing

1.Explain the principle and design of illumination systems.

2.Identify an appropriate method of heating for any particular industrial application.

3.Realise types of batteries and fuel cells.

4.Describe the drive systems for DC and AC traction systems and magnetic levitation.

5.Know about the proper utilization of electrical energy and the procedure involved in energy auditing

18EEE004T-Restructured Power System

1.Explain the basic concepts of restructured power system and review the operating experiences of restructured Electricity power Markets.

2.Address the technical challenges in Restructuring.

3.Explain the concept of congestion management methods and Ancillary Services.

4.Understand the transmission open access pricing issues transmission pricing methods and generator ramping.

5.Review the reforms in Indian power sector.

18EEE005T-Digital Signal Processing

1. Classify the given discrete time System the characteristics of signals/systems and determine the operations on the signals.

2.Apply Z transform and DTFT for the given discrete time signal.

3.Apply the concepts of DFT and FFT for the given discrete time signal.

4.Describe the types of filters and their design for digital implementation.

5.Explain the DSP processor architecture and its addressing modes.

18EEE006T-Advanced Control Systems

1.Interpret the concept of state space models

2.Understand the solution for LTI system and its performance indices

3.Acquire the knowledge of sampled data system

4.Provide Knowledge in Non-linear system analysis

5.Understand the concept of state model design and its stability

18EEE007T-Wind Energy Conversion Systems

1.Acquire knowledge on the basic concepts of Wind energy conversion system.

2.Realize the concepts of mathematical modeling and control of Wind turbine for maximum power extraction

3.Explain the concept of Fixed speed system, Variable speed system and its modeling.

4.Describe the modern wind turbine control and monitoring.

5.Interpret the Grid integration issues.

18EEE008T-High Voltage Dc Transmission

1.Address the modern trends and planning of HVDC system.

2.Classify the various converters used in the HVDC system.

3.Summarize various control strategies associated with the HVDC system.

4.Illustrate and select the fault analysis and protection methods for HVDC system

5.Categorize the harmonics and explain the concepts of filters.

18EEE009T-High Voltage Engineering

1.Describe the causes and effects of over voltages and protection of power system against over voltages.

2.Classify the different breakdown mechanisms in Gases, liquids and solids.

3.Describe the principle of generation of high DC, AC and impulse voltages.

4.Explain the various measurement techniques of high voltages and high currents.

5.Summarize the testing of high voltage electrical power apparatus.

18EEE010T-Communication Engineering

1.Understand the basic concepts of amplitude modulations

2.Describe the concepts of frequency and phase modulation

3.Infer an idea about various Pulse modulations and the OOK systems.

4.Identify the data communication codes and various network protocol

5.Understand the concept of satellite orbits and optical fibre communication system.

18EEE011T-Electric Vehicles

1.Describe the configuration and its concepts of Electric Vehicles and Hybrid Vehicles

2.Classify and apply the types of batteries and fuel cells.

3.Discuss the electric propulsion unit and its drive for application of electric vehicles.

4.Discuss the design procedures of the Electric and Hybrid Electric Vehicles

5.Describe the different power converter topology used for electric vehicle application.

18EEE012T-Smart Grid

1.Extent the basic concepts of smart grid, working, new technologies and features of smart grid in the context of Indian grid.

2.Explain the design of smart grid, role of automation in transmission and distribution.

3.Interpret the concept of sensing and measuring methods, types of advanced meters and power electronics using in smart grid.

4.Describe the concept of information technologies, types of communication systems and control methods

5.Distinguish the security problem in smart grid and various methods to solve the security problems in smart grid.

18EEE013T-Artificial Intelligent Systems

1.Understand about different learning process in ANN

2.Implement the Fuzzy logic algorithm to real time problem.

3.Examine the concepts of Genetic Algorithm.

4.Apply the different engineering applications of Artificial intelligence techniques.

5.Understand different soft computing techniques.

18EEE014T-Bio Medical Engineering

1.Understand the physiology of human system

2.Describe the various electrodes and transducers

3.Demonstrate the cardiac and respiratory diagnostic instruments

4.Demonstrate the imaging techniques in medical field

5.Understand the applications of telemetry and Surgical devices.

18EEE015T-VLSI Design

1.Understand about fundamentals of IC design and MOS transistor theory

2.Demonstrate CMOS fabrication process and DC characteristics

3.Describe the circuits using various CMOS logic styles

4.Describe various arithmetic building blocks

5.Understand about implementation strategies in IC design

18EEE016T-Flexible AC Transmission Systems

1.Understand the concept of various FACTS controllers.

2.Understand the static shunt compensation.

3.Understand the static series compensation.

4.Describe the operation of unified power flow controller.

5.Identify the different special purpose FACTS controller and its applications.

18EEE017T-Special Electrical Machines

1.Explain the performance and control of Stepper Motors and their applications

2.Examine the operation theory and control of Switched Reluctance Motor

3.Explain the working principles of Brushless DC Motor

4.Describe the operation and characteristics of Permanent Magnet DC Motor

5.Apply the theory of linear force in linear motor application

18EEE018T-Power Quality

1.Explain the various Power quality sources and impacts

2.Explain the impact of PQ issues in various electrical components

3.Discuss the need for power quality and protection systems

4.Compute the harmonics in the commercial / industrial facilities

5.Analyze various power quality measurement and grounding

18EEE019T-Virtual Instrumentation

1.Describe the Virtual Instruments and its use

2.Describe the programming techniques involved in LabVIEW

3.Demonstrate the basic programming In VIs

4.Discuss the hardware interfacing modules in VIs

5.Discuss the application of LabVIEW in Industrial Applications like Biomedical, Process Control, Mechanical Measurements And Automobile

18EEC020T-Solar Energy Utilization

1.Infer the concepts of solar radiation data and its measurement.

2.Explain the working process of various solar thermal systems.

3.Describe the principles of solar parabolic concentrators and direct steam generation systems.

4.Enumerate the importance of solar photovoltaic maintenance and their implementation.

5.Understand the orientation and design of buildings by using latest heat energy storages.

18EEE021T-Energy Storing Devices And Fuel Cells

1.Conceptualize the principles of energy storage systems.

2.Understand the performance of primary batteries and their design aspects.

3.Interpret the concepts of secondary batteries

4.Comprehend the fundamental concepts of ultra-capacitors and flywheels.

5.Perceive the importance of fuel cell system in replacing fossil fuel based energy generation.

18EEE022T-Fundamentals Of IOT

1.Understand the concept of IoT

2.Describe various protocols and technologies for IoT.

3.Demonstrate various M2M and IoT architectures.

4.Describe the IoT solutions using Arduino/Raspberry Pi

5.Understand the applications of IoT in real time scenario.

18EEO001T-Basics Of Internet Of Things

1.Understand the concept of IoT

2.Describe various protocols and technologies for IoT.

3.Demonstrate various M2M and IoT architectures

4.Describe the IoT solutions using Arduino/Raspberry Pi

5.Understand the applications of IoT in real time scenario

18EEO002T-Fundamentals Of Smart Grid

1.Understand the basic concepts of Smart grid and its Characteristics, Working Principle.

2.Explain the Design of Smart grid and technologies using transmission automation.

3.Describe the different Smart Grid technologies for Distribution automation.

4.Discuss about different smart meters and advanced metering infrastructure.

5.Explain the high performance computing for Smart Grid applications.

18EEO003T-Robotics

1.Understand the basic robotic terminologies

2.Understand various parts of robots.

3.Understand manipulator dynamics and gripper operation

4.Develop kinematics and path planning equations for standard configurations

5.Familiarize the various applications of robots.

18EEEO004T-Energy Storing Devices

1.Conceptualize the principles of energy storage systems.

2.Understand the performance of primary batteries and their design aspects.

3.Interpret the concepts of secondary batteries

4.Comprehend the fundamental concepts of ultra-capacitors and flywheels.

5.Perceive the importance of fuel cell system in replacing fossil fuel based energy generation.

18EEO005T-Fundamentals Of Electric Vehicles

1.Describe the configuration and its concepts of Electric Vehicles and Hybrid Vehicles

2.Classify and apply the types of batteries and fuel cells.

3.Discuss the electric propulsion unit and its drive for application of electric vehicles.

4.Describe the steps involved in design of Series Hybrid Electric Drive Train

5.Describe the steps involved in design of Parallel Hybrid Electric Drive Train

18EEX001J-Embedded System Using Arm Controllers

1.Understand the ARM7 Architecture

2.Describe about the Features and data communications of LPC2148

3.Understand the various embedded system components functionality with differences between the general computing system and the embedded system

18EEX002J-Labview Programming

1.Demontrate the programming in LabVIEW tool.

18EEP401L-Project Work I

1.At the end of this course, learners will be able to take up any challenging practical problems in the field of Electrical & Electronics Engineering and find solution by formulating proper methodology.

18EEP402L-Project Work II

1.At the end of this course, learners will be able to take up any challenging practical problems in the field of Electrical & Electronics Engineering and find solution by formulating proper methodology.

DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

PROGRAMME OUTCOMES (POs):

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1: Graduate will have an ability to apply modern industrial automation tools in control and automation industries to solve the complex problems.

PSO2: Graduate will have an ability to develop product through research in the field of biomedical instrumentation, industrial automation, robotics, aircraft and space technology.

COURSE OUTCOMES:

18LEH101J - Technical English

1.Identify types, modes, channels and barriers of communication. distinguish different speech sounds, pronounce correctly.

2.Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills.

3.Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills.

4.Develop ideas into logical and coherent essays. Understand better the workplace culture.

5.Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation.

18MAB101T - Calculus And Linear Algebra

1.Apply Matrices, Eigenvalues and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving.

2.Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering.

3.Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving.

4.Solve the different types of Differential Equations in Science and Engineering applications.

5.Apply convergence and divergence of series using different tests and apply sequences and Series in the problem solving.

18PYB101J – Physics

1.Identify the effect of charge dynamics.

2.Analyze electromagnetic induction.

3.Apply quantum mechanics to basic physical problems.

4.Apply ray propagation and optical effects.

5.Identify the applications of lasers and optical fiber.

18CSS101J - Programming For Problem Solving

1.Apply the problem solving techniques for solving numeric and string problems

2.Solve basic numeric problems using control statements in C.

3. Develop the C program using the concepts of array and string.

4.Apply the concept of function prototypes and pointers.

5.Compare the performance of structures and union in Memory management.

18MES102J - Basic Civil And Mechanical Engineering

1.Identify the building materials and its applications.

2.Identify different transportation system, water supply system and its applications.

3.List the basic components and analyze the working of major power plants.

4.Identify the working of IC engines and understand the need of various auxiliary systems.

5.Identify manufacturing processes, casting, forming. List machining operations: lathe, drilling. Identify process of welding.

18MBH101L - Professional Skills And Practices

1.Make presentation in a formal way.

2.Speak with clarity and confidence, thereby enhancing their employability skills.

3.Enable students to understand different aspects of leadership and evaluate in their own strengths.

4.Clear the job interview successfully.

5.Realize that selecting goal is a fundamental component to long- term success of an individual.

18LEM101T - Constitution Of India

1.Identify the basic provisions in the Indian constitution.

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation.

3.identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions.

4.Identify the power of states, its legislature, Governors role and the state judiciary.

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST.

18GNM101L – Physical And Mental Health Using Yoga

1.Increase the muscle strength.

2.Improverespiration, energy and vitality.

3.Maintain a balanced metabolism and weight reduction.

4.Maintain cardio and circulatory health.

5.Improve athletic performance and protection from injury.

18LEH102J - Professional English

1.Work in a team under any situation..

2.Practice interpersonal relationships in workplace.

3.Face interviews confidently and successfully.

4.Participate and excel in role plays, presentations and formal conversations.

5.Read and infer the meanings of technical and aesthetic passages.

6.Draft official letters, reports, memos, emails, etc.,

18MAB102T - Advanced Calculus And Complex Analysis

1.Evaluate multiple integrals using change of variables.

2.Apply techniques of vector calculus in problems involving Science and Engineering.

3.Apply complex analytic functions and its properties in solving problems.

4.Evaluate improper integrals using Residue theorem involving problems in Science and engineering.

5.Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations.

18CYB101J – Chemistry

1.Identify the suitable polymeric materials fabrication processes in various application.

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels.

3.Apply the various thermodynamic and kinetic concepts to real system.

4.Assemble a battery through the understanding of electrochemical principles.

5.Categorize the Engineering materials for their applications.

18MES101J - Engineering Graphics

1.Apply engineering graphic fundamentals to draw / evaluate engineering Curves.

2.Draw the graphics of engineering parts with point, line and plane projections.

3.Draw projection of solid objects like prisms,cylinders, pyramids and cones used in engineering objects.

4.Develop the lateral surfaces of the sectional solids.

5.Create 3D part models using isometric and perspective projection.

18EES101J - Basic Electrical And Electronics Engineering

1.Discuss basic theory utilized in electrical circuits and its circuits.

2.Describing working principle of direct current and alternative current machines such as transformers, motors and generators.

3.Operate the basic electronic devices. Identify their uses and construction features.

4.Interpret the concept of measuring devices like PMMC. MI .energy and wattmeter.

5.Apply binary logic and Boolean expressions for digital circuit design, Identity elements in a Integrated circuit.

18MBH102L - General Aptitude

1.Build a strong base in the fundamental mathematical concepts.

2.Identify the approaches and strategies to solve problems with speed and accuracy.

3.Gain appropriate skills to succeed in preliminary selection process for recruitment.

4.Collectively solve problems in teams and groups.

5.Build vocabulary through methodical approaches.

6. Enhance lexical skills through systematic application of concepts and careful analysis of style, syntax, semantics and logic

18LEM102T - Value Education

1.Equipped with an awareness of their positive energy and power.

2.Identify the meaning of ‘education’; have a clearer and better understanding in taking education to the masses.

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances.

4.Realize their professional responsibilities.

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes.

18BMAB201T - Transforms And Partial Differential Equations

1.Expand a function in terms of Fourier Series and apply it for solving engineering problems.

2.Gain knowledge on Fourier Transforms.

3.Model and solve higher order partial differential equations.

4.Apply the methods of solving PDE in practical problems.

5.Handle problems in Z transforms and apply it to solve difference equations.

18BMES203T - Thermodynamics And Fluid Mechanics

1.Summaries the basic laws in engineering thermodynamics.

2.Explain the working principle of IC Engines.

3.Explain the working of Boilers and compressors.

4.Summarize the working of flow and pressure measuring equipments.

5.Describe the Construction and working of pumps and turbines.

18BEIC201T - Instrument Transducers

1.Explain the concept of transducer and its classification.

2.Select a suitable transducer for instruments based on its characteristics.

3.Infer the working principle of Resistive transducers.

4.Infer the working principle of Inductive and Capacitive transducers.

5.Illustrate the working principle of other miscellaneous transducers.

18BEIC202T - Digital Principles And Applications

1.Apply Boolean Algebra for the design of digital logic circuits.

2.Design Combinational Logic Circuits.

3.Analyze and design various Synchronous Sequential Circuits.

4.Develop asynchronous Sequential Circuits.

5.Implement combinational logic Circuits using PLD and VHDL.

18BEIC203T - Electrical And Electronic Measurements

1.An ability to compare the working principles, merits, demerits and errors of different types of electrical instruments and can understand about different instruments that are used for Measurement purpose.

2.Understanding of how different bridge networks are constructed and balanced for finding out values of resistance, capacitance and inductance.

3.An ability to apply knowledge of electronic instrumentation for measurement of electrical quantities.

4.Able to apply the principles and practices for instrument design and development to real world problems.

18BEIC204T - Electronics For Analog Signal Processing

1.Explain the construction, operation, characteristics and applications of various semiconductor diodes and transistors.

2.Design the feedback amplifiers and analyse the characteristics of OP-AMPS.

3.To impart knowledge on single & multi-stage amplifiers, power amplifiers.

4.Implement electronic application circuits using Specific ICs.

5.Use specific ICs to develop applications.

18BEIC205L - Sensors And Transducers Laboratory

1.Explain the concept of transducer and its classification.

2.Select a suitable transducer for instruments based on its characteristics.

3.Infer the working principle of Resistive transducers.

4.Infer the working principle of Inductive and Capacitive transducers.

5.Illustrate the working principle of other miscellaneous transducers.

18BEIC206L - Linear And Digital Integrated Circuits Laboratory

1.Design the combinational circuits and verify the truth table.

2.Design the sequential circuits and verify the truth table.

3.Construct the circuits using Op- Amp for mathematical operations.

4.Construct the voltage regulator circuits.

5.Design of oscillators using Op-Amp.

18EIP201L - Minor Project I

1.Carry out any experimental works and mathematical analysis related to the real time problems identified and provide better solution for identified problem.

2.Understand the modelling, analysis and design concepts related to their area of project.

3.Familiar in designing suitable hardware and software related to area of project.

4.On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

18MBM201L - Competencies In Social Skills

1.Solve both analytical and logical problems in an effective manner.

2.Design and deliver information in a proper manner.

3.Presentation skills of students will be improved individually as well as a team member.

18LEM103T - Indian Tradition And Heritage

1.Understand the meaning of culture, trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4.Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18BMAB202T - Statistics And Numerical Methods

1.Analyze and evaluate the accuracy of common numerical methods.

2.Apply numerical methods to obtain approximate solutions to mathematical problems.

3.Identify the applications and various design and concepts of experiments numerical integration.

4.Predicts the solution of a given problem and confirm it with its corrector value if it deviates applies the corrector again.

5.Learners will understand the problems of Students t test for single mean, difference of means.

18MES204T - Applied Hydraulics And Pneumatics

1.Understand the fundamentals of fluid power systems and hydraulic systems.

2.Identify various hydraulic system components and to illustrate the construction and working of various pumps and actuators.

3.Outline the constructional details of control valves and accumulators.

4.Identify the various pneumatic system components and to design a penumo hydraulic circuit for simple applications.

5.Analyze the characteristics of different pneumatic systems used for simple applications.

18BEIC207T - Industrial Instrumentation I

1.Perceive the non-electrical methods of temperature measurement.

2.Analyze the functions of electrical type temperature measuring instruments.

3.Describe about pressure and how it is converted into electrical output.

4.Identify the different methods of measuring load, torque and speed.

5.Illustrate the different methods of vibration and density measurement.

18BEIC208T - Control Systems Design

1.Develop the mathematical model and transfer function of physical systems.

2.Formulate the state space model .

3.Determine the response of different order systems for various inputs.

4.Perform frequency response analysis of the control system.

5.Analyse the stability of linear systems.

18BEIC209T - Microprocessors, Microcontrollers And Applications

1.Ability to understand the architecture of any advanced Processor to keep in pace with technological challenges.

2.Apply the acquired Programming skills and relate to any Processor/microcontroller in a multidisciplinary project.

3.Able to utilize the IT tools like TASM, MASM and Proteus to develop electronic prototyping and thereby establishing real time control.

4.Ability to develop/design microcontroller based system paving way for automation and continuous development.

5.Illustrate how different peripherals are interfaced with the 8051 Microcontroller.

18BEIC210T - Analytical Instrumentation

1.Understand the fundamental principles of selective analytical instruments used in medical diagnosis, quality assurance & control and research studies.

2.Assess and suggest a suitable analytical method for a specific purpose, and evaluate sensitivity, important sources of interferences and errors, and also suggest alternative analytical methods for quality assurance.

3.Critically evaluate the strengths and limitations of the various instrumental methods.

4.Develop critical thinking for interpreting analytical data.

5.Impart knowledge on the important measurement in many chemical processes and laboratories handling liquids or solutions.

18BEIC211L - Control And Instrumentation Laboratory

1.Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.

2.Ability to do time domain and frequency domain analysis of various models of linear system.

3.Ability to come out with solution for complex control problem.

4.Calibrate a pressure gauge using dead weight tester.

5.Analyze the response of instruments like RTD and Thermocouple.

6.Analyze the output of a load cell.

18EIP202L - Minor Project II

1.Carry out any experimental works and mathematical analysis related to the real time problems identified and provide better solution for identified problem.

2.Understand the modelling, analysis and design concepts related to their area of project.

3.Familiar in designing suitable hardware and software related to area of project.

4.On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

18BEIC212L - Embedded System Laboratory

1.Ability to exploit the features / instruction of the microcontroller to develop microcontroller based system.

2.Provide automation solutions to the real-time processes and thereby improving the efficiency.

3.Facilitate interdisciplinary projects based on the acquired programming skills.

4.Ability to present the results in oral form as well as in written form as a report.

5.Ability to interpret the results and draw meaningful conclusions.

18MBM202L - Critical And Creative Thinking Skills

1.Solve both analytical and logical problems in an effective manner.

2.Demonstrate an ability to design and deliver messages.

3.Improve their communication with practical experience.

18CYM201T - Environmental Science

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems.

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principles involved in the generation of different forms of energy.

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution.

5.Apply information technology in the control of human population and women and child welfare.

18EIC301T - Industrial Instrumentation II

1.Illustrate the application of Bernoulli's principle and explain the construction and working of variable head type flow meters.

2.Illustrate the construction and working of positive displacement, variable area and mass flow meters.

3.Select the appropriate instrument for a given process measurement problem..

4.Understand the working principle of measuring instruments for flow, viscosity, humidity and moisture.

5.Identify the appropriate use of instruments in process industries according to the safety practices.

18EIC302T - Process Control

1.Understand technical terms associated with Process control domain and develop models using first principles approach for processes such as level, flow, temperature and pressure as well as analyze models.

2.Design& implement a suitable control scheme for a given process and validate through simulations.

3.Analyze the various control schemes and obtain optimum controller settings using tuning methods.

4.Analyze the Complex control schemes and recommend the right control strategy for a given application.

5.Select and recommend the suitable final control elements for a closed loop systems.

18EIC303L - Industrial Instrumentation Laboratory

1.Demonstrate the orifice meter, Venturi meter, Mass flow meter, DPT setup for measuring flow rate and Level.

2.Experimentally measure industrial process parameters such as flow, level, temperature, pressure and viscosity.

3.Demonstrate the PH meter, Conductivity meter, Strain gauge, Pressure gauge and Hygrometer for measuring pH, Conductivity, Torque, and Transmittance.

4.Quantify uncertainty associated with measuring instruments and compare the pressure gauge and DPT using standard instruments.

5.Communicate efficiently the engineering facts and function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.

18EIC304L - Process Control Laboratory

1.Design PID controller and tune the same for various process and implement sequential logic control using PLC for a required application. Get exposed to various simulation tools for designing the controllers.

2.Implement simple adaptive and model based control schemes and analyze it.

3.Analyze the dynamic behavior of first and second order systems and identify the characteristics of control valve.

4.Implement real time control loops (flow/level/temperature/pressure)and analyze it.

5.Design and implementation of cascade control system. Ability to communicate efficiently the engineering facts and function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.

18EIP301L - Minor Project III

1.Carry out any experimental works and mathematical analysis related to the real time problems identified and provide better solution for identified problem.

2.Understand the modelling, analysis and design concepts related to their area of project.

3.Familiar in designing suitable hardware and software related to area of project.

4.On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

18MBM301L - Analytical And Logical Thinking Skills

1.Solve both analytical and logical problems in a fruitful manner.

2.Organize and convey the information in such an incomparable way.

3.Improve their presentation skills.

18LEM301T - Indian Art Forms

1.Identify aesthetics traits found throughout Indian art.

2.Demonstrate understanding of the social and artistic movements that have shaped theatre and dance.

3.Recognize different concepts involved in music and dance.

4.Identify and appreciate the salient features and various styles of Indian Architecture, Sculpture and Painting at different times.

5.Demonstrate a broad understanding of Indian literary arts and appreciate the role that historical context plays in the creation and interpretation of literary works.

18MBH201T - Management Principles For Engineers

1.Acquired the knowledge on fundamental concept of management and its various functions.

2.Gained knowledge on planning and decision making process.

3.Attained the knowledge of organization structure and carrer planning .

4.Demonstrate the ability to directing, leadership and communicate effectively.

5.Analysis isolates issues and formulates best control methods.

18EIC305T - Logic And Distributed Control System

1.Understand all the important components such as PLC, SCADA, DCS, I/O modules and field devices of an industrial automation system.

2.Develop PLC program using ladder logic for industrial sequential applications.

3.Develop PLC program using different languages for industrial sequential applications.

4.Understand about DCS , interfacing and communication protocol of an industrial automation system.

5.Gain knowledge on the recent developments in industrial automation.

18EIC306T - Instrumentation System Design

1.Design and develop signal conditioning circuit for Instrumentation systems.

2.Design and develop flow measurement system using orifice &rotameter and to design signal conditioning circuit for temperature transmitters using RTD & thermocouple.

3.Design and develop air purge type of level measurement system and electronic PID controllers.

4.Design and analyze the pumps for typical control applications.

5.Design and develop Ardunio based Instrumentation design and simple circuits.

18EIC308L - Logic And Distributed Control Systems Laboratory

1.Develop Ladder Logic Program in PLC for controlling Logical functions and On-Off timers.

2.Develop Ladder Logic Program in PLC for Controlling a Lift control.

3.Develop Ladder Logic Program in PLC for Controlling a Conveyer System.

4.Develop Ladder Logic Program in PLC for Controlling a closed loop process of Pressure and level.

5.Develop Ladder Logic Program in PLC to automate bottle filling process for beverage industries.

18EIC309L - Instrumentation System Design Laboratory

1.Design and implement of signal conditioning circuits and instrumentation systems.

2.Design and implement controller, control valve and transmitter.

3.Design and draw the piping diagram for industrial application projects.

4.Design the multi-channel data acquisition system and transmitter.

5.Communicate efficiently the engineering facts and function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.

18EIP302L - Minor Project IV

1.Carry out any experimental works and mathematical analysis related to the real time problems identified and provide better solution for identified problem.

2.Understand the modelling, analysis and design concepts related to their area of project.

3.Familiar in designing suitable hardware and software related to area of project.

4.On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

18MBM302L - Employability Skills And Practices

1.Solve both analytical and logical problems in a productive manner.

2.Launch their ability of comprising and delivering the information.

3.Upgrade their communication quality in near future.

18LEM302T - Self Development And Entrepreneurship

1.Identify entrepreneurial quality.

2.Know the entrepreneurial support agencies.

3.Prepare project setup planning and project report.

4.Select appropriate agencies for technical and financial support.

5.Explain SWOT analysis and strategies to achieve goals.

18MBH202T - Social Engineering

1.Understand the concept of social engineering and types of attacks.

2.Identify the key security, CIA and IT governance and best practices.

3.Understand principles of social engineering.

4.Exhibit the ethical hacking concepts and scopes, threats and attack vectors and common areas of vulnerability.

5.Gain knowledge of attacks against individuals and organizations.

18EIC401T - Machine Learning And Data Analytics

1.Understand the basic of statistics for data analytics.

2.Get Exposure on various data preprocessing techniques and apply it to obtain quality date.

3.Develop and apply machine learning algorithm for regression analysis.

4.Develop and apply machine learning algorithms for data classification.

5.Gain knowledge and select the appropriate tools for soft-sensor design , process monitoring and control.

18EIC402T - Industrial Internet Of Things

1.Apply the knowledge of Internet principles and protocols to understand the architecture and specifications of a given network.

2.Design simple IoT applications using prototyping boards.

3.Select the appropriate protocol for a specific network implementation.

4.Identify the security level needed for a particular industrial IOT application.

5.Acquire insight regarding the technological challenges and opportunities in Industrial IOT design and implementation.

18EIP401L - Project Work

1.Carry out any experimental works and mathematical analysis related to the real time problems identified and provide better solution for identified problem.

2.Understand the modelling, analysis and design concepts related to their area of project.

3.Familiar in designing suitable hardware and software related to area of project.

4.On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

LIST OF PROFESSIONAL ELECTIVE COURSE

18EIE001T - Discrete Time Systems And Signal Processing

1.Develop a discrete time system to meet the requirements.

2.Implement frequency transformation of signals efficiently using FFT.

3.Design a filter that solves the specific problem.

4.Understand the issues related to implementation of digital filters.

5.Understand the recent trends in digital signal processor and processing technology.

18EIE002T - Digital Image Processing

1.Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms.

2.Operate on images using the techniques of smoothing, sharpening and enhancement.

3.Understand the image restoration concepts and filtering techniques.

4.Explore the image segmentation using edge detection, thresholding and region based approach.

5.Learn the basics of segmentation, features extraction, compression and recognition methods for color models.

18EIE003T - Applied Soft Computing

1.Understand the basics of neural networks and learning algorithm.

2.Implement the concept and functions of neuro controller for different application in industry.

3.Understand the basics of fuzzy , neuro fuzzy and adaptive fuzzy system. .

4.Implement the concept and functions of fuzzy logic controller and its need.

5.Understand the basics of genetic algorithms and apply computing platform and software for engineering problems.

18EIE004T - Power Electronics Drives And Control

1.Explain various devices and their structure, operating characteristics in the field of electronics.

2.Classify, analyze and design the rectifiers , ac voltage regulators and cycloconverters.

3.Gain comprehensive knowledge on design and analyze of DC to DC and DC to AC converters.

4.Design suitable power electronic circuit for an electric drive system and analyse its steady state stability.

5.Understand the basics of variable speed electric drive control systems and select appropriate control method for the electric drives for a particular industrial application..

18EIE005T - Computer Control Of Process

1.Analyze the stability of discrete time systems with different state space model.

2.Design the digital controller with different algorithm and analyze it.

3.Utilize the computer controller by incorporation artificial intelligence and expert system for efficient operation of different process control.

4.Design and analyze the multi-loop controller for multi-variable systems.

5.Design and analyze the multivariable controller for multi-variable systems.

18EIE006T - Advanced Process Control

1.Design and implement adaptive controllers such as gain-scheduled adaptive controller, Model-reference adaptive controller and Self-tuning controller.

2.Identify, formulate, and solve optimal controller for solving Control Problem.

3.Analyze Fractional-order systems, Fractional-order- controller and Design controller for fractional order systems.

4.Design and implement H2 and H-infinity Controllers.

5.Use the FDI Techniques, such as Principal component Analysis, state observer to detect and diagnose faults in sensors and actuators.

18EIE007T - Biomedical Instrumentation

1.Understand the anatomy and physiology of the heart, lung, blood circulation and respiration system.

2.Illustrate the origin of bio potentials and its propagations along with the principles of measurement and analyze it.

3.Understand the different measurement techniques for non-physiological parameters and biochemical measurements and analyze it.

4.Familiarize in modern methods of medical imaging techniques and their analysis.

5.Illustrate the application of biomedical device, medical assistance/techniques, robotic and therapeutic equipments in medical field.

18EIE008T - Communication Engineering

1.Gain knowledge about the principles of communication techniques.

2.Understand the importance of each type of modulation system for specific applications.

3.Analyze various band pass signaling schemes and compare their performance.

4.Capable of configuring source coding schemes and error control coding.

5.Gain knowledge on multiple access schemes and modern communication systems.

18EIE009T - Instrumentation And Control In Petrochemical Industries

1.Gain knowledge on oil gas production process and important unit operations in a refinery.

2.Having gained the process knowledge, ability to develop and analyze mathematical model of selective processes.

3.Gain knowledge on the most important chemical derivatives obtained from petroleum products..

4.Develop, analyze and select appropriate control strategy for selective unit operations in a refinery.

5.Understand safety instrumentation followed in process industries.

18EIE010T - Instrumentation And Control In Paper Industries

1.Deliver the process followed for pulp, paper making and soda recovery process.

2.Explain the instrumentation, measurements and control techniques used in Wet End Process.

3.Explain the instrumentation, measurements and control techniques used in Dry End Process.

4.Analyze the controlling aspects of various parameters used in paper industry.

5.Apply the modern computer application in paper cutting and packaging mechanism.

18EIE011T - VLSI Design

1.Realize the concepts of digital building blocks using MOS transistor.

2.Analyze inverter characteristics and realize modeling of MOS transistors.

3.Handle technology dependent parameters in the fabrication process effectively

4.Ability to design combinational logic using various logic styles, satisfying static and dynamic

requirements.

5.Perform various arithmetic circuits operation using VHDL

18EIE012T - Fibre Optics And Laser Instruments

1.Understand the principle, transmission, dispersion and attenuation characteristics of optical fibers.

2.Apply the gained knowledge on optical fibers for its use as communication medium and as sensor as well which have important applications in production, manufacturing industrial and biomedical applications.

3.Perceive the principle and operation of laser theory and laser generation system.

4.Illustrate the laser generation system and its application in industry.

5.Apply laser theory for the selection of lasers for a specific Industrial and medical application..

18EIE013T - Micro Electro Mechanical Systems

1.Understand the fundamental principles behind the working of MEMS devices.

2.Gain a knowledge of various materials properties and its characteristics used for MEMS and Microsystems.

3.Design and analyze the operation of various types of sensors used in MEMS devices.

4.Gain a fundamental understanding of standard micro fabrication techniques.

5.Perceive the state-of-art of various design concepts of MEMS devices and its applications.

18EIE014T - Unit Operations And Control

1.Select and apply relevant handling techniques to convert the solids for specific applications.

2.Acquire a thorough knowledge of fluid mechanics and its types of flow.

3.Gain sound knowledge on heat transfer and its applications.

4.Come out with solutions for simple/complex problems in heat transfer and design the heat exchange equipment for different applications such as distillation, boilers.

5.Gain ability for lifelong learning of new techniques and developments in various types of unit operations in industries.

18EIE015T - Power Plant Instrumentation

1.Understand and gain knowledge about the sources of power generation through various methods.

2.Acquires knowledge on the various types of power plants and the measurement devices.

3.Capable to get knowledge about different analyzers in power plant.

4.Understands the basics and advanced boiler control techniques.

5.Impart knowledge about the different types of controls and control loops.

18EIE016T - Fault Detection And Diagnosis

1.Explain different approaches to Fault Detection and Diagnosis.

2.Design and detect sensor and actuators faults using structured residual approach as well as directional structured residual approach.

3.Design and detect faults in sensor and actuators using GLR and MLR based Approaches.

4.Explain various types of fault tolerant control schemes such as Passive and active approaches.

5.Design fault-tolerant control scheme in the presence of actuator failures Ability to detect and quantify and compensate stiction in Control valves.

18EIE017T - Nano Technology Fundamentals And Its Applications

1.Utilize the principles of nano science along with the properties of nano materials for the design of novel systems.

2.Understand the various methods for synthesis of nano materials.

3.Select and apply the various techniques for synthesis of nano materials for specified application.

4.Ability to apply and utilize the instrumentation systems for characterization of nano materials.

5.Will be in a position to learn and keep in pace with recent nanotechnological advancements.

18EIE018T - Wireless Sensor Networks

1.Familiar with the basics of wireless sensor networks and its applications in enabling technologies.

2.Design the structure of wireless instruments along with its power management system.

3.Understand the architecture and elements of wireless sensor networks.

4.Identify the performance of MAC and routing protocols.

5.Determine the challenges and opportunities of recent techniques in smart and wireless systems.

18EIE019T - Non Destructive Testing

1.Remember the principles, techniques, equipment, applications and limitations of various NDT techniques.

2.Explain the needs and importance of eddy current testing and acoustic emission in NDT.

3.Understand the principle and operation of magnetic particle testing and thermography in the field of NDT.

4.Apply the concepts of ultrasonic testing and aware about developments and future trends in NDT.

5.Apply the concepts of radiography techniques for efficient operation of NDT.

18EIE020T - Non Linear Control Systems

1.Understand the basics of nonlinear systems.

2.Formulate the describing function of nonlinear systems.

3.Perform the stability analysis of nonlinear systems.

4.Design and implement the modelling of nonlinear systems and feedback linearization design.

5.Aware about the recent trends in sliding mode control.

18EIE021T - Industrial Data Communication

1.Explore the basics of Data communications and networks.

2.Select and use the most appropriate networking technologies and standards for a given application.

3.Analyze the various characteristics of each layer of the protocol stack pertaining to different Industrial data network standards.

4.Ensure fault-free operations in the data communications links and the network security.

5.Analyze the industrial network threats and propose appropriate solutions.

18EIE022T - Cyber Security In Industrial Automation

1.Apply basis of science and engineering to understand Industrial security environment and cyber attacks.

2.Analyze and assess risks in the industrial environment.

3.Access the cyber security of IACS.

4.Design and implement cyber security for industrial data transfer.

5.Test and troubleshoot the industrial network security system & Explore feasible solution for a moderate industrial problem.

18EIE023T - Industry 4.0

1.Understand technical terms associated with industry 4.0, smart manufacturing and smart devices.

2.Get exposure on the artificial intelligence, cybersecurity, technologies and classifications of industry 4.0. and its needs.

3.Apply and analyze the automation in production system, material handling and manufacturing industries.

4.Design the internet of things, industrial internet of things in manufacturing industries.

5.Understand the numerical production systems, machine control unit and adaptive control.

LIST OF OPEN ELECTIVE COURSE OFFERED TO OTHER DEPARTMENT

18EIO001T - Basics Of Automation

1.Explain the fundamental Concepts of Automation.

2.Summarize the Mechanization and Automation in transport system and conveyers.

3.Interpret the functioning elements of a Pneumatic and Hydraulic Valves.

4.Interpret the functioning elements of a sensor and Actuators.

5.Interpret the architecture and concepts of PLC program.

18EIO002T - Automotive Electronics

1.Describe about the motion control and Current trends in modern Automobiles.

2.Identify the basic components in fuel injection system and ignition system.

3.Outline the concept of integrated engine control system.

4.Identify the electronic steering control and other control method.

5.Describe about the airbag technology, control circuit components and characteristics.

18EIO003T - Programmable Logic Controllers

1.Explain the fundamental concepts of Automation.

2.Summarize the architecture, interfacing and communication techniques of PLC.

3.Execute the suitable PLC Programming languages.

4.Attribute the various functions and instruction sets of PLC.

5.Generate a suitable logical programming for given applications.

18EIO004T - Introduction To MEMS

1.Understand the fundamental principles behind the working of MEMS devices.

2.Gain a knowledge of various materials properties and its characteristics used for MEMS and Microsystems.

3.Understand the operation of various types of sensors used in MEMS devices.

4.Gain a fundamental understanding of standard micro fabrication techniques.

5.Understand the design concepts of MEMS devices and its applications.

18EIO005T - Smart Sensor Technology

1.Interpret the functioning elements of a smart sensor and its standards for sensor interfacing.

2.Construct the interfacing and signal conditioning circuit for measurement system using different types of sensor .

3.Infer the concepts of smart instrumentation with its HART communication protocol.

4.Integrate the modern technologies and smart materials to design various sensors.

5.Analyze and select the suitable sensor for different industrial applications.

LIST OF ONE CREDIT COURSE

18EIX001T - Virtual Instrumentation

1.Summarize the basics of Virtual Instrumentation.

2.Write simple programs using LabVIEW.

3.UseLabVIEW for programming and construct subVIs.

4.Develop Virtual Instrumentation for simple applications.

5.Describe about DAQ architecture and its function.

18EIX002T - Analytical Instruments For Material Characterization

1.Illustrate the working principle of different analytical instruments.

2.Infer the properties of nano materials with the aid of instrumentation.

3.Impart knowledge on the important measurement in many chemical processes and laboratories handling liquids or solutions.

4.Critically evaluate the strengths and limitations of the various instrumental methods.

5.Develop critical thinking for interpreting analytical data.

18EIX003T - Vehicle Electronics

1.Describe the electrical wiring system in automobile.

2.Explain the transmission and braking system in automobiles.

3.Summarize the different control units in automobiles.

4.Illustrate the chassis system in automobiles.

5.Demonstrate the comfort system in automobiles.

DEPARTMENT OF MECHANICAL ENGINEERING

PROGRAM OUTCOMES (POs):

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Real world application: To comprehend, analyze, design and develop innovative products and provide solutions for the real-life problems.

PSO2: Multi-disciplinary areas: To work collaboratively on multi-disciplinary areas and make quality projects.

PSO3: Research oriented innovative ideas and methods: To adopt modern tools, mathematical, scientific and engineering fundamentals required to solve industrial and societal problems

COURSE OUTCOMES

18LEH101J-Technical English

1.Identify types, modes, channels and barriers of communication. Distinguish different speech sounds, pronounce correctly

2.Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills

3.Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills

4.Develop ideas into logical and coherent essays. Understand better the workplace culture

5.Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation

18MAB101T - Calculus and Linear Algebra

1.Apply Matrices, Eigenvalues and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving

2.Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering

3.Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving

4.Solve the different types of Differential Equations in Science and Engineering applications

5.Apply convergence and divergence of series using different tests and apply sequences and Series in the problem solving

18PYB101J – Physics

1.Identify the effect of charge dynamics

2.Analyse electromagnetic induction

3.Apply quantum mechanics to basic physical problems

4.Apply ray propagation and optical effects

5.Identify the applications of lasers and optical fibre

18CYB101J- Chemistry

1.Identify the suitable polymeric materials fabrication processes in various applications

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels

3.Apply the various thermodynamic and kinetics concepts to real system

4.Assemble a battery through the understanding of electrochemical principles

5.Categorize the Engineering materials for their applications

18CSS101J- Programming for Problem Solving

1.Apply the problem solving techniques for solving numeric and string problems

2.Solve basic numeric problems using control statements in C

3.Develop the C program using the concepts of array and string.

4.Apply the concept of function prototypes and pointers.

5.Compare the performance of structures and union in memory management.

18MES102J- Basic Civil and Mechanical Engineering

1.Identify the building materials and its applications

2.Identify different transportation system, water supply system and its applications

3.List the basic components and analyse the working of major power plants

4.Identify the working of IC engines and understand the need of various auxiliary systems

5Identify manufacturing processes; casting, forming. List machining operations; lathe, drilling.

6.Identify process of welding

18MBH101L-Professional Skills and Practices

1.Make presentation in a formal way.

2.Speak with clarity and confidence, thereby enhancing their employability skills.

3.Enable students to understand different aspects of leadership and evaluate in their own strengths.

4.Clear the job interview successfully.

5.Realize that selecting goal is a fundamental component to long- term success of an individual.

18MBH102L- General Aptitude

1.Build a strong base in the fundamental mathematical concepts

2.Identify the approaches and strategies to solve problems with speed and accuracy

3.Gain appropriate skills to succeed in preliminary selection process for recruitment

4.Collectively solve problems in teams and groups

5.Build vocabulary through methodical approaches

18LEM101T- Constitution of India

1.Identify the basic provisions in the Indian constitution

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions

4.Identify the power of states, its legislature, Governors role and the state judiciary

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST

18GNM101L – Physical and Mental Health Using Yoga

1.Increase the muscle strength

2.Improve respiration, energy and vitality

3.Maintain a balanced metabolism and weight reduction

4.Maintain cardio and circulatory health

5.Improve Athletics performance and protection from injury

18LEH102J- Professional English

1.Work in a team under any situation.

2.Practice interpersonal relationships in workplace

3.Face interviews confidently and successfully

4.Participate and excel in role plays, presentations and formal conversations.

5.Read and infer the meanings of technical and aesthetic passages.

6.Draft official letters, reports, memos, emails, etc.

18MAB102T- Advanced Calculus and Complex Analysis

1.Evaluate multiple integrals using change of variables

2.Apply techniques of vector calculus in problems involving Science and Engineering.

3.Apply complex analytic functions and its properties in solving problems

4.Evaluate improper integrals using Residue theorem involving problems in Science and Engineering

5Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations

18MES101J - Engineering Graphics

1.Apply engineering graphic fundamentals to draw/evaluate engineering curves.

2.Draw the graphics of engineering parts with point, line and plane projections

3.Draw projection of solid objects like prisms, cylinders, pyramids and cones used in engineering objects

4.Develop the lateral surfaces of the sectional solids.

5.Create 3D part models using isometric and perspective projection.

18EES101J-Basic Electrical and Electronics Engineering

1.Discuss basic theory utilized in electrical circuits and its circuits.

2.Describing working principle of direct current and alternative current machines such as transformers, motors and generators.

3.Operate the basic electronic devices. Identify their uses and construction features.

4.Interpret the concept of measuring devices like PMMC, MI, energy and wattmeter.

5.Apply binary logic and Boolean expressions for digital circuit design, Identify elements in an Integrated circuit

18LEM102T- Value Education

1.Equipped with an awareness of their positive energy and power

2.Identify the meaning of ‘education’; have a clearer and better understanding in taking education to the masses

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances

4.Realize their professional responsibilities

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes

18MAB201T -Transforms and Partial Differential Equations

1.Expand a function in terms of Fourier series and apply it for solving engineering problems.

2.Gain knowledge on Fourier Transforms

3.Model and solve higher order partial differential equations

4.Apply the methods of solving PDE in practical problems

5.Handle problems in Z transforms and apply it to solve difference equations

18BMES201T- Engineering Mechanics

1.Illustrate the vectorial and scalar representation of forces and moments

2.Solve problems in engineering systems using the concept of static equilibrium

3.Determine the centroid of areas, and volumes and moment of inertia of composite areas

4.calculate the dynamic forces exerted in rigid bodies

5.Analyse the mechanism of friction and frictional forces involved in systems

18BMEC201T- Engineering Thermodynamics

1.Apply the first law of thermodynamics for simple open and closed systems under steady conditions.

2.Apply second law of thermodynamics to open and closed systems and evaluate entropy and availability

3.Apply Rankine cycle to steam power plant and compare cycle improvement methods

4.Interpret basic thermodynamic relations of ideal and real gases

5.Compute the properties of moist air and illustrate its use in psychometric processes

18BMEC202T - Engineering Materials and Metallurgy

1.Describe the phase reactions, microstructures and compositions of the iron-iron carbide diagram.

2.Illustrate the appropriate heat treatment process in specific applications

3.Explain the testing procedure to evaluate material properties.

4.Identify the composition, properties and applications of various ferrous, non-ferrous metals and their alloys

5.Illustrate the general concepts of Non-metallic materials.

18BMEC203J- Fluid Mechanics and Machinery

1.Describe the properties of fluids and its flow characteristics.

2.Measure the flow and pressure of fluid and to apply dimensional parameters.

3.Calculate the losses during flow in a circular pipe

4.Explain Hydraulic turbines and its performance characteristics.

5.Demonstrate pumps and its performance characteristics.

18MEC204J -Manufacturing Technology

1.Classify the various welding methods for fabrication process.

2.Explain concept and mechanism of center lathe and special purpose lathe.

3.Describe the working of milling machine, reciprocating and hole making machine.

4.Describe the concept of surface finishing and gear cutting operations.

5.Illustrate the principle of unconventional machining process.

18MBM201L -Competencies in Social skills

1.Students should be able to solve both analytical and logical problems in an effective manner

2.Students can design and deliver information in a proper manner

3.Presentation skills of students will be improved individually as well as a team member

18CYM201- Environmental Science and Engineering

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principles involved in the generation of different forms of energy

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution

5.Apply information technology in the control of human population and women and child welfare

18MAB204T - Statistics and Numerical Methods

1.Analyze and evaluate the accuracy of common numerical methods.

2.Apply numerical methods to obtain approximate solutions to mathematical problems.

3.Identify the applications and various design and concepts of experiments numerical integration

4.Predicts the solution of a given problem and confirm it with its corrector value if it deviates applies the corrector again.

5.Learners will understand the problems of Students t test for single mean, difference of means.

18BMEC205J- Strength of Materials

1.Explain the fundamental concepts of stress and strain in simple and compound bar.

2.Construct shear force and bending moment diagram for mechanism in beams

3.Illustrate the basic equation of simple torsion in designing of shafts and helical spring

4.Calculate the slope and deflection in beams using different methods.

5.Analyze the stress on principal plans using graphical and analytical method.

18BMEC206J -Thermal Engineering

1.Analyze thermodynamic cycles.

2.Summarize the construction, operation and performance of IC engines.

3.Understand the working of Steam Nozzles and & Steam Turbines and their performance.

4.Calculate the performance of reciprocating air compressor.

5.Describe the working of refrigeration and Air conditioning system.

18BMEC207T - Metrology and Measurements

1.Explain the measurement methods, instruments and errors in measurements.

2.Describe the techniques of comparators, linear and the angular measuring instruments.

3.Illustrate form measurement of surface roughness and surface finish measurements.

4.Describe the coordinate measuring machine and the applications of Laser in Metrology.

5.Calculate the force, torque, power, flow and temperature in the system.

18BMEC208T- Theory of Machines

1.Define Link, Kinematic pair, and inversion of four bar chain.

2.Describe the basics of governors and its effects in ship and automobiles.

3.Calculate unbalanced force of rotating and reciprocating masses.

4.Explain gear tooth terminology and gear trains.

5.Illustrate the frequency of free, forced and damped vibration.

18BMES202T- Mechatronics

1.Outline appropriate sensors and actuators for an engineering application

2.Understand the various electrical actuating system used for automation

3.Describe the various Hydraulic & pneumatic systems components

4.Identify programme logic controller and its components , functions

5.Evaluate Mechatronics system design and smart systems

18BME209L- Metrology and Dynamics Laboratory

1.Construct the characteristic curves for various governors

2.Calculate the frequency of beam and spring mass systems

3.Perform the static and dynamic balancing of rotating and reciprocating masses

4.Illustrate the errors in measuring instruments

5.Measure the parameters in gear tooth and threads

18MBM202L - Critical and Creative Thinking Skills

1.Students can be able to solve both analytical and logical problems in an effective manner

2.Students can demonstrate an ability to design and deliver messages

3.The quality of student’s communication with practical experience is improved

18LEM103T- Indian Tradition and Heritage

1.Understand the meaning of culture, trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4.Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18MEC301J - Heat and Mass Transfer

1.Apply the principle mechanism of heat transfer under steady state and transient conditions.

2.Apply the fundamental concept and principles in convective heat transfer

3.Apply the theory of phase change heat transfer and design of heat exchangers.

4.Apply the fundamental concept and principles in radiation heat transfer.

5.Analyze the relation between heat and mass transfer and to solve simple mass transfer problems.

18MEC302T - Machine Design

1.Design machine elements subjected to simple and variable loads.

2.Design shaft and welded joints for various engineering applications.

3.Identify the appropriate Flexible elements for Industrial Applications and understand the design procedure involved in Brake and clutch design.

4.Design of spur and helical gear drives

5.Design and select the suitable spiring and bearing for the industrial applications

18MEC303J - Automobile Engineering

1.Explain the operating principles and constructional details of various automobile engine power source.

2.Identify the appropriate Fuel supply system for a particular automobile vehicle based on the requirements.

3.Analyze the function of various components in transmission and safety driving line of a vehicle.

4.Explain the emission control technique and its importance.

5.Analyze the advance automotive driving methods.

18MBM301L - Analytical and Logical Thinking Skills

1.Students will be able to solve both analytical and logical problems in fruitful manner

2.Students will organize and convey the information in such an incomparable way

3.Presentation skills will be imparted to students

18LEM301L - Indian Art Forms

1.Identify aesthetics traits found throughout Indian art

2.Demonstrate understanding of the social and artistic movements that have shaped theatre and dance

3.Recognize different concepts involved in music and dance

4.Identify and appreciate the salient features and various styles of Indian architecture, sculpture and painting at different times

5.Demonstrate a broad understanding of Indian literary arts and appreciate the role that historical context plays in the creation and interpretation of literary works

18MBH201T- Management principles for Engineers

1.Acquire the knowledge on fundamental concept of management and its various functions

2.Gained knowledge on planning and decision making process

3.Attained knowledge of organization structure and carrer planning

4.Demonstrate the ability to directing, leadership, and communicate effectively

5.Analysis isolates issues and formulates best control methods

18LEM302T- Self Development and Entrepreneurship

1.Identify Entrepreneurial quality

2.Know the entrepreneurial support agencies

3.Prepare project setup planning and project report

4.Select appropriate agencies for technical and financial support

5.Explain SWOT analysis and strategies to achieve goals

18MEC304T - Automation and Industry 4.0

1.Implement Industry 4.0 concepts on any existing systems.

2.Make the use of Industry 4.0 technologies

3.Familiar with various automation technologies in manufacturing industries

4.Understand the design architecture of IoT

5.Familiar with the Numerical Control Production System

18MEC305T- Finite Element Analysis

1.Apply mathematical formulation of finite element method to basic (linear) ordinary and partial differential equations in mechanical systems.

2.Solve the one dimensional structural problems

3.Solve the vector variable problems using 2D element

4.Determine thermal distribution in one and two dimensional engineering applications.

5.Implement finite element method to solve complex equations.

18MEC306L - Design and Analysis laboratory

1.Analyze the behaviour of a component subjected to structural, dynamic and thermal loading conditions by using Finite Element Method based package.

2.Find deformations and stresses in components subjected to combined structural and thermal loads.

3.Validate the design of the product by analyzing and comparing the stresses induced with analytical /experimental results.

4.CFD analysis to validate simple 2D flow problem

5.Develop MAT Lab program to simulate Mechanical system.

18MBM302L- Employability Skills and Practices

1.Solve both analytical and logical problems in a productive manner

2.Launch their ability of comprising and delivering the information

3.Upgrade their communication quality in near future

18MBH202T Social Engineering

1.Understand the concepts of social engineering and types of attacks

2.Identify key security concepts, CIA and IT governance and best practices

3.Understand principles of social engineering

4.Exhibit the ethical hacking concepts and scopes, threats and attack vectors and common areas of vulnerability

5.Gain knowledge of attacks against individual and organizations

Professional Electives

18MEE001T- New Product Development

1.Understand the process to plan and develop products

2.List the process of collecting information and develop product specifications

3.Discuss the concept generation, selection and testing processes.

4.Explain the concepts of industrial design and design for manufacture

5.Explain about Intellectual property rights and how to write claims

18MEE002T- Nano Technology

1.Describe the basic concepts of Nano science and nanotechnology

2.Understand the general methods and preparation Nano technology process

3.Describe the various types of Nano materials.

4.Understand the various characterization techniques of Nano materials

5.Identify various principles and their industrial applications of Nanotechnology.

18MEE003T-Computer Aided Design and Manufacturing

1.Explain NC, DNC and CNC used in CIM

2.Apply the features of CAD System in design and modelling

3.Explain the role of AGVs, AS/RS and Robots in material handling and Storage System.

4.Describe Group Technology and Classification of Coding system.

5.Explain Artificial Intelligent system, Expert system and FMS.

18MEE004T -Composite Materials

1.Interpret the types of fibers and reinforcements used for the production of composites

2.Develop a procedure to produce different polymer matrix composites.

3.Experiment with different metal matrix composites to find its applicability

4.Identify a suitable method for manufacturing of ceramic matrix composites and carbon-carbon composites

5.Analyse the macro micro mechanics of laminated composites

18MEE005T- Design for Manufacturing and Assembly

1.Describe the role of manufacture and assembly within the overall design process.

2.Evaluate and select the manufacturing and assembly processes relevant to the casting and welding industry.

3.Use the design for manufacturing concept to reduce machining time and manufacturing cost

4.Review and select suitable manufacturing and assembly processes for a complex, and well-defined component.

5.Design a complex, well-defined component accounting for manufacture and assembly

18MEE006T -Fatigue, Fracture and Failure Analysis

1.Interpret the static, dynamic, corrosion wear types of mechanical fracture of materials.

2.Analyse the dynamic behaviour of materials to design of components under fatigue load condition.

3.Design components that contain crack and its growth under fatigue load condition.

4.Relate the cause of a failure for determining corrective actions or mitigation

5.Aanalyse the potential causes and modes of failure of materials

18MEE007T- Design of Jigs, Fixture, Press Tools and Moulds

1.Explore the various locating and clamping methods

2.Illustrate the design and development of jigs and fixtures and their types.

3.Explain the design principles of Press Work, cutting dies and their functions.

4.Describe the function and design principles of bend forming and drawing dies.

5.Illustrate the types & methods of moulds along with their design and applications.

18MEE008T - Piping Design Engineering

1.Understand the process diagrams

2.Understand the process layouts and piping drawings

3.Design of piping for various conditions of fluid flow and transmission

4.Analyze columns and piping drawings under various loadings

5.Expose to the concept of piping layout and the stresses acting on it.

18MEE009T- Operations Research and Production Management

1.Construct the mathematical model of real time problems into linear programming model.

2.Develop the optimum solution for transportation model and assignment model.

3.Construct the networking model for evaluation of project management

4.Describe the inventory model and non-traditional optimization techniques.

5.Explain the production management technique and its classifications.

18MEE010T- Hydraulics and Pneumatics

1.Explain the fluid power system and its fundamentals

2.Identify suitable hydraulic pumps and actuators for different applications.

3.Choose the suitable fluid power control components for various applications.

4.Choose the suitable pneumatic components for different applications.

5.Design fluid power circuit for given applications and understand troubleshooting's

18MEE011T -Renewable Sources of Energy

1.Explain solar radiation, components and applications of PV systems

2.Illustrate the wind energy conversion systems, storage systems and applications

3.Classify the Bio energy technology and its utilization

4.Explain the principle and components of OTEC, Tidal, Geothermal and Hydel Energy sources and environmental issues

5.Illustrate the Hydrogen generation, Storage, Transport and applications and Fuel cell technologies

18MEE012T- Advances in Internal Combustion Engines

1.Describe fuel air Mixture requirements to spark ignition engine combustion and various supply methods and factors affecting the combustion

2.Explain the diesel Fuel Injection for combustion in the combustion chamber and governing the combustion factors

3.Illustrate formation of emission and controlling methods in the engine exhaust

4.Compare the liquid and gaseous fuels combustion parameters and its properties for good performances

5.Describe the new concepts of fuel supply systems and engine diagnostics

18MEE013T -Refrigeration and air Conditioning System

1.Demonstrate the working of various refrigeration systems and System components.

2.Analyse the performance of VCR system and illustrate the working of different VCR systems.

3.Explain the working principle of different VAR systems and estimate the performance of the systems and Non-conventional refrigeration

4.Illustrate the various air conditioning system components and classify the air conditioning system.

5.Estimate the cooling load for various conditions considering the different heat sources.

18MEE014T -Solar Energy Engineering

1.Understandtheavailablesolarenergyandthecurrentsolarenergyconversionandutilization processes

2.Analyzeperformanceof flat plate collector and develop skills to design, model, analyze and evaluate solar thermal systems.

3.Understandthephotovoltaiccellsoperation.

4.EstimatethePVarrayrequirement for small residential and industrial applications.

5.Solvesimple to complex problems of solar thermal energy conversion and storage.

18MEE015T -Design of Heat Exchanger and Pressure Vessel

1.Describethe classification of heat exchangers and basic mechanisms.

2.Analyse the performance of the heat exchangers by LMTD and NTU method

3.Describethestressformationanditsimpact on heat exchangers.

4.Explain the working of compact heat exchanger and its performance analysis

5.Describe the performance characteristics of surface and evaporative condensers

18MEE016T - Waste Management and Energy Recovery

1.Explain the operating principles of waste management system.

2.Identify the ways of environment pollution.

3.Describe the issues in waste management system.

4.Analyses the Waste Heat recovery system.

5.Illustrate the environmental impact on universal.

18MEE017T- Biomass and Bio Gas Technology

1.Analyse a suitable biomass to energy conversion route for the available biomass

2.Explain about pyrolysis and basics principle in Biomass conversion.

3.Explain about biomass gasification and liquefaction.

4.Describe the concept of Anaerobic digestion and Methanogenesis Process

5.Identify the design, Conversion and applications of biogas plant.

18MEE018T - Power Plant Engineering

1.Explain with a layout, the working of steam power plant with fuel handling and ash handling systems

2.Illustratetheworking principle of nuclear power plants and waste disposal methods

3.Demonstrate the working of diesel power plant and gas turbine power plants

4.Describe the importance and working principles of renewable energy sources

5.Calculate load factor, capacity factor, utilization factor and cost of power generation of power plants.

18MEE019T- Energy Conservation And Management

1.Describe the importance of energy conservation and its auditing

2.Analyze the energy conserve aspects in electrical systems

3.Analyze the energy conserve aspects in thermal systems along with case studies

4.Study and Calculation of energy conservation in other utilities.

5.Demonstrate the economics and its relative terms.

18MEE020T -Computational Fluid Dynamics

1.Formulate and classify governing partial differential equations in fluid flow and heat transfer.

2.Identify and solve problems in engineering using Finite Difference method.

3.Solve fluid dynamics problems using Finite Volume methods.

4.Develop skills to apply Finite Element method for steady and incompressible flows.

5.Develop grids from algebraic and differential equation methods for different problems.

18MEE021T -Advances in Casting and Welding Processes

1.Design gating and raising system for casting considering the thermal, metallurgical aspects during solidification to achieve defect free castings

2.Explain the recent casting techniques, casting defects and cast ability of steel and cast iron

3.Discover a specific welding process for a specific metal by applying welding metallurgical knowledge

4.Explain the principles, parameters and applications of solid state welding process

5.Infer recent trends in fusion welding, Brazing and Soldering processes

18MEE022T- Maintenance Engineering

1.Understand the principles, functions and practices adapted in industry for the successful management of maintenance activities

2.Describe the basic principles of maintenance planning, objectives and principles of planned maintenance activity

3.Identify the maintenance categories of comparative merits of each category, Preventive maintenance, maintenance schedules

4.Understand the repair methods for beds, slide ways, spindles, gears, lead screws and bearings, failure analysis

5.Indicate repair methods for Material handling equipment, equipment records-Job order systems Apply the Techniques.

18MEE023T -Automation and Industrial Robotics

1.Understand the fundamentals and working of robots

2.Assimilate the functions of robot drive system and types of end effectors

3.Gain knowledge on different sensors and the concept of machine vision system

4.Follow the logics of kinematics of robots and syntax of programming

5.Summarize the usage and applications of robots in industries

18MEE024T -Non Destructive Testing

1.The students will be able to differentiate various defect types and the NDT types and select the appropriate NDT methods for the specimen.

2.Explanation of eddy current testing and acoustic emission testing

3.Understanding the Magnetic Particle Testing & Thermography

4.Testing the different metals and alloys by Ultrasonic testing methods

5.To know the Radiography testing and its industrial applications.

18MEE025T- Additive Manufacturing

1.Compare different method and discuss the effects of the Additive manufacturing

2.Analyze the characteristics of the different materials in Additive Manufacturing.

3.Demonstrate liquid and solid based additive manufacturing systems.

4.Explain the powder based additive manufacturing system.

5.Analyze medical and bio medical additive manufacturing systems.

18MEE026T -Production Planning and Control

1.Understand the concepts of production planning and control, product analysis and production systems

2.Become familiar with work study methods

3.Understand the principles of product planning, process planning, production scheduling, Inventory Control

4.Solve the problems related to inventory, BEP, Machine capacity

5.Know the recent trends like manufacturing requirement Planning (MRP II) and Enterprise Resource Planning (ERP).

18MEE027T- Plant Layout and Materials handling

1.Identify equipment requirements for a specific process at different locations and diverse working conditions

2.Understand the significance of an effective material handling system

3.Understand the computerized layout on the material handling system.

4.Get the knowledge about group technology and algorithm.

5.Recognize the effect of process layout on the material handling system

18MEE028T -Vibrations and Noise Control

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1.Derive the equations and solve vibration dynamics problems for mechanical systems.

2.Validate the vibration system models, analyze vibration dynamics of the system.

3.Understand, explain and apply the physics behind semi-active and active vibration control.

4.Formulate and solve passive, semi-active as well as active vibration control problems for vibration systems.

5.Carry out vibration dynamics analysis and design vibration control solutions for vibrating systems.

18MEE029T -Process Planning and Cost Estimation

1.Illustrate the process planning concepts to make cost estimation for various products after process planning.

2.Understand the work study and ergonomics concepts to implement in the workplace and design of tools and equipment.

3.Classify the various types of cost in the development of product

4.Estimate cost for various machining process to make or buy the product.

5.Examine time required for various machining operations for the manufacture of component.

18MEE030T -Industrial Safety Engineering

1.List out the various safety considerations.

2.Monitor and review the safety performance followed in various industries.

3.Carryout safety study, undertake appraisal and audit of various industries.

4.Understand safety management system of an industry.

5.Get familiarize with the acts and rules applicable for industries.

18MEE031T- Engineering Economics and Cost Analysis

1.Explain the concept of cost associated towards economics.

2.Explain the value engineering concepts for interest ratio estimation.

3.Compare the cash flow methods with cash flow diagram

4.Describe the maintenance analysis and replacement of an asset.

5.Illustrate the methods of depreciation value of an asset.

18MEE032T -Gas Dynamics and Jet Propulsion

1.Illustrate the fundamental principles of compressible flow.

2.Solve the problems in Rayleigh and Fanno flow for constant area sections.

3.Interpret the effect of flow properties on normal and oblique shock.

4.Explain the basic gas dynamics theories for aircraft propulsion systems.

5.Discuss the working of solid propellant and liquid propellant rocket engines.

18MEE033T- Total Productive Maintenance

1.Describe modern maintenance concepts and practices

2.Apply analytical tools in maintenance management

3.Apply Reliability cantered Maintenance for industrial systems

4.Illustrate TPM and global trends in maintenance management

5.Demonstrate use of simple instruments used for condition monitoring in maintenance

18MEE034T-Industrial Tribology

1.Describe surface topography and Friction characteristics.

2.Estimate wear in interacting surfaces.

3.Apply the principles of Lubrication.

4.Analyse the pressure and estimate load carrying capacity of a bearing.

5.Test components and characterize tribiological failures.

18MEE035T- Industrial Process Engineering

1.Select proper plant layout for the required production system

2.Plan the resources required for the production and to perform the control methods

3.Apply work study method, prepare charts to outline the process and develop ergonomic condition suitable for the processes

4.Analyze the inventory required based on production needs and material handling

5.Perform system analysis and use different types of maintenance process for smooth operations

18MEE036T - Supply Chain Management and Logistics

1.Explain the strategic role of a supply chain in the business process

2.Use key strategic drivers of supply chain performance for effective results

3.Apply the forecasting techniques to improve the facility and network design

4.Analyze the analytic methodologies for supply chain.

5.Analyze the network design and improve transportation time for achieving shortest route

18MEE037T- Lean Manufacturing

1.Identify key requirements and concepts in lean manufacturing

2.Apply the tools in lean manufacturing to analyze a manufacturing system and plan for its improvements.

3.Map the value chain and predict the value addition

4.Find the common pitfalls encountered during lean implementation and initiate a continuous improvement change program in a manufacturing organization.

5.Start the own enterprise with the help of lean concepts and financial sources.

18MEE038T -Intellectual Property Rights

1.Describe the concepts of Intellectual Property Rights

2.Compare and contrast the different forms of IP protection in terms of their differences and similarities.

3.Analysis and establishment of WIPO and National Intellectual Property Policy

4.Explain the limitations of IPR and comprehend some basic legal pitfalls.

5.Explain the current trends in IPR and Govt. steps in fostering IPR.

18MEE039T - Industrial Internet of Things

1.Describe the IIoT concepts.

2.Illustrate the cyber networking in IIoT.

3.Estimate the IoT in smart automation in IIoT.

4.Describe the advanced technologies in IIoT.

5.Illustrate the IoT economy and applications of IIoT.

18MEE040T -Sustainable Manufacturing Design

1.Demonstrate sustainable development and its different levels.

2.Summarize the tools and techniques in Sustainable Manufacturing design.

3.Illustrate the information about Environment impact assessment techniques.

4.Demonstrate recycling process and its concepts.

5.Summarize the Sustainability Assessment and social responsibility.

Open Electives

18MEO001T-Industrial Safety for Engineers

1.List out the various safety considerations.

2.Monitor and review the safety performance followed in various industries.

3.Carryout safety study, undertake appraisal and audit of various industries.

4.Understand safety management system of an industry.

5.Get familiarize with the acts and rules applicable for industries.

18MEO002T-Energy Engineering

1.Analyse the various forms of energy

2.Know the Indian and global energy scenario

3.Identify the energy storage technologies for suitable applications.

4.Analyse the energy sharing and cost sharing pattern of fuels used in industries

5.Assess the sources of additional revenue generation for energy conservation projectsadopting UNFCC

18MEO003T-Automobile Technology

1.Explain the operating principles and constructional details of various automobile engine power source.

2.Identify the appropriate Fuel supply system for a particular automobile vehicle based on the requirements.

3.Analyze the function of various components in transmission and safety driving line of a vehicle.

4.Explain the emission control technique and its importance.

5.Analyze the advance automotive driving methods.

18MEO004T-Advances in Nanotechnology

1.Describe the basic concepts of nano science and nanotechnology

2.Understand the general methods and preparation Nano technology process

3.Describe the various types of nanomaterials.

4.Understand the various characterization techniques of nano materials

5.Identify various principles and their industrial applications of Nanotechnology.

18MEO005T-Product Design and Development

1.Understand the process to plan and develop products

2.List the process of collecting information and develop product specifications

3.Discuss the concept generation, selection and testing processes.

4.Explain the concepts of industrial design and design for manufacture

5.Explain about Intellectual property rights and how to wr

DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAM OUTCOMES(POs):

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1: Professional Skills: Comprehend the technological advancements and practice professional ethics and the concerns for societal and environmental well-being.

PSO2: Competency Skills: Design software in a futuristic approach to support current technology and adapt cutting-edge technologies.

PSO3: Successful career: Apply knowledge of theoretical computer science to assess the hardware and software aspects of computer systems.

COURSE OUTCOMES:

18LEH101J-Technical English

1. Identify types, modes, channels and barriers of communication. Distinguish different speech sounds, pronounce correctly.

2. Identify, rectify the errors in the use of grammar and vocabulary. Improve listening and writing skills.

3. Develop a topic idea into a cohesive paragraph with examples. Improve the fluency of speaking skills.

4. Develop ideas into logical and coherent essays. Understand better the workplace culture.

5. Identify the steps involved in writing an academic project report. List and practice skills need for making a presentation.

18MAB101T - Calculus and Linear Algebra

1. Apply Matrices, Eigen values and Eigen Vectors and Reduction of Quadratics form in Science and Engineering problem solving.

2. Apply Maxima and Minima, Jacobian, and Taylor series to solve problems in Science and Engineering.

3. Identify Radius, Centre, envelope and Circle of curvature and apply them in the problem solving.

4. Solve the different types of Differential Equations in Science and Engineering applications.

5. Apply convergence and divergence of series using different tests and apply sequences and Series in the problem solving.

18PYB101J – Physics

1.Identify the effect of charge dynamics.

2.Analyse electromagnetic induction.

3.Apply quantum mechanics to basic physical problems.

4.Apply ray propagation and optical effects.

5.Identify the applications of lasers and optical fibre.

18CYB101J- Chemistry

1.Identify the suitable polymeric materials fabrication processes in various applications.

2.Apply the basic principle of inorganic chemistry at the atomic and molecular levels.

3.Apply the various thermodynamic and kinetics concepts to real system.

4.Assemble a battery through the understanding of electrochemical principles.

5.Categorize the Engineering materials for their applications.

18MES101J - Engineering Graphics

1.Apply engineering graphic fundamentals to draw/evaluate engineering curves.

2.Draw the graphics of engineering parts with point, line and plane projections.

3.Draw projection of solid objects like prisms, cylinders, pyramids and cones used in engineering objects.

4.Develop the lateral surfaces of the sectional solids.

5.Create 3D part models using isometric and perspective projection.

18EES101J-Basic Electrical and Electronics Engineering

1.Discuss basic theory utilized in electrical circuits and its circuits.

2.Describing working principle of direct current and alternative current machines such as transformers, motors and generators.

3.Operate the basic electronic devices. Identify their uses and construction features.

4.Interpret the concept of measuring devices like PMMC, MI, energy and wattmeter.

5.Apply binary logic and Boolean expressions for digital circuit design, Identify elements in a Integrated circuit.

18MBH101L-Professional Skills and Practices

1.Make presentation in a formal way.

2.Speak with clarity and confidence, thereby enhancing their employability skills.

3.Enable students to understand different aspects of leadership and evaluate in their own strengths.

4.Clear the job interview successfully.

5.Realize that selecting goal is a fundamental component to long- term success of an individual.

18MBH102L- General Aptitude

1.Build a strong base in the fundamental mathematical concepts.

2.Identify the approaches and strategies to solve problems with speed and accuracy.

3.Gain appropriate skills to succeed in preliminary selection process for recruitment.

4.Collectively solve problems in teams and groups.

5.Build vocabulary through methodical approaches.

18LEM101T- Constitution Of India

1.Identify the basic provisions in the Indian constitution.

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation.

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions.

4.Identify the power of states, its legislature, Governors role and the state judiciary.

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST.

18GNM101L – Physical And Mental Health Using Yoga

1.Increase the muscle strength.

2.Improve respiration, energy and vitality.

3.Maintain a balanced metabolism and weight reduction.

4.Maintain cardio and circulatory health.

5.Improve Athletics performance and protection from injury.

18LEH102J- Professional English

1.Work in a team under any situation.

2.Practice interpersonal relationships in workplace.

3.Face interviews confidently and successfully.

4.Participate and excel in role plays, presentations and formal conversations.

5.Read and infer the meanings of technical and aesthetic passages.

6. Draft official letters, reports, memos, emails, etc.,

18MAB102T- Advanced Calculus and Complex Analysis

1. Evaluate multiple integrals using change of variables.

2. Apply techniques of vector calculus in problems involving Science and Engineering.

3.Apply complex analytic functions and its properties in solving problems.

4.Evaluate improper integrals using Residue theorem involving problems in Science and Engineering.

5.Apply techniques of Laplace Transforms and inverse transform for problems in Science and Engineering and Solving Ordinary Differential Equations.

18CSS101J- Programming for Problem Solving

1. Apply the problem solving techniques for solving numeric and string problems.

2.Solve basic numeric problems using control statements in C.

3.Develop the C program using the concepts of array and string.

4.Apply the concept of function prototypes and pointers.

5.Compare the performance of structures and union in memory management.

18MES102J- Basic Civil and Mechanical Engineering

1.Identify the building materials and its applications.

2.Identify different transportation system, water supply system and its applications.

3.List the basic components and analyse the working of major power plants.

4.Identify the working of IC engines and understand the need of various auxiliary systems.

5.Identify manufacturing processes; casting, forming. List machining operations; lathe, drilling. Identify process of welding.

18LEM102T- Value Education

1.Equipped with an awareness of their positive energy and power.

2.Identify the meaning of 'education'; have a clearer and better understanding in taking education to the masses.

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances.

4.Realize their professional responsibilities.

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes.

18MAB203T- Probability Statistics and Queuing Theory

1.Apply basic probability techniques and models to analyse the performance of computer systems.

2.Illustrate and apply the concept of pairs of random variables from the knowledge of sampling distributions.

3.Understand the problems of Students T test for single mean, difference of means.

4.Use discrete time Markov chains to model computer systems.

5.Understand basic characteristic features of a queuing system and acquire skills in analyzing queuing model.

18ECS202J- Analog and Digital Electronics

1.Review various biasing techniques used in BJT and its characteristics.

2.Illustrate the Boolean functions and Boolean Expressions.

3.Design and Analyze the combinational circuits.

4.Design and Analyze the sequential circuits.

18ITC201J- Data Structures and Algorithms

1.Understand the models, process and testing in Software Engineering.

2 Outline the fundamentals of agile software process.

3.Explain about the project phases involved in agile software development.

4.Summarize the various agile testing methods.

18ITC202T-Agile Development Methodology

1.Understand the models, process and testing in Software Engineering.

2.Outline the fundamentals of agile software process.

3.Explain about the project phases involved in agile software development.

4.Summarize the various agile testing methods.

5.Explain about the design and development of agile software.

18ITC203J- Object Oriented Programming

1.Develop Programs using OOP principles.

2.Develop Programs with the concepts inheritance and interfaces.

3.Build Applications using exceptions and I/O streams.

4.Develop Applications with threads and generics classes.

5.Develop interactive Java programs.

18ITC204T- Computer Organization and Architecture

1.Illustrate the basic concepts and structure of computers.

2.Summarize the working of the arithmetic units and its operations .

3.Infer the fundamental concepts of Basic Processing Unit.

4.Illustrate the need and importance of Instruction level parallelism.

5.Classify the various memory technologies and the I/O systems.

18MBM201L-Competencies In Social Skills

1.Students should be able to solve both analytical and logical problems in an effective manner.

2.Students can design and deliver information in a proper manner.

3.Presentation skills of students will be improved individually as well as a team member.

18CYM201T-Environmental Science

1.Improve fundamental knowledge of the inter-relationships between the built environment and natural systems.

2.Characterize and mitigate man-made hazards like nuclear hazards. Understand the principals involved in the generation of different forms of energy.

3.Improve the reliability, performance, disaster-management of natural calamities and solid waste and water supplies and treatment processes.

4.Understand the source, effects and control measure of various environmental pollution.

5.Apply information technology in the control of human population and women and child welfare.

18MAB206T- Discrete Mathematics

1.Demonstrate their knowledge in propositional calculus.

2.Demonstrate their knowledge in predicate calculus.

3.Obtain the perception in the area of sets and the knowledge about functions.

4.Obtain perception in the area of combinatory.

5.Obtain perception in the area of graph theory.

18ITS202J- Embedded Systems

1.Describe the differences between the general computing system and the embedded system, also recognize the classification of embedded systems.

2.Explain the architecture of the ATOM processor and its programming aspects.

3.Describe the interrupts, hyper threading and software optimization.

4.Design real time embedded systems using the concepts of RTOS.

5.Analyze various examples of embedded systems based on ATOM processor.

18ITC205T- Object Oriented Analysis and Design

1.Understand the fundamentals of object oriented analysis and design.

2.Understand various object oriented concepts and methodologies.

3.Build object oriented analysis model using UML.

4.Identify design requirements by creating a design model.

5.Apply the concepts of refinement, iteration, reusability in Object Oriented Software Development.

18ITC206J- Computer Networks

1.Select the required topology for a network.

2.Analyze the various error detection and correction methods in data communication.

3.Design computer networks using sub-netting and routing concepts.

4.Apply the congestion control techniques for the data networks to improve the quality of service.

5.Identify the application layer protocols required to build applications.

18ITC207J- Database Management Systems

1.Differentiate Database systems from file systems.

2.Construct queries to manipulate data in Database.

3.Illustrate the conditions of Normal forms.

4.Interpret the issues of Transaction Processing.

5.Demonstrate an understanding of Storage and Recovery.

18ITC208J- Operating Systems

1.Recall the various basic concepts of operating systems and Process scheduling.

2.Classify various CPU scheduling algorithms and Process Synchronization problems.

3.Summarize the characteristics of Deadlock and various Memory Management techniques.

4.Classify the various types of File systems and Disk Scheduling Algorithms.

5.Illustrate the various concepts on virtualization.

18MBM202L-Critical And Creative Thinking Skills

1.Students can be able to solve both analytical and logical problems in an effective manner..

2.Students can demonstrate an ability to design and deliver messages.

3.The quality of student's communication with practical experience is improved.

18LEM103T- Indian Tradition And Heritage

1.Understand the meaning of culture; trace the influence and significance of geographical features on Indian culture.

2.Develop an awareness of the variety of languages and literatures in India.

3.Recognise the characteristics of various religious movements in ancient India.

4. Identify the characteristics and various styles of Indian architecture and sculpture at different times.

5.Examine various modes through which Indian culture spread abroad.

18ITC301T - Formal Language And Automata Theory

1. Understand the basic concepts of formal languages of finite automata techniques and Solve regular expressions and various problems to minimize FA.
2. Apply various languages to construct context free grammar.
3. Solve Various problems on PDA using normal form techniques.
4. Solve various problems on Turing Machine.
5. Understand the basic concepts of unsolvable problems and Computational Functions.

18ITC302J- Software Testing

1. Design test cases suitable for a software development for different domains.
2. Identify suitable tests to be carried out.
3. Understand the wide variety of testing techniques at various testing levels.
4. Develop document test plans and test case design.
5. Use automatic testing tools.

18ITC303L-Mobile Application Development Laboratory

1. Illustrate the components and structure of mobile application development frameworks for Android and Windows OD based mobiles.
2. Explain about how to work with various mobile application development frameworks.
3. Explain the basic and important design concepts and issues in development of mobile applications.
4. Discuss the capabilities and limitations of mobile devices.

18ITC304J- Web Technology

1. Create simple web pages using HTML and CSS.
2. Structure data for storage and transport.
3. Access the HTML elements using JavaScript.
4. Design simple Dynamic web pages using Servlet and JSP.

5. Access the Database using PHP.

18ITC305J- Bigdata Technologies

1. Describe about Big Data and understanding the working process of hadoop environment.
2. Explain about streaming Data and learning about the key/value pair in spark.
3. Explain conceptually how Big Data is stored using various tools.
4. Explain how Big Data can be analysed.
5. Illustrate the Communication with data using various bigdata applications.

18ITC306L- Software Design Laboratory

1. Use industry standard software in a professional set up.
2. Understand the elements of finite element modelling, specification of loads and boundary condition, performing analysis and interpretation of results for final design.
3. Develop customized automation tools.

18ITE001J- Python Programming

1.Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.

2. Express proficiency in the handling of strings and functions.

3.Determine the methods to create and manipulate Python programs by utilizing the data

structures like lists, dictionaries, tuples and sets.

4.Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python.

5.Interpret the fundamental of data science using python.

18ITE002J- C#.NET Framework

1. Infer the fundamental concepts of the C# language and the .Net Framework.

2. Infer the concept of .NET framework; study the different techniques of security.
3. Identify base class libraries to be used with Network programming.
4. Build windows based application and web services.
5. Compare different types of Assemblies.

18ITE003J- Data Mining And Data Ware Housing

1. Outline the concepts of Data warehousing and design schemas.
2. Interpret the OLAP concepts.
3. Identify the functionalities and issues of data mining.
4. Illustrate the working of Classification Algorithms.
5. Select suitable Clustering Algorithm for a problem.

18ITE004J- Computer Graphics And Multimedia

1. Illustrate the basics of computer graphics and applications of computer graphics.
2. Apply various algorithms for scan conversion and filling of basic objects and their comparative Analysis.
3. Build scene with different clipping methods and its transformation to graphics display device.
4. Understood Different types of Multimedia File Format.
5. Create an effective interactive site for use on the internet.

18ITE005J-3D Game Programming Foundations

1. Describe the functionalities of Pygame
2. Analyse the handling method of colors and images in pygame to create 3D visuals
3. Discuss the frame rates and vectors moments in 3D
4. Understand the concepts of points projection methods in 3D
5. Understand the concepts of openGL and sound handling in Pygame.

18ITE006T- Artificial Intelligence

1. Identify problems that are amenable to solution by AI methods.
2. Describe the way of representation of knowledge.
3. Formalise a given problem in the language/framework of different AI methods.
4. Design and summarize Different type of Activity Planning.
5. Outline the concepts of Expert Systems and illustrate its applications

18ITE007T- Compiler Engineering

1. Describe the functionality of each phase involved in Compilation process.
2. Implement the parsing techniques including Bottom-up and Top-down parsing for the given programming construct described in Context Free Grammar.
3. Describe the concepts of storage administration for different programming environments.
4. Understand the concepts of steps involved in Code Generation Phase.
5. Generate the machine code by considering all the functionalities involved in different phases of the compilation process.

18ITC401J- Cryptography And Network Security

1. Understand OSI security architecture and classical encryption techniques.
2. Acquire fundamental knowledge on the concepts of finite fields and number theory.
3. Understand various block cipher and stream cipher models.
4. Describe the principles of public key cryptosystems, hash functions and digital signature.
5. Protect any network from the threats in the world.

18ITE009T- Human Computer Interaction

1. Identify the Foundations of human computer interaction.
2. Illustrate the technologies for individuals and persons with disabilities.
3. Summarize the basic concepts of cognitive, Collaborative and Cognitive models.
4. Apply the application framework to design a tool.

5. Show the Guidelines For User Interface.

18ITE010T- Internet Of Things

1. Outline the basic concepts of IoT.
2. Analyze the various types of protocols for IoT.
3. Compare the middleware for WoT and IoT.
4. Explain the role of cloud and security in IoT.
5. Analyze applications of IoT in real time scenario.

18ITE011T- Information Theory & Coding

1. To have a complete understanding of error–control coding
2. To understand encoding and decoding of digital data streams
3. To introduce methods for the generation of these codes and their decoding techniques
4. To have a detailed knowledge of compression and decompression techniques.
5. To introduce the concepts of multimedia communication.

18ITE012T- Decision Support Systems

1. Illustrate the concept and components of Decision Support Systems.
2. Identify the different types of Models in Model Management and process the commands.
3. Demonstrate the different data sources and data base languages.
4. Demonstrate User Interface and the issues related to User Interface.
5. Outline the development process of the Decision Support Systems.

18ITE013T- Wireless Adhoc And Sensor Network

1. Identify various issues in wireless ad-hoc networks.
2. Understand various issues and challenges in the design of wireless ad hoc networks.
3. Understand the working of MAC and Routing Protocols for ad hoc and sensor networks.

4. Summarize about the Transport Layer protocols and their QoS for ad hoc and sensor networks.
5. Understand various security issues in ad hoc and sensor networks and the corresponding solutions.

18ITE014T- Service Oriented Architecture

1. Illustrate the properties of XML.
2. Demonstrate standards related to XML.
3. Outline the basic principles and characteristics of Service Oriented Architecture
4. Utilize Web services and its transactions.
5. Develop an SOA-based application.

18ITE015T- Mobile Communication

1. Explain the basics of mobile telecommunication systems.
2. Illustrate the generations of telecommunication systems in wireless networks.
3. Demonstrate the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network.
4. Summarise the functionality of Transport and Application layers.
5. Develop a mobile application using android/blackberry/ios/WindowsSDK.

18ITE016T- Enterprise Computing

1. Infer the basic concepts of an Enterprise and applications.
2. Classify the requirements for validation, planning and estimation.
3. Develop a basic enterprise architecture with hardware and software components.
4. Demonstrate code review, static and dynamic code analysis.
5. Identify the different types of testing for an enterprise application.

18ITE017T- Grid Computing

1. Interpret the need for evolution of grids in the context of processor and data intensive applications.
2. Illustrate the key concepts of grid computing..
3. Compare the resources selections for grid environment.
4. Outline the fundamental components of grid environments.
5. Infer grid computing applications using globus or similar toolkits.

18ITE018T- Semantic Web

1. Understand semantic web basics, architecture and technologies.
2. Explain the concepts in Ontology Engineering.
3. Understand the semantic relationships among the data elements using Resource Description Framework (RDF).
4. Illustrate about OWL in detail.
5. Design and implement real-world applications that “discover” the data and/or other web services via the semantic web.

18ITE019T- Information Retrieval Techniques

1. Understand the basic models and methods of information retrieval.
2. Understand the classical techniques of Information Retrieval and basics of Queries.
3. Interpret relevant information and subsequently extract meaningful patterns out of it.
4. Summarize information on retrieval and user interface design applications.
5. Understand the information retrieval techniques using various applications.

18ITE020T- Social Network Analysis

1. Understand the internals components of the social network.
2. Model and visualize the social network.
3. Analyze the behavior of the users in the social network.

4. Predict the possible next outcome of the social network.
5. Apply social network in real time applications.

18ITE021T- User Interface Design

1. Infer the various user interfaces to be applied for design.
2. Identify different methods and standards for human interaction.
3. Analyze practical abilities in visual and technical aspects of the design process.
4. Make use of advanced testing tools.
5. Develop web pages.

18ITE022T- Machine Learning

1. Understand the basic concepts of machine learning.
2. IIlustarate the terminologies used in Neural Networks And Genetic Algorithms.
3. Illustrate the terminologies used in Bayesian And Computational Learning.
4. Understand the techniques involved in Instant Based Learning using case study.
5. Understand the techniques involved Advanced Learning using case study.

18ITE023T- Parallel Computing

1. Infer scalability and clustering techniques.
2. Compare Hierarchical, Shared and Distributed memory architecture.
3. Demonstrate complete idea about interconnection of systems.
4. Develop programs for parallel programming techniques.
5. Build programs for message passing techniques.

18ITE024T- ROBOTICS

1. Demonstrate the key components of robotics technologies
2. Classify the different types of robots.
3. Apply different vector spaces and transformations applied to movement of robots.

4. Compare kinematics and Inverse kinematics.
5. Apply graph based method in Configuration spaces.

18ITE025T- Ethical Hacking

1. Understand and analyses information security threats and counter measures.
2. Perform security auditing & testing .
3. Understand issues relating to ethical hacking .
4. Interpret various web services and session Hijacking.
5. Understand penetration and security testing issues.

18ITE026T- Distributed Systems

1. Illustrate the characterization of distributed system.
2. Infer in creating distributed objects and methods for invoking it.
3. Identify file system of distributed system.
4. Experiment with states of a process.
5. Compare memory storage concepts.

18ITE027T- Business Intelligence

1. Explain the fundamentals of business intelligence.
2. Compare data mining with business intelligence.
3. Apply various modeling techniques.
4. Apply business intelligence methods to various situations.
5. Decide on appropriate technique.

18ITE028T-Digital Image Processing

1. Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms.
2. Operate on images using the techniques of smoothing, sharpening and enhancement.

3. Understand the restoration concepts and filtering techniques.
4. Learn the basics of segmentation, features extraction.
5. Learn the basics of compression and recognition methods for color models.

18ITE029J- Advanced Java Programming

1. Understand the fundamentals of java streaming.
2. Illustrate The Techniques to Develop Applications In Distributed Environment.
3. Develop applications in Distributed Environment.
4. Apply the techniques involved in multi tier application development.
5. Understand the architecture of enterprise applications.

18ITE030T- Software Quality Assurance

1. Outline the basic tenets of software quality and quality factors.
2. Apply the Software Quality Assurance (SQA) architecture and the details of components.
3. Demonstrate how the SQA components can be integrated into the project life cycle.
4. Construct the familiar software quality infrastructure.
5. Illustrate about the management components of software quality.

18ITE031T- Software Project Management

1. Compare the skills and roles of functional and technical managers for software efforts and their relationship with other organizations.
2. Outline specific sections of the plan used to manage the software development and maintenance efforts.
3. Identify software project management practices within an organization and recommend practical improvements based upon your evaluation.
4. Apply schedule and cost techniques to estimate the cost of the software projects.
5. Demonstrate the organizational behaviour, selection process in software projects.

18ITE032T- Cloud Computing

1. Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
2. Learn the key and enabling technologies that help in the development of cloud.
3. Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
4. Explain the core issues of cloud computing such as resource management and security.
5. Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

18ITE033T - Soft Computing

1. Infer soft computing techniques and their applications.
2. Outline various neural network architectures.
3. Infer fuzzy systems.
4. Dramatize the genetic algorithms and their applications.
5. Evaluate and choose the appropriate algorithms and approaches for implementation and use of hybrid systems.

18ITE034T- Computer Forensics

1. Understand the basics of computer forensics.
2. Apply a number of different computer forensic tools to a given scenario .
3. Analyze and validate forensics data .
4. Identify the vulnerabilities in a given network infrastructure .
5. Implement real-world hacking techniques to test system security .

18ITE035T- Digital Watermarking And Steganography

1. Know the History and importance of watermarking and Steganography.
2. Analyze Applications and properties of watermarking and Steganography.

3. Demonstrate Models and algorithms of watermarking.
4. Possess the passion for acquiring knowledge and skill in preserving authentication of Information.
5. Identify theoretic foundations of Steganography and Steganalysis.

18ITE036T- Intellectual Property Rights

1. Identify which of the four main different types of intellectual property rights may be presented by an output
2. Analyze an innovative or creative output in terms of intellectual property rights generated.
3. Discuss the appropriateness, or not, of registering an intellectual property right.
4. Apply the appropriate ownership rules to intellectual property he / she has been involved in creating.
5. Suggest ways of exploiting intellectual property rights created in his / her own work.

18ITE037T- IT Security Evaluation And Auditing

1. To Articulate the concepts of general auditing and information systems audit and control.
2. To Apply the IS audit methodology and formulate information security policy.
3. To Develop knowledge and skills in Computer assisted audit tools and techniques.
4. To Evaluate the organization's IT governance, IS control and security architecture.
5. To Know about the recent trends of IT security.

18ITE038T - Total Quality Management

1. Understand the students in gaining knowledge on evaluation of quality.
2. Understand the Principles of Total Quality Management.
3. Summarize the techniques and tools involved in TQM.
4. Summarize concepts of Six Sigma.
5. Apply knowledge in assessing the quality in manufacturing sectors.

18ITE039T- Foundation Skills In Product Development

1. Understand the global trends and development methodologies of various types of products and services.
2. Understand requirement engineering and know how to collect, analyze and arrive at requirements for new product development and convert them in to design specification.
3. Understand about conceptualize, prototype and develop product management plan for a new product based on the type of the new product, system integration, testing and product certificate and documentation.
4. Develop documentation, test specifications and coordinate with various teams to validate and sustain up to the EoL (End of Life) support activities for engineering customer.
5. Understand industry product development, product development trade off and security configuration.

18ITE040T- Green Computing

1. Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.
2. Enhance the skill in energy saving practices in their use of hardware.
3. Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.
4. Understand the ways to minimize equipment disposal requirements .
5. Analyze various case studies on Green Computing

18ITE041T-5G Technology

1. Understand the concepts of 5G Technology advances and their benefits.
2. Understand the key requirements of RF, PHY, MAC and air interface changes required to support 5G.
3. Explain the Transmission and Design Techniques for 5G.
4. Understand the Device to device communication and millimeter wave communication.
5. Explain the Implementation options for 5G.

18ITE042T- Software Defined Radio

1. Understand the basic concepts of Software Defined Radio
2. Understand basic design issues of physical RF hardware blocks.
3. Explain the concepts waveform generation using SDR.
4. Apply the knowledge of wireless communication systems and signal processing filters, designs using Software defined radio.
5. Evaluate the performance parameters of RF tested using NI-USRP OR Xilinx ZYNQ.

18ITE043T- Block Chain

1. Understand the basic concepts of cryptography in Distributed Systems.
2. Explain the basic concepts of Block Chain.
3. Explain Nakamoto consensus, proof of work and proof of stake consensus
4. Understand the Crypto currency systems.
5. Evaluate security, privacy, and efficiency of a given block chain system.

18ITE044T- Unix Internals

1. Explain the basic concepts of UNIX Operating System .
2. Explain the operational concepts of Buffer, Inode.
3. Discuss the various operations of File concepts.
4. Describe the various aspects of Process Control.
5. Apply various Scheduling techniques for a given situations.

18ITE045T- Computer Vision

1. Implement fundamental image processing techniques required for computer vision.
2. Perform shape analysis.
3. Apply Hough Transform for line, circle, and ellipse detections

4. Apply 3D vision techniques.
5. Develop applications using computer vision techniques..

18ITE046T- Augmented And Virtual Reality

(RECOMMENDED BY AUGRAY)

1. Understand the basic concept and the framework of virtual.
2. Understand the Principles and multidisciplinary features of virtual reality and apply it in developing applications.
3. Illustrate the multimodal user interaction and perception VR, the visual, audial and haptic interface.
4. Understand the managing large scale VR environment in real time.
5. Understand the Purpose of AR tools in software development.

18ITC401L- Security Laboratory

1. Implement the cipher techniques
2. Develop the various security algorithms
3. Use different open source tools for network security and analysis

18ITC402L- Foss Laboratory

1. Build the installation of various open source software's in different modes.
2. Develop simple applications in PHP.
3. Develop simple application in Perl.
4. Design programs using QT and GTK programming.
5. Build interfaces using IDEs.

18ITC403L – Project Work

1. Identify the problem by applying acquired knowledge.

2. Analyze and categorize executable project modules after considering risks.

3. Choose efficient tools for designing project modules.

4. Combine all the modules through effective team work after efficient testing.

5. Elaborate the completed task and compile the project report.

18ITC201L - Minor Project I

1. Identify the problem by applying acquired knowledge.

2. Analyze and categorize executable project modules after considering risks.

3. Choose efficient tools for designing project modules.

4. Combine all the modules through effective team work after efficient testing.

5. Elaborate the completed task and compile the project report.

18ITC202L - Minor Project II

1. Identify the problem by applying acquired knowledge.

2. Analyze and categorize executable project modules after considering risks.

3. Choose efficient tools for designing project modules.

4. Combine all the modules through effective team work after efficient testing.

5. Elaborate the completed task and compile the project report.

18ITC301L - Minor Project III

1. Identify the problem by applying acquired knowledge.

2. Analyze and categorize executable project modules after considering risks.

3. Choose efficient tools for designing project modules.

4. Combine all the modules through effective team work after efficient testing.

5. Elaborate the completed task and compile the project report.

18ITC302L - Minor Project IV

1. Identify the problem by applying acquired knowledge.

2. Analyze and categorize executable project modules after considering risks.

3. Choose efficient tools for designing project modules.

4. Combine all the modules through effective team work after efficient testing.

5. Elaborate the completed task and compile the project report.

18ITP301N – MOOC I / Industrial Training I

MOOC I

1.Encourage the students to participate Social Learning Methods in various online platforms

Industrial Training I

1.Extend the boundaries of knowledge through research and development.

2.Develop significant commitment in the students' profession/specialization.

3.Integrate classroom theory with workplace practice.

4.Develop greater clarity about academic and career goals.

5.Develop new or advanced skills.

18ITP302N – MOOC II / Industrial Training II

MOOC II

1.Encourage the students to participate Social Learning Methods in various online platforms

Industrial Training II

1. Extend the boundaries of knowledge through research and development.

2. Develop significant commitment in the students' profession/specialization.

3. Integrate classroom theory with workplace practice

4. Develop greater clarity about academic and career goals

5. Develop new or advanced skills

DEPARTMENT OF MANAGEMENT STUDIES

PROGRAM OUTCOMES (POs):

PO1: Ability to create a suitable business solution considering the economic, cultural, technical, legal, Societal and environmental issues.

PO2: Ability to apply the theories and techniques of behavioral sciences to improve interpersonal effectiveness.

PO3: Ability to design effective solutions for unforeseen market problems in unfamiliar contexts.

PO4: Ability to build and maintain a learning organization for effective people management.

PO5: Ability to take optimal financial decisions through analytical thinking and logical reasoning.

PO6: Ability to recommend actionable plans and strategies in process management.

PO7: Ability to apply the fundamental strategic management concepts to solve the complex business management problems.

PO8: Ability to demonstrate effective leadership with multicultural perspectives and ethical considerations.

PO9: Ability to communicate effectively on business management activities with the corporate community and with society at large.

PO10: Ability to evaluate the use of ICT for critical decision making and apply for lifelong learning.

PROGRAM SPECIFIC OUTCOMES(PSOs):

PSO1: Students will be able to understand, analyze and apply management concepts in the areas related to marketing, human resources and finance for efficient running of the business organization of varying complexity in competitive era

PSO2: Students will be able to define, identify and/or apply the principles of preparing a startup business plan emphasizing financing, marketing, and organizing. Students will also be able to

apply the principles of entrepreneurial management and growth through strategic plans, consulting projects and/or implementing their own businesses.

COURSE OUTCOMES:

PBA18101 - Management and Organizational Behaviour

1. Identify the evolution of management thoughts and roles, functions of managers.
2. Understand the steps involved in planning and overview of organizing.
3. Identify the leading & controlling functions and global implications of OB.
4. Exhibit the individual behavior elements and its categories
5. Know the applications of Information Technology inputs in management

PBA18102- Managerial Economics

1. Acquire knowledge about basic concepts of economics and the role of markets and governments in a modern economy
2. Understand the factors influencing demand, its types and production function, law of returns to scale
3. Analyze the various types of market structure such as perfect competition, monopoly, monopolistic competition, oligopoly etc
4. Know the basic pricing strategies, cost concepts and classification, economies and diseconomies of scale
5. Understand inflation and deflation, monetary and fiscal policies and the impact of international business on Indian economy

PBA18103 - Business Ethics and Corporate Social Responsibility

1. Understand the fundamentals of ethical theories and work ethics for managers
2. Identify the methodology for handling ethical dilemma and functional applications of ethical principles

3.Know the environmental responsibility of business via CSR activities

4.Identify the strategies for CSR and CSR issues

5.Understand the impact of globalization and CSR initiatives

PMA18101 - Statistics for Management

1.Conduct statistical estimation and hypothesis testing with statistical software.

2.Understand and apply probability tools and techniques to solve various management problems.

3.Apply statistical concepts and analytical tools to analyze and handle real –world business issues.

4.Understand and apply the concept of correlation in management problems.

5.Presenting and exchanging statistical findings and views.

PBA18105 - Financial and Management Accounting

1.The students can identify the differences between Financial, Cost and Management Accounting.

2.Able to interpret the Analysis the Financial Statements

3.The students can classify the cost and able to prepare the cost sheet.

4.Understand the concept of Budgeting and Budgetary control.

5.Gain Practical Knowledge through application of Marginal Costing

PBA18106 - Legal Aspects for Business

1.Understand the fundamentals of Mercantile law and its elements

2.Identify the procedure involved in the formation of the company

3.Know the elements in the Negotiable Instruments Act

4.Apply the different methods of tax implications

5.Know the machineries for protection of consumers

PBA18107 - Corporate Communication

1.Apply corporate communication strategies and principles to prepare effective communication for domestic and international business situations

2.Deliver an effective business presentation

3.Utilize analytical, persuasion and negotiation skills appropriate to business communication

4.Select appropriate formats and channels in communicating and recording the business messages

5.Effective use of interviewing skills in recruiting and ethics in business

PBA18201- Marketing Management

1.Formulate a marketing plan including marketing objectives, marketing mix, strategies, budgetary considerations and evaluation criteria

2.Develop an ability to understand and develop the marketing concepts that are used to target and retain customers

3.Demonstrate the ability to carry out a research project that explores marketing planning and strategies for a specific marketing situation and also to determine strategies for developing new products and services that are consistent with evolving market needs

4.Understand and develop advertising and promotional strategies

5.Develop strategies for the efficient distribution of products and services and also to know the recent trends in marketing

PBA18202 Production Management

1.Acquire knowledge about the basic concepts of production and operations management,Types of production system

2.Understand the factors affecting the location decisions, types of plant layout and inventory control techniques

3.Understand MRP,MRP II and ERP, MPS and lot sizing techniques

4.Know the dimensions of product and service quality, procedure for obtaining ISO certification and PDCA cycle

5.Analyze the importance of work measurement in improving the productivity of the organization

PBA18203 - Financial Management

1.Get the knowledge of basic concepts of Financial Management

2.Students can compare Investments and Select the best investment alternative

3.Acquaint Knowledge for computing cost of capital

4.Able to understand the concept of Leverage and dividend

5.Able to prepare working capital requirements for business operations

PBA18204 - Human Capital Management

1.Understand the basic knowledge on HRM concepts.

2.Know about recruitment and selection process carried out in different types of concern.

3.Know the advantages of training programs provided by organization and be in a position to conduct training need analysis.

4.Possess knowledge on handling grievances in working environment.

5.Able to differentiate between domestic and international HRM.

PMA18202 - Operations Research

1.Identify and develop operational research models from the verbal description of the real system.

2.Understand the mathematical tools that are needed to solve optimization problems

3.Use mathematical software to solve the proposed models

4.To prepare and motivate future specialists to continue in their study by having an insightful overview of operations research.

5.To provide those students not going beyond a single introductory course with enough understanding and confidence to appreciate the strengths and inherent limitations of the operations research approach.

PBA18206 - Research Methodology

1.Aware of the various elements of research and its applications in business

2.Relate the different measurement and scaling techniques

3.Examine the different method of data collection and sampling techniques

4.Assess the data through hypothesis formulation and statistical techniques

PBA18207- International Business Management

1.Understand the basic concepts of international business and globalization.

2.Know about international trade theories and regional trade blocks.

3.Acquire knowledge on organizational structure and functions of GATT and WTO.

4.Analyze the factors that contribute for growth of MNCs and export import procedures.

5.Acquire knowledge on controlling mechanisms

PBA18208P - Business Application Software

1.Apply the fundamentals of MS Office Packages.

2.Understand the essence of Tally and its different applications.

3.Understand the elements of SPSS packages in business research.

4.Understand the implications of managing data.

5.Understand the descriptive statistics and its applications

PBA18301 - Strategic Management

1.Understand the strategic management process and developing strategic vision, mission and objectives.

2.Know the methodology of industry environmental scanning.

3.Identify the different types of strategies and its applications.

4.Understand the design and establishing strategic control system.

5.Identify the recent strategies and its trends, managing technology and innovation.

PBA183M1 - Advertising, Sales and Distribution Management

1.Understand the conceptual framework of Advertising and its implications.

2.Understand the functions, structure of sales management, Identify the steps and strategies involved in Personal Selling.

3.Know the various categories of managing the sales force.

4.Identify the participants and environment of Physical Distribution Channels.

5.Know the selection and appointment of dealers and importance of Franchising.

PBA183M2 - Customer Relationship Management

1.Acquire knowledge on how to use CRM as a strategic marketing tool and develop CRM strategy.

2.Gain knowledge on methods of selecting profitable customer segments.

3.Understand how to acquire and retain customers.

4.Understand the strategy to generate sales leads.

Gain knowledge on basic concepts of data warehousing, data mining and other CRM software 5.packages.

PBA183M3 - Digital and Social Media Marketing

1.Summarize the basic digital marketing concepts and channels

2.Develop the display ads and implant with other platforms

3.Apply the digital marketing strategies for mobiles and various displays

4.Evaluate the digital analytics reports

5.Apply the social media marketing strategies in business organization

6.Enable the students to develop and implement digital marketing initiatives

PBA183M4 - International Marketing

1.Bring the basic learning of the opportunities and problems that face a marketer when operating abroad

2.Summarize the strategies for product adaptation in international marketing environment.

3.Impart knowledge about policy framework and procedural aspects of export and import in international market.

4.Impart knowledge about strategies, approaches and framework for international marketing planning.

5.Application of international marketing mix for product diversification and international branding decision

PBA183M5 - Marketing Analytics

1.Analyse the data using marketing metrics for marketing decision

2.Analyse the data using analytics tools for marketing decision

3.Understand the customer behaviour, estimating retention and acquisition

4.Understand the brand analytics and evaluate it with customer preference

5.Construct a campaign plan, apply, analyze and evaluate in business environment

PBA183M6 - Retail Management

1.Understand the functions, challenges and trends in retail management.

2.Know various retail formats.

3.know the role of MNC‘s in organized retail format.

4.Understand the shopping setting up retail business. Behavior of customer and the importance of retail location in setting up retail business.

5.know the recent trend in retail market for setting up successful retail business and issues in retailing

PBA183M7 Services Marketing

1.Understand and implement the basic concept and trend in services marketing.

2.Know the customer requirements in service marketing.

3.Know on how to build relationships with customers.

4.Develop effective communication, pricing and distribution strategies.

5.Improve service quality and productivity.

PBA183M8 - Strategic Brand Management

1.Acquire knowledge about the basic concepts of brand and different types of brand

2.Understand the elements of a brand, brand positioning, codes and promises

3.Analyze the various brand name decisions such as product branding, line branding and range branding etc

4.Know the global branding strategies, the role of brand managers, branding challenges and opportunities

5.Understand the concepts of brand extension, brand licensing and portfolio management, how to eliminate a brand from the market

PBA183F1- Banking Principles and Practices

1.Identify the regulatory provisions governing Banks and Elements of Banc assurance

2.Understand the KYC Guidelines and Duties and Responsibilities of Bankers

3.Know the Different Documentation Procedure and Elements of Financial Inclusion

4.Identify the Banking Technology Implications and Supporting Services for Bank Products

5.Understand the Various Supporting Services in Banking

PBA183F2 -Taxation

1.Understand the basics of taxation.

2.Comprehend the direct tax principles and overview of various heads of sources of income.

3.Understand the conceptual framework of indirect tax and its implications.

4.Know the service tax applications and overview of cenvat.

5.Understand the principles and practices of customs act-1962.

PBA183F3 - Behavioural Finance

1.Aware of human preferences nationality in relation with market efficiency

2.Identify persistent or systematic behavioral factors that influence investment behavior

3.Identify persistent or systematic external factors that influence investment behavior

4.Understand how behavioral factors influencing the financial markets

5.Identify the financial decision making errors that can be avoided by understanding neuro physiology and neuro economics

PBA183F4 - Financial Analytics

1.Identify the different risks involved in finance area

2.Impart knowledge on measurements related to risks

3.Understand and solve the different risks pertaining to stock market and its instruments

4.Provide insights to instruments related to risk management

5.Provide insights to other issues integrated to risk management

PBA183F5 - Financial Markets and Services

1.Get Practical Knowledge about various financial Instruments.

2.Identify the trading system in the stock Exchanges.

3.services done in Indian financial System

4.identify the overview of Leasing and Hire Purchase

5.understand the various other Fund Based Services

PBA183F6 - Insurance and Risk Management

1.Understand the concept of Insurance and the types of Insurance.

2.Acquaint the knowledge of Mediclaim Policies and Reinsurance.

3.Able to gain Knowledge on general insurance

4.Able to gain practical knowledge how to handle risk

5.Develop practical skills through professional development seminars, internships, and/or a practicum insurance and Risk Management

PBA183F7 - International Trade Finance

1.Able to gain the practical knowledge and its implications on International Finance.

2.Gain practical Knowledge on Foreign Exchange Market

3.Explain the basic concepts behind Forex market operations.

4.Solve simple Forex related problems in spot and forward transactions

5.Explain the functions of international financial institutions and their settlement mechanisms

PBA183F8 -Investment Analysis and Portfolio Management

1.Identify the different investment opportunities available

2.Understand the functions of securities market

3.Analyze the share price using different techniques of fundamental analysis

4.Analyze the share price using different techniques of technical analysis/ technical chart

5.Understand the process of analysis, selection, revision and evaluation of portfolio

PBA183H1- Human Resource Analytics

1.Gain knowledge about HR Process and Technology used

2.Students can able to understand the Employee Engagement Measurement Process

3.Students can get the practical knowledge and HR practice and HR Audit

4.Gain practical exposure to solve HR problems

5.Able to evaluate the return on Investment Analysis

PBA183H2 -Industrial Relations and Labor Welfare

1.Understand the overview of industrial relations and industrial relations problems in public sector.

2.Know the elements of trade union formation, powers and privileges.

3.Exhibit the Industrial Disputes Act and machinery to settle the same.

4.Understand the various Acts relevant to industrial applications.

5.Know the different welfare measures of special categories of labour.

PBA183H3 - International Human Resource Management

1.Able to differentiate between Domestic and International HRM.

2.Estimate factors driving standardization and localization.

3.Design the roles of an expatriate.

4.Appraise employees working as an expatriate using performance standards.

5.Sort out issues related to international industrial assignments.

PBA183H4- Performance Management

1.Understand the process involved in performance management

2.Identify the methodologies for performance criterion and its approaches

3.Exhibit the methods of measuring behaviors and developing appraisal forms

4.Know the methods of appraising employees and its influencing factors

5.Comprehend the purpose and challenge of team performance management

PBA183H5- Career Management

1.Gain Knowledge on career management and Talent Management.

2.Acquaint knowledge on Self Assessment

3.Students can able to identify their domain while planning their career.

4.Able to understand the concept of the big picture and career chart.

5.It provide a framework for students to manage career related issues in the organization

PBA183H6 -Strategic Human Resource Management

1.Have attained basic knowledge on HRD concepts and acquired basic knowledge about various roles of HRD professionals.

2.Should be aware of E- HRM concepts and in dealing with issues related to employee privacy.

3.Should be able to differentiate between domestic and international HRD and attained basic knowledge on repatriation concepts.

4.Should attain knowledge on career development and should be able to incorporate competencies throughout various processes.

5.Should be aware of coaching concepts and be able to differentiate between eastern and western practices.

PBA183H7- Training and Development

1.Enables the students to understand the need for training.

2.Help them understand the difference between training and development.

3.Familiarize training methods, design, evaluation.

PBA183H8 -Competency Mapping

1.Students would be able to understand competency frame work and various implementations in modern corporate life .

2.Students would also be able to recognize why to promote the competency culture in the modern organizations.

3.Students would be able to illustrate the integration of the HR Function and how the How HR processes are connected with the organization strategy.

4.The students would be able to differentiate the various types of competencies i.e. team competency, role competency.

5.The students would also be able to understand the process of competency Assessment

PBA183E1 -Business Analytics

1.The tools and techniques of analytical decision making

2.The characteristics and implementation approaches of data warehousing

3.On how to translate business context

4.The concept of data analysis and interpretation

5.The concept of analytic delivery

PBA183E2 -Business Organization and Taxation

1.Clear knowledge of form of organization

2.Promotion and registration

3.Taxation knowledge in business

4.Managing the firm properly

5.Application of different tax in business

PBA183E3 -Textile Management

1.Understand the overview of textile industry

2.Knows about the segment of textile industry

3.Gains knowledge about Apparel industry

4.Gains knowledge about fashion industry

5.Practical exposure about how to trade in Apparel Industry and Fashion Industry

PBA183E4- Design Thinking

1.Understand the overview of textile industry

2.Knows about the segment of textile industry

3.Gains knowledge about Apparel industry

4.Gains knowledge about fashion industry

5.Practical exposure about how to trade in Apparel Industry and Fashion Industry

PBA183H5- Export Management and Documentation

1.Understand the international trading environment and practices

2.Prepare Export and customs documents

3.Understand the procedure for realizing export proceeds

4.Implement the export formalities

5.To differentiate between different types of export houses

PBA183H6 -Entrepreneurial Finance

1.Understand the accounting reports and reporting standards

2.Evaluate the corporate performance through financial statement analysis

3.Measure the operating performance of any entity through suitable techniques and tools

4.Create the Value for the shareholders and other stake holders

5.Prepare a proper report related to business

PBA183H7-Small Business Management

1.Emergence of Small Business and its Impact

2.Buying behaviour of Buyers, needs and wants of Customers

3.Analyze on different import procedures

4.Evaluate different funding source

5.Elements of cost and classification of cost

PBA183H8-Startup and Launch Pad

1.Understand the way start-ups ventures are promoted

2.Know the different ways of mobilizing funds required for promotion of start-ups

3.Understand the legal framework in which angel funds, private equity firms and venture capital firms operate

4.Know the concept and importance of business model

5.Write appropriate building blocks of business model canvas

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

PROGRAMME OUTCOMES (POs):

PO 1: Understand and apply mathematical foundation, computing and domain knowledge for the conceptualization of computing models from defined problems.

PO 2: Design applications for any desired needs with appropriate considerations for any specific need on societal and environmental aspects

PO 3: Ability to select modern computing tools, skills and techniques necessary for innovative software solutions

PO 4: Ability to apply and commit professional ethics and cyber regulations in a global economic environment.

PO 5: Understand Management Principles and apply these to develop software as a team member and mange projects efficiently for multidisciplinary environments

PO 6: Communicate effectively and present technical information in oral and written reports

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1: Design, develop applications to meet the needs of the industry by using latest computing tools and technologies

PSO 2: Able to pursue carrier in industry, academia, research and other technology enables services

COURSE OUTCOMES:

18PCAC101T- Computer Organization

1. Perform conversions and arithmetic operations in various number systems.

2.Design various combinational and sequential circuits.

3.Differentiate between the various mapping policies used in cache memories.

4.Discuss the implementation of virtual memory.

5.Discuss the various types of I/O transfers.

18PCAC102T- Design And Analysis Of Algorithms

1.To design algorithms for problem solving by using the suitable algorithmic technique

2.To analyze a given algorithm for its efficiency based on time and space it occupies

3.To differentiate among various algorithmic approaches

18PCAC103T- Programming In C

1.Able to design a computational solution for a given problem

2.Able to transform a problem solution into programs involving programming constructs.

3.To write programs using structures, strings, arrays, pointer and files for solving complex computational problem

18PCAC104T- Operating Systems

1.Able to understand the operating system components and its services

2.An ability to apply the process scheduling

3.Ability to understand the methods and recovery of deadlock.

4.An ability to understand the file system management

5.Able to understand the operating system components and services with the recent OS

18PCAC105T- Computer Graphics

1.Study basic graphics primitives and concepts

3.Explain two and three dimensional concepts and their applications

4.Identify all techniques related to modern graphics programming concepts

5.Learn the concepts of hidden surfaces removal, lighting and libraries used is OpenGL

18LEM101T- Constitution Of India

1.Identify the basic provisions in the Indian constitution

2.List the fundamental rights, rights to equality, freedom, religion, culture, education and the right against exploitation

3.Identify the fundamental duties of the Union of India, President, Vice-President, Union Ministers and Parliament functions

4.Identify the power of states, its legislature, Governors role and the state judiciary

5.List the special provisions and functionality of election commission, public service commission, individual tax and GST

6.Build knowledge on the various aspects in the Indian Constitution, its provisions and right of a citizen and the society

18PCAP101L- Algorithms Laboratory

1.Implement operations like searching, insertion, deletion and traversing

2.Able to implement linear and non linear data structures

3.Implement searching / sorting techniques

18PCAP102L- Programming In C Laboratory

1.Develop C programs for simple applications making use of basic constructs, arrays and strings.

2.Develop C programs involving functions, recursion, pointers, and structures

3.Design applications using sequential and random access file processing.

18PCAC106T- Embedded Systems

1.Able to understand the functionality of embedded computing

2.Able to design and control Memory Input and Output

3.Able incorporate enhanced features in the embedded systems through Operating Systems

4.Able to design the programming using C

5.Acquire the knowledge of design the Emulators,IoT using embedded tools

18PCAC107T- Data Structures

1.An ability to understand the concepts and structure of data stored

2.An ability to understand the design, function and implementation of programming.

3.An ability to employ existing ideas or adapting existing solutions to similar problems

4.An ability to break down a large, complex problem into smaller, solvable problems.

5.An ability to understand basic concepts related to programming

18PCAC108T- Object Oriented Programming

1.Able to understand and design the solution to a problem using object-oriented programming concepts.

2.Able to use proper class protection mechanism to provide security.

3.Able to demonstrate the use of virtual functions to implement polymorphism.

4.Understand and implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems

5.Able to reuse the code with extensible Class types, User-defined operators and function Overloading.

18PCAC109T- Software Engineering

1.Able to understand the problem domain to choose process models and to develop SRS

2.Able to model software projects using appropriate design notations

3.Able to measure the product and process performance using various metrics

4.Able to evaluate the system with various testing techniques and strategies

5.Able to analyze, design, verify, validate, implement, and maintain software systems.

18PCAC110T- Multimedia Systems

1.To develop, design and implement two and three dimensional graphical structures

2.To enable students to acquire knowledge on Multimedia compression and animations

3.To learn Creation, Management and Transmission of Multimedia objects

18LEM102T- Value Education

1.Equipped with an awareness of their positive energy and power

2.Identify the meaning of ‘education’; have a clearer and better understanding in taking education to the masses

3.Assess their weaknesses; understand risks involved and rectify them through learning from positive and negative instances

4.Realize their professional responsibilities

5.Acquire the required values in an expanding pluralistic world not be swept off their feet due to the rapid changes

6.Equip with better understanding of themselves, society they live. Identify responsibilities in creating a peaceful world

18PCAP103L- Data Structures Laboratory

1.Ability to identify and implement appropriate data structure for a given application

2.An ability to identify all the trade-offs involved in choosing static versus dynamic data structures

3.Graduates will be able to understand the concepts of data structures and applications

4.An ability to identify and implement appropriate data structures for a given application

18PCAP104L- Object Oriented Programming Laboratory

1.Develop programs in object oriented paradigm

2.Implement data structure using C++

3.Suggest appropriate data structure for any given data set

4.Modify or suggest new data structure for an application.

5.File handling in object oriented environment.

18PMAF101T- Mathematical Foundations Of Computer Applications

1.Find eigen values and eigen vectors of real symmetric and non-symmetric matrices.

2.Basic knowledge of set theory, functions and relations concepts needed for designing and solving problems

3.Design and solve Boolean functions for defined problems.

4.Logical operations and predicate calculus needed for computing skill

5.Apply the acquired knowledge of formal languages to the engineering areas like Compiler Design

18PCAC201T- Computer Networks

1.Able to trace the flow of information from one node to another node in the network

2.Able to Identify the components required to build different types of networks

3.Able to understand the functionalities needed for data communication into layers

4.Able to choose the required functionality at each layer for given application

5.Able to understand the working principles of various application protocols.

18MCAC202T- Java Programming

1.An ability to understand the concept of Object Oriented Programming.

2.An ability to handle Exception

3.An ability to design GUI components using AWT and Swings.

4.An ability to write network programming and Database Connectivity.

18MCAC203T- Object Oriented Analysis And Design

1.Able to understand the object oriented concepts and to apply object oriented life cycle model for a project.

2.Able to design static and dynamic models using UML diagrams.

3.Able to perform object oriented analysis to identify the objects from the problem specification

4.Able to identify and refine the attributes and methods for designing the object oriented system

5.Able learn the open source CASE tools and to apply them in various domains.

18PCAC204T- Database Management Systems

1.Understand the basic concepts of the database and data models

2.Design a database using ER diagrams and map ER into Relations and normalize the relations

3.Acquire the knowledge of query evaluation to monitor the performance of the DBMS.

4.Develop a simple database applications using normalization.

5.Acquire the knowledge about different special purpose databases and to critique how They differ from traditional database systems.

18PCAP201L- Java Programming Laboratory

1.Apply the Object Oriented features of Java for programming on the interne

2.Implement, compile, test and run Java program

3.An ability to implement overloading, overriding, packages and string concepts

4.An ability to implement the exception handling.

5.An ability to implement data base connectivity and threads

18PCAP202L- Dbms Laboratory

1.Design and Implement databases

2.Design and Implement applications that have GUI and access databases for backend connectivity

18MBM201L- Competencies In Social Skills

1.Students should be able to solve both analytical and logical problems in an effective manner

2.Students can design and deliver information in a proper manner

3.Presentation skills of students will be improved individually as well as a team member

18PCAC205T- Mobile Application Development

1.Appreciate the Mobility Landscape

2.Familiarize with Mobile Apps development aspects

3.Design and develop mobile apps, using Android as development platform, with key focus on user experience design, native data handling and background tasks and notifications

4.Appreciation of nuances such as native hardware play, location awareness, graphics and multimedia

5.Perform testing, signing, packaging and distribution of mobile apps

18PCAC206T- Cryptography and Network Security

1.Apply cryptographic algorithms for encrypting and decryption for secure data transmission

2.Understand the program threats and apply good programming practice

3.Get the knowledge about the security services available for internet and web applications

4.Understand data vulnerability and SQL injection

5.Gain the knowledge of security models and published standards

18PCAC207T- Data Mining

1.Able to describe the data warehouse architecture

2.Able to describe the data mining basic concepts

3.Illustrate the mining techniques like association, classification and clustering on transactional databases

18PCAC208T- Software Project Management

1.Explain a process model for a software project Development

2.Apply Project Management and Requirement analysis, Principles to S/W project development

3.Analyze the cost estimate and problem complexity using various estimation techniques

4.Generate test cases using the techniques using white box and black box testing

18PCAC209T- Web Programming

1.Create a basic website using HTML and Cascading Style Sheets

2.Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms.

3.Design rich client presentation using AJAX

4.Design and implement simple web page in PHP, and to present data in XML format

5.Design front end web page and connect to the back end databases

18PCAP203L- Mobile Application Development Laboratory

1.Install and configure Android application development tools

2.Design and develop user Interfaces for the Android platform

3.Apply Java programming concepts to Android application development

4.Familiar with technology and business trends impacting mobile applications

5.Competent with the characterization and architecture of mobile applications

18PCAP204L-Web Programming Laboratory

1.Develop simple web applications using scripting languages

2.Implement server side and client side programming develop web applications with various web technology concepts

3.Design a Web application using various technologies such as AJAX, JQuery and JSON

4.Develop an application for social media using HTML5, CSS3, JQuery, AJAX & PHP

18PCAP205L - Mini Project

1.Practical application of theoretical knowledge gained in order to develop real time software applications

2.To illustrate the presentation skills of an individual by project presentation

3.Deep understanding regarding a particular domain or software platform

4.Reproduce the code based on the problem

18MBM202L- Critical And Creative Thinking Skills

1.Students can be able to solve both analytical and logical problems in an effective manner

2.Students can demonstrate an ability to design and deliver messages

3.The quality of student's communication with practical experience is improved

18PCAC301T-Internet Of Things

1.Understand the fundamentals of IoT

2.Describe IoT Architecture

3.Analyze various protocols for IoT

4.Deploy an IoT application using Rasperry PI and Arduino

5.Analyze applications of IoT in real time scenario

18PCAC302T- Data Analytics

1.To explain about Big Data

2.To explain the data analytic life cycle

3.To export and import the data set to understand the types of variables

4.To apply the data visualization graphical methods like Barchart, Dox plot, Scatter plot to the given data set

5.To analyse the given case study through data analytic life cycle phases

18PCAC303T- Software Testing And Quality Assurance

1.Able to test the software by applying various testing techniques.

2.Able to debug the project and to test the entire computer based systems at all levels.

3.Able to test the applications in the specialized environment using various automation tools.

4.Able to evaluate the web applications using bug tracking tools.

5.Able to apply quality and reliability metrics to ensure the performance of the software.

18PCAP301L- IOT Laboratory

1.Understand the concepts of Internet of Things

2.Analyze basic protocols in wireless sensor network

3.Design IoT applications in different domain and be able to analyze their performance

4.Implement basic IoT applications on embedded platform

5.Work as a team and create end-to-end IoT applications.

18PCAP302L- Data Analytics Laboratory

1.Able to analyze the given data set by using the given technique

18PCAP303L- Software Testing Laboratory

1.Able to test the software by applying various testing techniques.

2.Able to debug the project and to test the entire computer based systems at all levels.

3.Able to test the applications in the specialized environment using various automation tools.

4.Able to evaluate the web applications using bug tracking tools.

5.Able to apply quality and reliability metrics to ensure the performance of the software

18PCAP304L - Project Work And Viva Voce

1.Able to implement software engineering process models

2.Able to gather and document the requirement of real world

3.Able to design architecture of the application

4.Able to implement solution using programming language

18PCAE001T- Ad Hoc And Sensor Networks

1.Explain the concepts, network architectures and applications of ad hoc and wireless sensor networks

2.Analyze the protocol design issues of ad hoc and sensor network

3.Discuss the sensor characteristics and wsn layer protocols

4.Design routing protocols for ad hoc and wireless sensor networks with respect to some protocol design issues

5.Evaluate the QoS related performance measurements of ad hoc and sensor networks

18PCAE002T- Game Programming

1.Illustrate an understanding of the concepts behind game programming techniques.

2.Implement game programming techniques to solve game development tasks.

3.Construct a basic game engine using open-source programming libraries

18PCAE003T- Service Oriented Architecture

1.Able to know the structure of XML and to design and store data in XML

2.Able to apply SOAP , HTTP and UDDI services in the web applications

3.Able to apply SOA architecture and the underlying design principles for the web projects

4.Able to understand the role of SOA in J2EE and .NET

5.Able to know the cloud computing architecture and the types of clouds

18PCAE004T- Intelligent Information Retrieval

1.Able to Define and Explain the fundamentals of IR Models

2.Able to Understand the technologies of IR

3.Able to Apply the models of Classification

4.Able to Analyze and demonstrate the retrieval models, algorithms, and system implementations

18PCAE005T- Operations Research

1.Understand and apply linear, integer programming to solve operational problem with constraints

2.Apply transportation and assignment models to find optimal solution in warehousing and Travelling

1.To prepare project scheduling using PERT and CPM

2.Identify and analyze appropriate queuing model to reduce the waiting time in queue

3.Able to use optimization concepts in real world problems

18PCAE006T - Bio Informatics

1.Able to Develop models for biological data

2.Apply pattern matching techniques to bioinformatics data – protein data genomic data.

3.Apply modeling for bioinformatics.

4.Apply pattern matching and visualization

5.Apply micro array technology for genomic expression study

18PCAE007T- Social Network Analysis

1.Work on the internals components of the social network

2.Model and visualize the social network

3.Mine the behavior of the users in the social network

4.Predict the possible next outcome of the social network

5.Apply social network in real time applications

18PCAE008T- Principles Of Compiler Design

1.Able to describe the design of a compiler and the phases of program translation from source code.

2.Able to Apply the source code to executable code and the files produced by these phases

3.Able to explain lexical analysis phase and its underlying formal models such as finite automata and their connection to language definition through regular expressions

4.Able to design the grammars and also explain syntax analysis phase and identify the similarities and differences among various parsing techniques

5.Able to use formal attributed grammars for specifying the syntax and semantics of programming languages and able to identify the effectiveness of optimization.

18PCAE009T- Machine Learning Techniques

1.Able to Distinguish between, supervised, unsupervised and semi-supervised learning

2.Apply the appropriate machine learning strategy for any given problem

3.Suggest supervised, unsupervised or semi-supervised learning algorithms for any given problem

4.Design systems that uses the appropriate graph models of machine learning

5.Modify existing machine learning algorithms to improve classification efficiency

18PCAE010T- Agile Methodology For Software Development

1.Understand the background and driving forces for taking an Agile approach to software development

2.Understand the business value of adopting Agile approaches

3.Understand the Agile development practices and Drive development with unit tests using Test Driven Development

4.Apply design principles and refactoring to achieve Agility, Deploy automated build tools, version control and continuous integration

5.Perform testing activities within an Agile project

18PCAE011T- Cloud Computing

1.Compare the strengths and limitations of cloud computing

2.Identify the architecture, infrastructure and delivery models of cloud computing

3.Apply suitable virtualization concept.

4.Choose the appropriate cloud player, Programming Models and approach.

5.Address the core issues of cloud computing such as security, privacy and interoperability

18PCAE012T- Human And Computer Interaction

1.Interpret the contributions of human factors and technical constraints on Human-Computer interaction

2.Apply Human-computer Interaction techniques and methods to the design of software

3.Practice in developing Human-Computer Interfaces with respect to usability

18PCAE013T- Blockchain Technology

1.Define and Explain the fundamentals of Blockchain

2.Illustrate the technologies of blockchain

3.Describe the models of blockchain

4.Analyze and demonstrate the Ethereum

5.Analyze and demonstrate Hyperledger fabric

18PCAE014T- Cyber Forensics

1.Understand the basics of computer forensics

2.Apply a number of different computer forensic tools to a given scenario

3.Analyze and validate forensics data

4.Identify the vulnerabilities in a given network infrastructure

5.Implement real-world hacking techniques to test system security

18PCAE015T- Business Intelligence

1.Able to apply Business Intelligence methods and techniques

2.Able to identify the techniques in addressing strategic business problems in organizations

3.Able to make better decisions by conducting in-depth analysis to both technical and business problems

4.Analyze legal and ethical principles applied to contexts and environments of data science and decision making

5.Able to Analyze the relationship between price and cost as determinants of supply and demand.

18PCAE016T- Distributed Systems

1.Able to Define and Explain the fundamentals of distributed system

2.Able to Understand the technologies of distributed system

3.Able to Articulate advantages and disadvantages of various models for a distributed system.

4.Able to Analyze various distributed operating system characteristics

5.Able to Identify appropriate complexity measures and analyze solutions to Fault tolerance in distributed environment

18PCAE017T-Advanced Databases

1.Ability to Design of database for any given problem

2.Ability to understand the practical problems of Concurrency control and its solutions

3.Apply query evaluation techniques and query optimization techniques.

4.Develop transaction processing systems with concurrency control

5.Design and develop a database application system as part of a team

18PCAE0181- Optimization Techniques

1.Identify the different optimization techniques that are possible for a sequence of code

2.Design performance enhancing optimization techniques

3.Manage procedures with optimal overheads

4.Ensure better utilization of resources

5.Use classical optimization techniques and numerical methods of optimization