DEPARTMENT OF CIVIL ENGINEERING

A.Y:2021-22 ODD SEM COURSE OUTCOMES SUMMARY

Semester	Course Code	Course Name	COURSE OUTCOMES		Bloom's Taxonomy Level
			CO No	Course Outcome	
III	BS205MT	Mathematics-III	CO1	Find the general solutions of the given differential equations.	Remembering
			CO2	Solve the wave equation, heat equations and laplace equations of given problems	Applying
			CO3	Solve the desrete and continuos random variables and distibutions.	Applying
			CO4	Examine the correlation coefficient and rank correlation for the given data.	Analyzing
			CO5	Determine straight line equation ,parabola equation and exponential equation.	Evaluating
			CO6	Evaluate t-distibution F-distribution and chisquare distibutions.	Evaluating
III	ES301EE	Basic Electrical Engineering	CO1	Analyze DC electrical circuits to compute various parameters of electrical energy	Analyzing
			CO2	Analyze AC electrical circuits to compute various parameters of electrical energy	Anayzing
			CO3	Explain the operation of transformers and 3-phase induction motor and understand their performance	Understanding
			CO4	Describe the operation of DC machines and explain the performance characteristics	Understanding
			CO5	Explain the operation of 1-phase induction motor	Understanding
			CO6	Identify and test various electrical switchgear ans asses the ratings needed in given applications	Understanding
III	PC401CE	Building Materials and Construction	CO1	Classify the types of construction materials like bricks, stones, steel, timber and their uses	Understanding
			CO2	Demonstrate the composition, properties and tests of cement and aggregates	Understanding
			CO3	Explain the manufacturing of concrete, properties and tests of fresh & hardened concrete	Understanding
			CO4	Discuss the types, properties of miscellaneous building materials like pointing, white & color washing, plastering, paints, varnishes, flooring, glass, bitumen etc.	Understanding
			CO5	Illustrate the importance of energy conservation, damp proof coarse and fire protection in buildings	Understanding
			CO1	Apply the fundamental concepts of stress and strain in the analysis and design of axially loaded members	Applying

III	PC402CE	Solid Mechanics	CO2	Analyze determinate beams subjected to various types of transverse loads to draw shear force diagrams and bending moment diagrams	Analyzing
			CO3	Derive the bending and shear equations for beams, determine the bending stress and shear stress distributions and solve associated analysis and design problems	Applying
			CO4	Analyse short columns and structs subjected to combined axial and bending loads and identify the kernel for various cross-sections	Analyzing
			CO5	Analyze the compound stresses at a point due to multi-axial loading, compute principal stresses and planes, draw Mohr's circle, and apply these concepts in stress analysis and design of cylindrical pressure vessels	Analyzing
			CO6	Compute the stresses of circular members subjected to pure torsion and apply bending and torsion concepts in the analysis and design carriage and helical springs	Applying
III	PC403CE	Fluid Mechanics	CO1	Define Fluid and its properties like Density, Specific weight, Specific gravity, Kinematic and dynamic viscosity etc.	Remembering
			CO2	Classify one-, two- & three-dimensional flows, rotational and irrotational flows, ideal and real flows, compressible and incompressible flows etc.	Understanding
			CO3	Apply the law of mass and energy conservation concepts in problem solving by application of engineering knowledge.	Applying
			CO4	Analyze the type of flow (convective or locally accelerated)	Analysing
			CO5	Design the discharge measuring devices and pressure measuring devices like manometers and piezometers.	Creating
			CO6	Apply the concepts of fluid mechanics in the isothermal and adiabatic conditions of fluid flow.	Applying
III	PC404CE	Surveying and Geomatics	CO1	Explain the terminologies and concepts involved in basic and modern surveying equipments & technologies and also defines the concepts of horizontal and vertical curves.	Understanding
			CO2	Demonstrate the working principles and applications of basic and modern surveying instruments like chain, prismatic compass, plane table, dumpy level, theodolite and total station.	Applying
			CO3	Apply the knowledge of surveying & levelling in calculating lengths, bearings, reduced levels, elevation differences and plotting of a ground	Applying
			CO4	Apply the knowledge of theodolite and trigonometry in finding horizontal and vertical angles, heights of inaccessible points	Applying
			CO5	Make use of knowledge of curves concept in surveying, in setting out both horizontal and vertical curves for the purpose of roadway and railway alignment	Analysing

			CO6	Analyse the amount of closing error of a traverse after finding out the omitted measurements in traverse and compute the missing data	Analysing
III	PC451CE	Fluid Mechanics Laboratory	CO1	Compute Cd of Notch	Evaluating
			CO2	Find out Cd of Circular Orifice and Orifice Meter	Applying
			CO3	Determine Darcy's Friction factor	Applying
			CO4	Application of Bernoulli's Principle in Fluid Mechanics	Applying
			CO5	Find out Cd of Venturimeter	Applying
			CO6	Identify type of flow using Reynold's Experiment	Understanding
III	PC452CE	Surveying Laboratory	CO1	Demonstrate the working principles and handling procedures of basic surveying instruments like chain, prismatic compass, plane table in finding out linear and angular measurements	Understanding
			CO2	Make use of surveying equipments in computing lengths, areas & bearings of given field work	Applying
			CO3	Demonstrate the levelling instruments and apply the knowledge of levelling in finding out the reduced levels of ground	Understanding
			CO4	Demonstrate the working principles and handling procedures of theodolite and total station	Understanding
			CO5	Make use of theodolite in finding out horizontal and vertical angles and also in setting out horizontal curves	Applying
			CO6	Apply the knowledge of trigonometrical levelling in finding out reduced levels of elevated objects which are both accessible and inaccessible using theodolite and total station	Applying
III	ES354CE	Building Drawing & Drafting Laboratory	CO1	Illustrate the basic principles of building planning and drawings as per codal provisions	Understanding
			CO2	Apply the tools of AUTOCAD software to prepare structural drawings of various building components	Applying
			CO3	Draw plan, elevation and sectional drawings of residential, hostel, hospital, school buildings in AutoCAD software	Creating
			CO4	Create electrical, plumbing and sanitary drawings of a building.	Creating
			CO5	Develop isometric views of Single storey and Double storey residential buildings	Creating
		is -I	CO1	APPLY the concept of PRINCIPLE OF SUPERPOSITION to derive SLOPE DEFLECTION EQUATION.	Applying
			CO2	UNDERSTAND the concepts of FIXED END MOMENTS, FREE END MOMENTS, EQUILIBRIUM CONDITIONS, STIFFNESS, DISTRIBUTION FACTORS and ROTATION FACTOR.	Understanding

V	PC321CE	Structural Analysi	CO3	ANALYSE the Continous beam and Frame using different methods (SLOPE-DEFLECTION METHOD, MOMENT DISTRIBUTION METHOD and KANI'S METHOD) to plot SFD AND BMD.	Evaluating
			CO4	ANALYSE the procedure to draw INFLUENCE LINE DIAGRAM for FINDING Support Reactions, Shear force and Bending moment for the given beam and three-hinged arch.	Evaluating
			CO5	ANALYSE the procedure to draw INFLUENCE LINE DIAGRAM for FINDING Forces in all the members of the given truss.	Evaluating
			CO6	ANALYSE the Suspension cable using INFLUENCE LINE DIAGRAM for finding horizontal and vertical components of tension in the cable, tension in the cable, Shear force and Bending moment.	Evaluating
V	PC322CE	Hydraulic Engineering	CO1	Explain the significance of reynold's experiment,Hagen Poiseuille Equation, Darcy Weisbach Equation, Hydraulic Jump, Rayleigh and Buckingham Pi theoream.	Understanding
			CO2	Define the different types of Pumps and Turbines on the basis of principle on which it works.	Remembering
			CO3	Make Use of the knowledge in selection of hydraulic turbines and pumps,most economical channel, application of Hydraulic jump.	Applying
			CO4	Apply the basic principles in the design of most economical channel,creating hydraulic jump.	Applying
			CO5	Analyse the turbine/pump laws and constant for hydraulic design.	Analyzing
			CO6	Develop the pipe network systems with given friction and velocity in pipes	Creating
V	PC323CE	Structural Engineering Design and Detailing	CO1	Define the characteristic strength of materials and partial safety factors for load and materials.Explain the design philosophies of working stress method and Limit state method.	Remembering
			CO2	Apply the key concepts, theories and mathematical fundamentals to analyze and design the structural elements.	Applying
			CO3	Analyze the moment capacity of structural elements. Design the structural elements for flexure, shear and torsion	Analyzing
			CO4	Examine the serviceability of structural elements	Analyzing
			CO5	Decide the safety of the design as per IS code specification to choose the more safe and economical design of a structural member.	Evaluating
			CO6	Design simple structural members to be able to safely resist bending, shear, torsion, deflection and compression within the imposed factors of safety	Creating
	E	ical ng	CO1	Explain the classification of soils.	Understanding
			CO2	Calculate the Permeability and seepage in Soil.	Understanding

V	PC324C	Geotechn Engineeri	CO3	Determine the Compaction characteristics in Soils.	Understanding
			CO4	Determine the Shear strength in Soils.	Understanding
			CO5	Explain and analyze the Earth pressures in Retaining Walls.	Analyzing
			CO6	Explain and analyze the stability of finite and infinite Earthen slopes.	Analyzing
V	PC325CE	Hydrology & Water Resources Engineering	CO1	Define the essential components and function of the hydrologic cycle including precipitation, evaporation/evapotranspiration, infiltration .	Remembering
			CO2	Explain different methods that can be used to measure rainfall and flow, as well as their relative advantages and disadvantages and find out average rainfall in a catchment area	Understanding
			CO3	Develop relationship between Rainfall-Runoff using hydrograph, flood frequency analysis, empirical methods rational method , and SCS-CN method	Understanding
			CO4	Analyzing ground water resources for different hydro-geological boundary conditions and explain the basic aquifer parameters	Analyzing
			CO5	Categorize different uses of water and determine the crop water requirement	Analyzing
			CO6	Analyzing the knowledge for various concepts of canal design.	Analyzing
V	PC326CE	Transportation Engineering	CO1	Demonstrate the highway classifications, policy recommendations, surveys and factors controlling the highway alignment	Understanding
			CO2	Distinguish the geometric elements of highways, traffic engineering and controlling characteristics, and pavement material Characteristics.	Analyzing
			CO3	Analyze the geometrical elements of highways and pavements design factors as per standard recommendations	Analyzing
			CO4	Identify the functions of pavement components, functions and methods of testing the pavement materials.	Applying
			CO5	Classify the engineering studies carried for traffic engineering and highway design	Understanding
			CO6	Illustrate elements of railway engineering and Airport engineering	Understanding
V	PC351CE	Fluid Mechanics Lab	CO1	Explain the flow and fluid properties	Understanding
			CO2	Identify the competence in working principles of notch,orifice,mouth piece,and venturimeter.	Applying
			CO3	Assess the flow measuring devices used in pipes, channels and tanks.	Evaluating
			CO4	Classify the Laminar and Turbulent flows.	Understanding
			CO5	Apply the practical knowledge of fliud mechanics in engineering field problems.	Applying
			CO6	Analyse the friction factors and it's applications in pipe flow.	Analysing
		b	CO1	Determine the Index properties of Soil	Evaluating

V	PC352CE	Geotechnical Engineering La	CO2	Determine the Atterberg's limits of fine grained Soil	Evaluating
			CO3	Identify and classify the soil the soil	Analysing
			CO4	Calculate the Permeability of Soils	Analysing
			CO5	Determine the Engineering properties of Soil	Evaluating
			CO6	Determine the Shear Parameters of Soil by Direct Shear Test	Evaluating
V	PC353CE	Transportation Engineering Lab	CO1	Identify the grade & properties of bitumen	Applying
			CO2	Create the awareness about various traffic studies in the field	Creating
			CO3	Find out peak hour traffic & peak time for a given location on the road	Remembering
			CO4	Find design speed, maximum speed & minimum speed limits of a location through spot speed	Remembering
			CO5	Identify engineering properties of aggregate	Applying
			CO6	Explain mix design of bitumen and CBR test etc	Understanding
VII	PC401CE	Construction Engineering and Management	CO1	Explain the objectives and Functions of Construction Management	Understanding
			CO2	Develop the time scheduling using PERT and CPM	Applying
			CO3	Analyze the cost time in network planning,	Analyzing
			CO4	Estimate The optimistic time for the completion of a Project.	Creating
			CO5	Classify types of contracts, List the advantages and disadvantages of types of contracts. Explain Tender forms documents etc, Understand project models – BOT, BOOT,PPP.	Understanding
			CO6	Develop linear program for optimization, Create graphical method linear programming in construction.	Creating
VII	PC402CE	Prestressed Concrete	CO1	Demonstrate and recognise the importance of materials used in PSC work and to demonstrate the prestressing methods and techniques	Understanding
			CO2	Explain the behaviour of a PSC beam section under given prestress and loads and identify the losses in prestressing	Understanding
			CO3	Extend the knowledge of analysis to Design a PSC beam section for the given conditions.	Understanding
			CO4	Analyze the Shear failure of a PSC beam and outline the procedure for safe shear design of PSC beams	Analyzing
			CO5	Determine the deflections which occur in PSC elements and Compare the short term and long-term deflection	Creating
			CO6	Assess the extent of bursting tension in the end block of a PSC beam and Develop the method of strengthening the end block	Creating
VII	02CE	ban ortation ining	CO1	Apply up-to-date information for planning and operation of urban transport.	Applying
			CO2	Understand a variety of travel surveys and data collection procedures	Understanding
			CO3	Understand optimization techniques for Transport Planning	Understanding

VII	PE4(	Ur Transp Plan	CO4	Understand trip distribution and mode split models	Understanding
			CO5	Solve travel demand forecasting problems.	Applying
			CO6	Recommend most appropriate transport modes based on performance evaluation.	Creating
VII	PE404CE	Disaster Mitigation and Management	CO1	Attain knowledge on various types, stages, phases in disaster with international & national policies & programmes with reference to the disaster reduction	Understanding
			CO2	Understand various types of natural disaster, their occurrence, Effects, Mitigation and Management Systems in India	Understanding
			CO3	Understand different types of manmade disasters, their occurrence, Effects, Mitigation and Management Systems in India	Understanding
			CO4	Apply the utility of geographic information systems (GIS), Remote sensing technology in all phases of disaster mitigation and management	Applying
			CO5	Understand on the concepts of risk, vulnerability, warning and forecasting methods in disaster management	Understanding
			CO6	Understand the role of education and training in disaster prevention.	Understanding
VII	PE406CE	Retrofitting and Rehabilitation of Structures	CO1	Explain the various definitions related to building repair and maintenance and describe the of maintenance works in buildings.	Understanding
			CO2	Describe and contrast the types of defects and damages in structures, according to their causes, and their preventive measures.	Understanding
			CO3	Describe and explain the various deterioration mechanisms in concrete and steel structures, including their causes and prevention.	Understanding
			CO4	Differentiate and summarize the various non-destructive tests and condition assessment procedures, and their specific applicability.	Understanding
			CO5	Discuss the various types of repair materials, compatibility considerations and techniques used in the repairs of structures.	Understanding
			CO6	Describe and explain the various retrofitting and rehabilitation procedures used for strengthening of damaged structures	Understanding
VII	PE408CE	GIS & Remote Sensing	CO1	Classify the different types of satellites and sensors used in remote sensing	Understanding
			CO2	Illustrate the energy interactions with earth surface features and their spectral properties	Understanding
			CO3	Demonstrate the basic concept of GIS and its applications	Understanding
			CO4	Explain the different types of data representations in GIS	Understanding
			CO5	Create the spatial data using various techniques	Understanding

			CO6	Develop models using spatial & terrain analysis	Understanding
VII	OE421ME	Enetrepreneurship	CO1	Understand Industrial environment and challenges associated with entreprenuership, small ad large scale industries, Economic development and growth	Understanding
			CO2	Identify characteristics of entrepreneurs, first generation and women entrprenuers, evaluation of ideas and yechnology	Remembering
			CO3	Analyzing project formulation, financial and technical analysis	Analyzing
			CO4	Evaluate profitability and financial analysis	Evaluating
			CO5	Explain and Describe concepts of Intellectual property rights and patents	Applying
			CO6	Comprehend the aspects of Start-Ups	Understanding
VII	OE403IT	Cyber Security	CO1	Exhibit the knowledge in security principles, security architectures and components	Understanding
			CO2	Classify and assess different cyber attacks and vulnerabilities	Understanding
			CO3	Identfy the different cybercrimes and frauds	Understanding
			CO4	Suggest necessary IT security controls, Plans and procedures for an organization	Understanding
			CO5	Compare our cyber laws with International laws and able to practice ethics in cyber World	Understanding
VII	PW401CE	Project -I	CO1	Identify and collect technical and research literature relevant to the topic of the Project	Understanding
			CO2	Review, classify and explain the findings from the literature relevant to project topic.	Understanding
			CO3	Identify the problem to be solved based on literature review and outline the objectives of the project	Analyzing
			CO4	Demonstrate communication and presentation skills in explaning literature review,objectives and solution methodology	Analyzing
			CO5	Identify and demarcate clearly the contribution towards workdon in individuals and teamwork	Understanding
			CO6	Make use of documentation and presentation tools to formulate and prepare an effective project report,with proper citations and references	Applying

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DEPARTMENT OF CIVIL ENGINEERING

A.Y.2021-22 EVEN SEM COURSE OUTCOMES SUMMARY

Semester	Course Code	Course Name	COURSE OUTCOMES		Bloom's Taxonomy Level
			CO No	Course Outcome	
IV	HS103CM	Finance and Accounting	CO1	Understand the financial and Accounting aspects of a business.	Understanding
			CO2	Evaluate financial Performance of the business unit.	Evaluating
			CO3	Understand about the financial system and markets.	Understanding
			CO4	Evaluate the viability of projects by using Capital budgeting Techniques.	Evaluating
			CO5	Analyse the overall financial functioning and long term investment	Analyzing
IV	HS102CE	Effective Technical Communication in English	CO1	Define The Fundamentals Of Technical Communication And Relate The Knowledge To Differentiate Between General And Technical Writing	Remembering
			CO2	Demonstrate The Ability To Choose The Right Mode Of Written Communication In Official Correspondence.	Understanding
			CO3	Classify Various Types Of Reports To Competently Use Them Based On The Requisite.	Analyzing
			CO4	Determine The Importance Of Using And Writing Different Kinds Of Manuals Along With Their Classification.	Evaluating
			CO5	Make Use Of Various Kinds Of Visual-Aids And Develop The Skill To Use Them Appropriately In Their Presentations.	Applying
			CO6	Complile Both Oral And Visual Presentation Skills To Be Able To Adapt To The Changing Scenario Of The Present Day.	Creating

IV	ES304CE	Engineering Geology	CO1	Define the process of weathering, formation of minerals, rocks, soil and concept of geomorphology and how they relate with each other	Remembering
			CO2	Illustrate the features of minerals and rocks, geological structures like faults, folds, joints, in construction field to determine the problems that they may arise because of their presence.	Understanding
			CO3	Demonstrate site investigation techniques and scientific exploration methods in identification of geological structures like Folds, faults and Joints and geological features like ground water, properties and behavior of rocks, soil types.	Understanding
			CO4	Interpret rock properties for their suitability in various construction applications and concepts to apply the knowledge of engineering geology with reference to case studies in civil engineering	Understanding
			CO5	Illustrate the geological problems in dams, reservoirs and tunnels.	Understanding
			CO6	Explain the geological causes, merits & demerits of earthquakes, tsunamis and landslides.	Understanding
IV	PC405CE	Mechanics of Materials	CO1	Calculate the deflections of determinate beams due to transverse loads by Double integration, Macaulay's, Moment-Area and Conjugate Beam methods	Applying
			CO2	Calculate the crippling load of columns for various end conditions using different formulas based on Euler's, Rankine's and secant theories	Applying
			CO3	Analyse unsymmetrical bending in beams to locate the neutral axis and bending stresses at various locations, and also to identify the location of the shear centre in thin unsymmetrical sections	Analyzing
			CO4	Compute the static and kinematic indeterminacy of beams and pin-jointed frames.	Applying
			CO5	Analyse the indeterminate beams, such as Propped Cantilever, Fixed Beam and Continuous beams by the method of consistent deformation (force method)	Analyzing
			CO6	Analyse the beams and pin-jointed frames (trusses) to find deflections by energy methods such as Castigliano's theorem and Unit Load Method	Analyzing
			CO1	Explain the significance of reynold's experiment,Hagen Poiseuille Equation, Darcy Weisbach Equation, Hydraulic Jump, Rayleigh and Buckingham Pi theoream.	Understanding

IV	PC406CE	Hydraulic Engineering	CO2	Define the different types of Pumps and Turbines on the basis of principle on which it works.	Remembering
			CO3	Make Use of the knowledge in selection of hydraulic turbines and pumps,most economical channel, application of Hydraulic jump.	Applying
			CO4	Apply the basic principles in the design of most economical channel,creating hydraulic jump.	Applying
			CO5	Analyse the turbine/pump laws and constant for hydraulic design.	Analyzing
			CO6	Develop the pipe network systems with given friction and velocity in pipes	Creating
IV	PC407CE	Design of Reinforce Concrete Structures	CO1	UNDERSRAND the behaviour and properties of different materials used in concrete, Loads acting on the different structural elements and their combinations as per IS 456 and Structural Design methods (WORKING STRESS METHOD and LIMIT STATE METHOD).	Understanding
			CO2	ANALYSE the Stress block parameters in both WSM and LSM.	Analyzing
			CO3	Design of members subjected to Flexure, shear and torsion (Beams and Slabs).	Creating
			CO4	Design of members subjected to shear and torsion.	Creating
			CO5	Design of members subjected to Compression (Columns).	Creating
			CO6	Design of Footings.	Creating
IV	PC408CE	Hydrology	CO1	Define the essential components and function of the hydrologic cycle including precipitation, evaporation/evapotranspiration, infiltration.	Remembering
			CO2	Explain different methods that can be used to measure rainfall and flow, as well as their relative advantages and disadvantages and find out average rainfall in a catchment area	Understanding
			CO3	Explain different methods to measure the the various components of water cycle	Understanding
			CO4	Develop relationship between Rainfall-Runoff using hydrograph, flood frequency analysis, empirical methods rational method , and SCS-CN method	Applying
			CO5	Analyzing ground water resources for different hydro-geological boundary conditions and explain the basic aquifer parameters	Analyzing
			CO6	Categorize different types of Irrigation methods and determine the crop water requirement	Applying

IV	ES355CE	Engineering Geology Laboratory	CO1	Illustrate Maps, Minerals, Rocks their features and classification	Understanding
			CO2	Interpret the structural geological problems	Understanding
			CO3	Demonstrate the working process of clinometer compass for study the geological structures.	Understanding
			CO4	Identify the megascopic properties of minerals and rocks.	Applying
			CO5	Make use of Stereoscopes, Images and maps to study the features like landforms, waterbodies and vegetation	Applying
			CO6	Distinguish the geological features of a site and prepare a report.	Analysing
IV	PC453CE	Mechanics of Material Laboratory	CO1	Examine behaviour of a ductile material under direct tension test and determine elastic properties using the stress-strain curve and Hooke's law	Applying
			CO2	Determine the hardness of various metals like steel, brass, copper, aluminium etc.	Applying
			CO3	Calculate the compressive strength of different engineering materials	Applying
			CO4	Determine the flexural properties of beams (simply supported, cantilever and fixed) made of different materials like wood, steel, copper etc.	Applying
			CO5	Determine the Spring stiffness, Capacity and shear modulus using the Tension and Compression tests on Springs	Applying
			CO6	Evaluate the impact resistance capacity and energy absorption of various materials using impact tests	Evaluating
IV	PC454CE	Hydraulic Engineering Laboratory	CO1	Explain the flow and fluid properties	Understanding
			CO2	Identify the competence in working principles of hydraulic pumps and turbines	Applying
			CO3	Assess the flow measuring devices used in pipes, channels and tanks.	Evaluating
			CO4	Classify the types of hydraulic jump.	Understanding
			CO5	Apply the practical knowledge of fliud mechanics in engineering field problems.	Applying
			CO6	Analyse the forces acting due to jets and it's applications in hydraulic machines	Analysing
VI	331CE	onmental ineering	CO1	Understand and design the sludge disposal systems and septic tanks	Remembering
			CO2	Categorize air and noise pollution impacts and standards.	Understanding
			CO3	Characterize sewage systems and design sewers and appurtences.	Applying
			CO4	Forecast water demands for water supply in the social context.	Analysing

	PC	Envir Eng	CO5	Design environmental engineering systems including the considerations of risk and environmental impacts.	Creating
			CO6	Apply the knowledge for designing of water and septic tanks for the commodities.	Applying
VI	PC332CE	Estimation and Specifications	CO1	Define types of estimates, tenders, contracts and different specifications required for construction works and costs in bidding.	Remembering
			CO2	Outline the procedures adopted for tendering, bidding and allotment of contracts and the role of IT in tenders.	Understanding
			CO3	Demonstrate standard available procedures and forms like Measurement books, Muster roll, bill of quantities, Schedule of rates in estimation works.	Remembering
			CO4	Analyze rates of different items of work based on specifications using Schedule of rates.	Understanding
			CO5	Define Valuation, Principles of valuation, phases in value engineering, Settlement of disputes, R.A. Bill & Final Bill, Payment, Introduction to Acts pertaining to- Minimum wages, Workman's compensation.	Remembering
			CO6	Develop an estimate of quantities of different items for buildings, roads, irrigation structures and different civil engineering structures and make use of software's for estimation.	Applying
VI	PE303CE	Foundation Engineering	CO1	Discuss and calculate the stress distribution in soils.	Applying
			CO2	Classify the types of Foundations and to calculate their Bearing capacity.	Analysing
			CO3	Discuss & Design of various types of Pile Foundation and well foundation.	Creating
			CO4	Discuss the necessity of Geotechnical Investigations.	Understanding
			CO5	Discuss about the Foundation related aspects.	Understanding
			CO6	Categorize and Outline various records of Investigation for Foundations.	Analyzing
VI	'E305CE	n of Concrete uctures - I	CO1	Analyse and design a flat slab system.	Analyzing
			CO2	Design rectangular combined footing and understand the principles of design of trapezoidal footing with limit state method according to IS 456: 2000	Creating
			CO3	Design of cantilever type and counter fort type retaining walls	Creating
			CO4	Analysis and design of curved beams	Analyzing

	P	Desig Str	CO5	Analyze tank wall against water pressure when it is resting on the ground having a circular and rectangular shape.	Analyzing
			CO6	Analysis and Design of Portal frames and Building frames	Analyzing
VI	PE306CE	Traffic Engineering and Management	CO1	Apply the Knowledge of traffic forecasting principles, methods & demand relationships for future projection.	Applying
			CO2	Determine Price- Volume relationships, demand functions, PCU and Design hourly volume for varying demand conditions by applying the concept of Design vehicle unit	Analysing
			CO3	Interpret level of service and capacity for different highway facilities with help of case studies	Applying
			CO4	Analyze the accident individually and statistically considering the Accident Rate, Influencing Factors, Accident Coefficients and Driver stain conditions	Analysing
			CO5	Explain Traffic Flow theory, and their Fundamental applications Traffic Management methods	Understanding
			CO6	Explain Traffic Management methods	Understanding
VI	OE 601 EG	Soft skills & Interpersonal skills	CO1	To train the students in effective listening skills required for comprehending and performing the required tasks in Professional Communication	Understanding
			CO2	To enable the students to develop the required speaking skills as per the necessary objective in Professional Communication	Understanding
			CO3	To equip the students with appropriate reading, comprehending & summarizing strategies for the prescribed professional assignment	Understanding
			CO4	To develop professional writing & publishing varieties of documents and required skills among students	Understanding
			CO5	To empower the students with the Right Attitude and Coping Techniques required Professionally and to inculcate potential skills in the learners to prepare them to deal with the external world in a collaborative manner, communicate effectively, take initiative, think creative, manage stress, solve problems, demonstrate a positive work ethic and facilitate life-long learning	Understanding

VI	OE 602 MB	Human Resource Development and Organisational Behavior	CO1	Understand the principles and practices of management and specifically the nature of management functions, roles and skills.	Understanding
			CO2	Understand the process of decision making and its models.	Understanding
			CO3	To inculcate knowledge on personality, perception and theories of motivation.	Analyzing
			CO4	Analyze the behavior of individual and groups in organizations in terms of organizational behavior theories, models and concepts.	Analyzing
			CO5	To understand the concept of organization design, organization climate, organization culture, various aspects of Organization Behavior and importance of communication process.	Understanding
			CO6	To apply the management thoughts at work place	Applying
VI	PC361CE	Environmental Engineering Laboratory	CO1	Determine physical, chemical and biological characteristics of water and wastewater	Evaluating
			CO2	Outline the procedure for preparations of stock and standard solutions, their handling, storage, etc	Understanding
			CO3	Determine break - point chlorination	Evaluating
			CO4	Assess the suitability of water for drinking, irrigation purpose and concreting works.	Evaluating
			CO5	Determine the BOD, COD and bacterial density of portable water.	Evaluating
			CO6	Assess the quality of water and wastewater	Evaluating
VI	PC362CE	Computer Aided Civil Engineering Drafting, Analysis	CO1	Understand the application of software's in civil engineering.	Understanding
			CO2	Analysis and design of structural members using software techniques.	Analyzing
			CO3	Development of programs for Design of Structural elements uding Excel	Creating
			CO4	Development of programs for Design of Structural elements using C-Language	Creating
			CO5	Use of software knowledge for solving Geo technical related problems	Understanding
			CO6	Analyze structural elements using STAADPRO	Creating
VI	PC363CE	Hydraulics Laboratory	CO1	Explain the flow and fluid properties	Analyzing
			CO2	Identify the competence in working principles of hydraulic pumps and turbines	Applying
			CO3	Assess the flow measuring devices used in pipes, channels and tanks.	Evaluating
			CO4	Classify the Laminar and Turbulent flows.	Understanding
			CO5	Apply the practical knowledge of fliud mechanics in engineering field problems.	Applying

			CO6	Analyse the forces acting due to jets and it's applications in hydraulic machines	Analysing
VIII	MC	Gender Sensitization	CO1	Develop a better understanding of important issues related to gender in contemporary India.	Understanding
			CO2	To change the basic dimensions of the biological. Sociological, psychological and legal aspects of gender through discussions, facts, everyday life, literature and film	Applying
			CO3	To analyze how gender discrimination works in our society and how to counter it.	Analysing
			CO4	To identify and plan better ways of working and living together as equals.	Applying
			CO5	To develop a sense of appreciation of women in all walks of life	Evaluating
			CO6	To enable in developing good interpersonal relationships at work places and to develop a sustain interest in gender equality	Creating
VIII	PE410CE	Principles of Climate Change	CO1	Define the impacts of climate change on natural environment.	Remembering
			CO2	Explain the fundamentals of climate system and global water balance	Understanding
			CO3	Apply the Knowledge of climate changes and its impact on Monsoon and Hydrology	Applying
			CO4	Take part in introduction of climate modelling especially using statistical downscaling techniques.	Analysing
			CO5	Select correction methods in climate science.	Applying
			CO6	Identify international initiatives which support countries to plan for climate change.	Applying
VIII	PE413CE	Concrete Technology	CO1	Examine concrete quality based on its properties at fresh stage and hardened stage	Applying
			CO2	Interpret the effects of creep and shrinkage on concrete durability	Analysing
			CO3	Design the concrete mix using IS code method, British code and ACI code method.	Applying
			CO4	Identify the use of special concretes based on their properties in different situations.	Understanding
			CO5	Classify the various components of precast technology and the various types of prefabricated components	Understanding
			CO6	Illustrate the microstructure of concrete with all its phases.	Analysing
VIII	'E415CE	ntelligent nsportation Systems	CO1	Explain the concept of Intelligent Transportation Systems	Understanding
			CO2	Describe the concepts of system architecture and their evolution.	Understanding
			CO3	Explain the functional area of ITS	Understanding
			CO4	Explain impact of technology on different modes and movement	Understanding

	P	Tra	CO5	Discuss the capability of key technologies	Understanding
			CO6	Explain how to evaluate technologies, applications and services	Understanding
VIII	PW704CE	Project Work -II	CO1	Summarize in written form the literature study carried out with relevant data analysis, interpretation and problem identification for the selected project topic.	Understanding
			CO2	Identify the mathematical concepts,science concepts,engineering concepts and management principles necessary to solve the identified engineering problem	Applying
			CO3	Apply the identified cocepts and identified engineering tools to arrive solutions for the identified engineeing problem	Analyze
			CO4	Analyze and interpret results of experiments conducted on the designed solutions to arrive at valid conclusions	Evaluating
			CO5	Demonstrate written communication skill through the project report and oral communication skill through presentation of the project work	Understanding
			CO6	Demonstrate individual and teamwork skills in carrying out and managining the project work and abide by the norms of professional ethics.	Applying

Assessment Co-ordinator

Head of the Department

Head of the Department
Department of Civil Engineering
METHODIST COLLEGE OF ENGG. & TECH.
King Koti Road, Abids, Hyderabad

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES — **I SEMESTER** — **AY:2021-22**

Course Name	Faculty Name	CO / PO	Course Outcomes	Taxonomy
Programming with Problem Solving	Dr M Sharada Varalakshmi / Mr. Shaik Rasool/ Mrs. B. Vasavi Sravanthi / Mrs J Sowmya	ES101CS.1	Recognize the computer components and sketch the Flow Chart.	Understanding
		ES101CS.2	Formulate Algorithms and learn Fundamental program Methodologies of C Language.	Remember, Apply
		ES101CS.3	Understand control Statements and Interpret derived Data types with Mathematical and Engineering Problems.	Understanding.
		ES101CS.4	Develop modular Programming Techniques to solve Searching, Sorting and File system problems.	Create.
		ES101CS.5	Understand the concept of Conditional statement and Pointers.	Understanding.
		ES101CS.6	Recognize Pre-processor Directives and user defined Data Structues.	Understanding
Programming with Problem Solving Lab	Dr M Sharada Varalakshmi / Mr. Shaik Rasool/ Mrs. B. Vasavi Sravanthi / Mrs J Sowmya	ES151CS.1	Choose appropriate data type for implementing programs in C language	Apply
		ES151CS.2	write code to perform various mathematical calculations	Create.
		ES151CS.3	Design and implement modular programs involving input output operations, decision making and looping constructs	Apply
		ES151CS.4	Apply derived data types and implement programs to store data in structures and files	Apply
		ES151CS.5	Develop confidence for self-education and ability towards lifelong learning need of computer languages	Apply
		ES151CS.6	implement arrays and functions using pointer variables	Apply

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES — **III SEMESTER** — **AY:2021-22**

Course Name	Faculty Name	CO / PO	Course Outcomes	Taxonomy
Operation Research	Mr M Anil	HS103ME.1	Apply mathematical model (linear programming problem) for a physical situations like production, distribution of goods and economics	Creating
		HS103ME.2	Apply the concept of simplex method and its extensions to dual simplex algorithm.	Analyzing
		HS103ME.3	Analyze the various methods under transportation model and apply the model for testing	Creating
		HS103ME.4	Apply the various replacement policy and gaming strategies for arriving at optimal decision	Understanding
		HS103ME.5	Analyze and Applying the knowledge of sequencing model and to develop optimum model for job scheduling	Creating
		HS103ME.6	analyze the Queuing theory models and Optimization techniques.	Understanding

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Basic Electronics	Mr. Mahesh Babu	ES306EC.1	Understand the basic concepts on the working of various semi-conductor devices and there important characteristics.	Understanding
		ES306EC.2	Apply the design concepts of biasing for BJT and FET. Construct Amplifier Circuits for BJT and FET.	Applying
		ES306EC.3	Design the circuit to produce sinusoidal oscillations with different frequencies using oscillator circuits and Explain the basic knowledge on the feedback amplifier	Applying
		ES306EC.4	Examine Operational Amplifier circuits as ideal and practical, study of inverting and non inverting amplifiers and implement Summer, differentiator, integrator using op-amp.	Analyzing
		ES306EC.5	Explain Data Acquisition System, Basic concepts of transducers, its classification and understand the data converter, types of data converters.	Applying
		ES306EC.6	Evaluate Boolean laws and theorems. State and explain the different logic gates using truth table. Analyze and design different logic gates, adder circuits using BJT and MOS technologies.	Evaluating
Digital Electronics	Mr. Sanand Maharshi	ES303EC.1	Understand the deign process of digital hardware, use Boolean algebra to minimize the logical expressions and optimize the implementation of logical functions	Understanding
		ES303EC.2	Understand the number representation and design combinational circuits like Adders, Multiplexers etc.	Understanding
		ES303EC.3	Design combinational circuits using PLD's and write Verilog code for basic gates and combinational circuits.	Creating
		ES303EC.4	Analyse sequential circuits using flip-flops and design registers, counters.	Analysis
		ES303EC.5	Represent a sequential circuit using finite state machine and apply state minimization techniques to design an FSM	Applying
		ES303EC.6	Represent Finite State Machine using Algorithmic State Machine Chart	Applying

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Data Structures and Algorithms	Mrs G Saritha / Mrs. Shaziya Jabeen	PC301CS.1	Apply the notations used to analyze the performance of algorithms	Applying
		PC301CS.2	Describe various data structures like Stacks, Queues, Linked lists, Trees and Graphs are represented in memory and used by algorithms	Understanding
		PC301CS.3	Write programs that use various data structures like Stacks, Queues, Linked lists, Trees , Graphs and sortings .	Creating
		PC301CS.4	Compare and contrast the time complexities of various searching and sorting algorithms.	Analysing
		PC301CS.5	Design and implement an appropriate hashing function for an application and skip list	Applying
		PC301CS.6	Apply tree and graph traversal methods in real time applications.	Evaluating
Discrete Mathematics	Mrs Unnati K / Mrs. Shaziya Jabeen	PC302CS.1	Apply propositional and predicate logic for a variety of problems in various domains	Applying
		PC302CS.2	Illustrate by examples the basic terminology of functions, relations, and analyse different algebraic structures with suitable examples	Analyzing
		PC302CS.3	Understand basics of counting, apply permutations and combinations to handle different types of objects	Applying
		PC302CS.4	Describe and apply recursively-defined relationships to solve problems using generating functions	Applying
		PC302CS.5	Identify the basic properties of graphs and trees and use these concepts to model simple applications	Analyzing
		PC302CS.6	Apply the knowledge and skills obtained to investigate and solve a variety of discrete mathematics problems.	Applying

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

OOP using JAVA	Mrs B Sowjanya / Mrs Unnati K	PC303CS.1	Achieve proficiency in object-oriented concepts and learn to incorporate the same into the Java programming language.	Applying
		PC303CS.2	Create Java application programs using OOP concepts e.g. Inheritance, interfaces, multithreading and proper program structuring by using packages, access control specifiers	Creating
		PC303CS.3	Understand and Implement the concepts of Exception Handling in JAVA.	Applying
		PC303CS.4	Develop the ability to solve real-world problems through software development in high-level programming language using Large APIs of Java as well as the Java standard class library	Creating
		PC303CS.5	Create graphical user interface and event driven programs in Java	Creating
		PC303CS.6	Create applications using concepts of JDBC , Servlet in Java	Creating
Data Structures and Algorithms Lab	Mrs G Saritha / Mrs. Shaziya Jabeen	PC351CS.1	Implement multiple data structures utilising linked lists and arrays.	Applying
		PC351CS.2	Develop the ADT required to address issues involving stacks and queues.	Creating
		PC351CS.3	Implement binary trees, general tree structures, advanced search trees.	Applying
		PC351CS.4	Implement hashing algorithms and deal with collisions	Applying
		PC351CS.5	Apply the proper techniques for a specific problem by using a variety of sorting techniques.	Analyzing
		PC351CS.6	Implement heaps, graph traversal techniques	Creating

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Advanced Computer Skills Lab	Mrs. Maria Anjum	PC352CS.1	Implement basic syntax in python.	Creating
		PC352CS.2	Analyse and implement different kinds of OOP concept in python	Analyzing
		PC352CS.3	Implement MATLAB operations and graphic functions	Creating
		PC352CS.4	understand the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python	Understanding
		PC352CS.5	Able to implement Decision Making statements and Functions in python and MATLAB	Creating
		PC352CS.6	Able to use underastand Object oriented Principles in Python.	Understanding
Basic Electronics Lab	Mr. Mahesh Babu	ES351EC.1	Plot characteristics of semiconductor diodes	Applying
		ES351EC.2	Calculate ripple factor, efficiency and % regulation of rectifier circuits	Remembering
		ES351EC.3	Plot the characteristics of different transistor & FET Configurations.	Applying
		ES351EC.4	To Calculate the different frequency of oscillator circuits.	Remembering
		ES351EC.5	To plot the frequency response of a Common Emitter BJT amplifier.	Applying
		ES351EC.6	Study and performance of linear and non linear applications of op-amp	Understanding

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

OOPS Using Java Lab	Mrs B Sowjanya / Mrs Unnati K	PC353CS.1	Develop Java applications using the concepts of Inheritance, interfaces, packages, access control specifiers ,multithreading	Creating
		PC353CS.2	Implement the concepts of Exception Handling in java Applications	Creating
		PC353CS.3	Write Java programs using Collections	Applying
		PC353CS.4	Read and write data using different Java I/O streams	Applying
		PC353CS.5	Create robust applications using Java standard class libraries and retrieve data from a database with JDBC	Creating
		PC353CS.6	Create graphical user interfaces and Applets by applying the knowledge of Event Handling.	Creating

COURSE OUTCOMES **III SEMESTER (AI & DS)** **AY:2021-22**

Course Name	Faculty Name	CO / PO	Course Outcomes	Taxonomy
Data Structures and Algorithms	Mr. P.V. Ramanaiah	PC301AD.1	Apply the notations used to analyze the performance of algorithms	**Applying**
		PC301AD.2	Describe various data structures like Stacks, Queues, Linked lists, Trees and Graphs are represented in memory and used by algorithms	Understanding
		PC301AD.3	Write programs that use various data structures like Stacks, Queues, Linked lists, Trees , Graphs and sortings .	Creating
		PC301AD.4	Compare and contrast the time complexities of various searching and sorting algorithms.	Analysing
		PC301AD.5	Design and implement an appropriate hashing function for an application and skip list	Applying
		PC301AD.6	Apply tree and graph traversal methods in real time applications.	Evaluating

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OOP using JAVA	Mr. D. Rajashekar	PC302AD.1	Achieve proficiency in object-oriented concepts and learn to incorporate the same into the Java programming language.	Understanding
		PC302AD.2	Create Java application programs using OOP concepts e.g. Inheritance, interfaces, multithreading and proper program structuring by using packages, access control	Creating
		PC302AD.3	Understand and Implement the concepts of Exception Handling in JAVA.	Understand
		PC302AD.4	Develop the ability to solve real-world problems through software development in high-level programming language using Large APIs of Java as well as the Java	Creating
		PC302AD.5	Create graphical user interface and event driven programs in Java	Creating
		PC302AD.6	Create applications using concepts of JDBC , Servlet in Java	Creating
Discrete Mathematics	Mrs. J. Sowmya	PC303AD.1	Apply propositional and predicate logic for a variety of problems in various domains.	Applying
		PC303AD.2	Understand Set Theory, Venn Diagrams, relations, functions and apply them to Real-world Scenarios.	Analyzing
		PC303AD.3	Model and solve the real world problems using Generating Functions and Recurrence Relations.	Create
		PC303AD.4	To identify the basic properties of graphs and trees and use these concepts to model simple applications.	Applying
		PC303AD.5	Understand General properties of Algebraic systems and study lattices as partially ordered sets and their applications.	Analyzing
		PC303AD.6	Apply the knowledge and skills obtained to investigate and solve a variety of discretemathematics problems.	Applying

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Digital Electronics	Mr. Sameed	ES216EC.1	Understand the deign process of digital hardware, use Boolean algebra to minimize the logical expressions and optimize the implementation of logical functions	Understanding
		ES216EC.2	Understand the number representation and design combinational circuits like Adders, Multiplexers etc.	Understanding
		ES216EC.3	Design combinational circuits using PLD's and write Verilog code for basic gates and combinational circuits.	Creating
		ES216EC.4	Analyse sequential circuits using flip-flops and design registers, counters.	Analysis
		ES216EC.5	Represent a sequential circuit using finite state machine and apply state minimization techniques to design an FSM	Applying
		ES216EC.6	Represent Finite State Machine using Algorithmic State Machine Chart	Applying
Basic Electronics	Mr. Mujtaba	ES214EC.1	Understand the basic concepts on the working of various semi-conductor devices and there important characteristics.	Understanding
		ES214EC.2	Apply the design concepts of biasing for BJT and FET. Construct Amplifier Circuits for BJT and FET.	Applying
		ES214EC.3	Design the circuit to produce sinusoidal oscillations with different frequencies using oscillator circuits and Explain the basic knowledge on the feedback amplifier	Applying
		ES214EC.4	Examine Operational Amplifier circuits as ideal and practical, study of inverting and non inverting amplifiers and implement Summer, differentiator, integrator using op-	Analyzing
		ES214EC.5	Explain Data Acquisition System, Basic concepts of transducers, its classification and understand the data converter, types of data converters.	Applying
		ES214EC.6	Evaluate Boolean laws and theorems. State and explain the different logic gates using truth table. Analyze and design different logic gates, adder circuits using BJT	Evaluating

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M-III (Probability and Statistics)	Mr. T Joseph	BS205MT.1	Apply Baye's theorem to find the probability of given functions and Classification of Random Variables	Apply
		BS205MT.2	Evaluation of statistical parameters for Binomial and Poisson distributions and Find moments, skewness and Kurtosis.	Evaluate
		BS205MT.3	Evaluation of statistical parameters for Normal , Uniform and Exponential distributions.	Evaluate
		BS205MT.4	Fitting the curves and find Correlation coefficient and Regression lines.	Analyse
		BS205MT.5	Testing of hypothesis for Large samples.	Apply
		BS205MT.6	Testing of hypothesis for Small samples.	Apply
Data Structures and Algorithms Lab	Mr. P.V. Ramanaiah	PC351AD.1	Understand and Implement the abstract data type and reusability of a particular data structure.	Remembering
		PC351AD.2	Implement linear data structures such as stacks, queues using array and linked list.	Understanding
		PC351AD.3	Understand and implements non-linear data structures such as trees, graphs.	Evaluating
		PC351AD.4	Implement various kinds of searching, sorting and traversal techniques and know when to choose which technique.	Creating
		PC351AD.5	Understanding and implementing hashing techniques.	Analyzing
		PC351AD.6	Decide a suitable data structure and algorithm to solve a real world problem.	Applying

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

OOPS Using Java Lab	Mr. D. Rajashekar	PC352AD.1	Develop Java applications using the concepts of Inheritance, interfaces, packages, access control specifiers ,multithreading	Creating
		PC352AD.2	Implement the concepts of Exception Handling in java Applications	Creating
		PC352AD.3	Write Java programs using Collections	Applying
		PC352AD.4	Read and write data using different Java I/O streams	Applying
		PC352AD.5	Create robust applications using Java standard class libraries and retrieve data from a database with JDBC	Creating
		PC352AD.6	Create graphical user interfaces and Applets by applying the knowledge of Event Handling.	Creating
Basic Electronics Lab	Mr. Mujtaba	ES351EC.1	Plot characteristics of semiconductor diodes	Applying
		ES351EC.2	Calculate ripple factor, efficiency and % regulation of rectifier circuits	Remembering
		ES351EC.3	Plot the characteristics of different transistor & FET Configurations.	Applying
		ES351EC.4	To Calculate the different frequency of oscillator circuits.	Remembering
		ES351EC.5	To plot the frequency response of a Common Emitter BJT amplifier.	Applying
		ES351EC.6	Study and performance of linear and non linear applications of op-amp	Understanding

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES		V SEMESTER		AY:2021-22
Course Name	**Faculty Name**	**CO / PO**	**Course Outcomes**	**Taxonomy**
Software Engineering	Mr. R. Sandeep / Mrs. Deepthi Joshi	PC501CS.1	Apply various process model approaches and techniques in each phase of SDLC to solve real world problems.	Applying
		PC501CS.2	Analyze the various software engineering principles to understand the System and Requirement engineering process.	Analyzing
		PC501CS.3	Construct the various Project models based on the analysis and Design engineering.	Creating
		PC501CS.4	Acquire the skills to address recurring software problems to architect a complete software project by component and UI design rules.	Applying
		PC501CS.5	Assess the quality of software by performing the various debugging and testing strategies.	Analyzing
		PC501CS.6	Apply the SDLC process and principles to address the real world problems to improve Software project/Product quality.	Applying
Operating Systems	Dr. Syed Azahad / Dr. M. Sharada Vara Lakshmi	PC502CS.1	Analyse System calls and Explain the concepts of OS structure	Analyse
		PC502CS.2	Evaluate and design different process scheduling algorithms	Evaluate
		PC502CS.3	Identify the rationale behind various memory management techniques along with issues and challenges of main memory, virtual memory	Apply
		PC502CS.4	Compare different file allocation methods and decide appropriate allocation strategies for given type of file.	Analyse
		PC502CS.5	Explain the mechanisms available in OS to control access to resource and provide system security.	Evaluate
		PC502CS.6	Describe secondary storage structures and Disk scheduing Algorithms.	Understand

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Automata, Languages & Computation	Mrs. B. Vasavi Sravanthi	PC503CS.1	Explain the basic concepts of finite automata and regular expressions	Understanding
		PC503CS.2	Describe the types of grammar and derivation tree.	Understanding
		PC503CS.3	Test the equivalence of pushdown automata and CFL.	Evaluating
		PC503CS.4	Develop a computational model using Turing machine for the given problem	Creating
		PC503CS.5	Use Chomsky hierarchy to solve given problems	Applying
		PC503CS.6	Examine the complexity for P and NP completeness for the given problem.	Evaluating
Artificial Intelligence	Mrs. Deepthi Joshi / Mrs. G. Saritha	PE511CS.1	Explain the principles of Artificial Intelligence	Understanding
		PE511CS.2	Illustrate the techniques for knowledge representation and inference	Understanding
		PE511CS.3	Identify problems that are amenable to solution by AI method.	Applying
		PE511CS.4	Survey different applications like Game Playing, Expert Systems, Machine Learning and Natural Language Processing	Analyzing
		PE511CS.5	Analyze working of an AI technique	Analyzing
		PE511CS.6	Explain a given problem in the language/framework of different AI methods	Evaluating
Web and Internet Technologies	Mr. Shaik Rasool	PE527CS.1	Understand the concepts of Internet ,HTML and CSS .	Understand
		PE527CS.2	Design and develop dynamic web pages using JavaScript.	Creating
		PE527CS.3	Understand the concepts of XML and J2EE	Understand
		PE527CS.4	Understand and apply the concepts of servlet framework	Understand and Applying
		PE527CS.5	Build interactive web applications using JSP.	Applying
		PE527CS.6	Interpret and apply the concepts of database connectivity in web applications	Understand

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Data Analytics	Mr. M. V. D. S. Krishna Murthy	PE530CS.1	Demonstrate proficiency with statistical analysis of data	Understanding
		PE530CS.2	Develop the ability to build and assess data-based models	Applying
		PE530CS.3	Analyze statistical data with professional statistical software	Analyzing
		PE530CS.4	Demonstrate skill in data management	Understanding
		PE530CS.5	Apply data science concepts	Applying
		PE530CS.6	Apply data science methods to solve real-world problems	Applying
Block Chain Technologies	Mrs. Maleka Anjum	PE523CS.1	Explain design principles of Bitcoin and Ethereum	Understand
		PE523CS.2	Demonstrate the application of hashing and public key cryptography in protecting the blockchain	Apply
		PE523CS.3	Analyse the block chain applications in a structure manner.	Analyse
		PE523CS.4	List and Describe differences between Proof -of-Work and Proof-of-Stake consensus	Understand
		PE523CS.5	Apply security features in blockchain technologies.	Apply
		PE523CS.6	Design , Build and Deploy a distributed application	Create

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Information Retrieval Systems	Mr. D. Rajashekar	PE524CS.1	Understand the algorithms and techniques for information retrieval (document indexing and	Analyzing
		PE524CS.2	Appraise Structured Text Retrieval Models, Models for Browsing, Retrieval Evaluation and Query Languages.	Evaluating
		PE524CS.3	Understand Query Operations, Text and Multimedia Languages and Properties.	Applying
		PE524CS.4	Analyze the Text Operations of Document Preprocessing, Clustering, Text Compression and Indexing techniques.	Analyzing
		PE524CS.5	Classify and cluster documents	Analyzing
		PE524CS.6	Understand the practical aspects of information retrieval such as those in web search engines.	Analyzing
Software Engineering Lab	Mr. R. Sandeep / Mrs. Deepthi Joshi	PC531CS.1	Interpret a variety of approaches and perspectives of system development.	Understanding-
		PC531CS.2	Identify the requirements which are relevant to the design of a system.	Applying
		PC531CS.3	Model software design with a set of objects and their relationships using structural modelling.	Applying
		PC531CS.4	Take part in using advanced & behavioural modelling to develop a case study.	Analysing
		PC531CS.5	Design the activities with the help of behavioural modelling.	Creating
		PC531CS.6	Develop components through architectural modelling.	Creating
Operating Systems Lab	Dr. Syed Azahad / Dr. M. Sharada Vara Lakshmi	PC532CS.1	Experiment with basic Linux Shell Commands and Implementation of UNIX system calls.	Apply
		PC532CS.2	Compare various CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority and Develop programs for all the algorithms.	Create
		PC532CS.3	Analyze the performance of the various Memory Management Algorithms and Develop various Memory Management Schemes.	Analyze
		PC532CS.4	Interpret the benefits of thread over process and Build synchronized programs using multithreading concepts.	Apply
		PC532CS.5	Interpret the concept of Inter – Process Communications, Process Synchronization and Create programs like Dining Philosophers Problem and Readers Writers Problem	Apply
		PC532CS.6	Explain the basics of shell scripting and Develop shell scripts for simple system administration tasks.	Create

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Mini Project	Mrs B Sowjanya / Er R Sandeep	PC533CS.1	Demonstrate the ability to synthesize and apply the knowledge and skills acquired in the academic program to the real-world problems	Understanding
		PC533CS.2	Evaluate different solutions based on Economic and Technical feasibility	Evaluating
		PC533CS.3	Effectively plan a project and confidently perform all aspects of project.	Analyzing
		PC533CS.4	Demonstrate effective written and oral communication skills	Understanding
		PC533CS.5	Undertake problem identification, formulation and solution	Creating
		PC533CS.6	Plan, analyze, design and implement a software project or gather knowledge over the field of research.	Creating

COURSE OUTCOMES **VII SEMESTER**

AY:2021-22

Course Name	Faculty Name	CO / PO	Course Outcomes	Taxonomy
Information Security	Dr. Shruthi Sk	PC701CS.1	Explain the role of IS professionals and demonstrate the various phases in Security Systems development life cycle.	Remembering
		PC701CS.2	Identify the common threats and attack to information systems	Understanding
		PC701CS.3	Determine the various legal bodies and laws related to IS and risk management.	Analyzing
		PC701CS.4	Choosing the appropriate risk control strategy based on business needs.	Applying
		PC701CS.5	Understand the types of Intrusion Detection techniques and network solution perimeter tools.	Understanding
		PC701CS.6	Illustrate Cryptography algorithms and mitigate attacks on crypto systems.	Applying

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Data Science Using R Programming	Dr. P. Lavanya / Mr. T. Praveen Kumar	PC702CS.1	Understanding the mathematical foundations required for data science	Understanding
		PC702CS.2	Understanding exploratory data analysis for probability and statistical distributions	Understanding
		PC702CS.3	Use linear, non-linear regression models for data analysis	Applying
		PC702CS.4	Use various data structures and packages in R for data visualization and summarization	Applying
		PC702CS.5	Applying classification and clustering methods on real world applications	Applying
		PC702CS.6	Develop R codes for data science solutions	Create
Distributed Systems	Mr. A. Rajesh	PC703CS.1	Understand the problems and challenges associated with distributed systems and analyze IPCs with various architectures implemented.	Understanding
		PC703CS.2	Analyze synchronization among processes, distributed algorithms along with the general properties of networked communication necessary through RPC and RMI interfaces.	Analyzing
		PC703CS.3	Understand the importance of security in distributed systems. Analyze with Distributed-coordination based systems to achieve Consistency and Replication.	Applying
		PC703CS.4	Differentiate about working of various Distributed file systems and Computing techniques. Apply distributed transaction control algorithms to reduce deadlocks.	Analyzing
		PC703CS.5	Analyze the Distributed web-based system for concurrency control along with the web service and distributed service oriented architecture, fault tolerance mechanisms.	Applying
		PC703CS.6	Remember the emerging trends in distributed computing and deduce representations to incorporate Map-reduce model.	Remembering

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Enterpreneurship	Dr. M. Udaya Kumar	OE775ME.1	Understand Industrial environment and challenges associated with Entreprenuership ,small and large scale industries , Economic development and	Understanding
		OE775ME.2	Identify characteristics of Entreprenuers , First generation and women entreprenuers,evaluation of ideas and Technology	Remembering
		OE775ME.3	Analyzing project formulation , financial and technical analysis	Analyzing
		OE775ME.4	Evaluate profatability and financial analysis	Evaluate
		OE775ME.5	Explain the concepts of Intellectual property rights and patents	Applying
		OE775ME.6	Comprehend the aspects of Start-Ups	Understanding
Data ScienceUsing R Lab	Dr. P. Lavanya / Mr. T. Praveen Kumar	PC751CS.1	Understand the semantics, data handling and control statements in R	Understanding
		PC751CS.2	Analyze the libraries for data manipulation	Analyzing
		PC751CS.3	Apply hypothesis tests for statistical inference.	Applying
		PC751CS.4	Synthesize data to fit linear and nonlinear models.	Create
		PC751CS.5	Implement regression and clustering analysis using R.	Create
		PC751CS.6	Implement optimization and data visualization using R.	Create
Distributed Systems Lab	Mr. A. Rajesh	PC752CS.1	Write programs that communicate data between two hosts	Creating
		PC752CS.2	Configure Network File Systems	Understanding
		PC752CS.3	Use distributed data processing frameworks and mobile application tool kits	Applying
		PC752CS.4	Trace Communication protocols in distributed systems	Analyze
		PC752CS.5	Develop an application using a technology from distributed system	Creating
		PC752CS.6	Design of algorithm distributed system	Creating

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Project Work – I	Mr. P.V. Ramanaiah / Mr. T. Praveen Kumar	PW761CS.1	Demonstrate the ability to apply the knowledge and skills acquired in the academic program to the real-world problems	Understanding
		PW761CS.2	Evaluate different solutions based on feasibility study	Evaluating
		PW761CS.3	Effectively plan a project .	Analyzing
		PW761CS.4	Demonstrate effective written and oral communication skills	Understanding
		PW761CS.5	Undertake problem identification, formulation and execution	Creating
		PW761CS.6	Plan, analyze, design, implement and test a software project .	Creating
Summer Internship	Dr. M. SharadaVara Lakshmi	SI762CS.1	Design/ develop a small and simple product in hardware or software	Create,Apply
		SI762CS.2	Build the task or realize a pre-specified target, with limited scope, rather taking up a complex task and leave it	Applying
		SI762CS.3	determine the challenges and future potential for his / her internship organization in particular and the sector in general.	Analyze
		SI762CS.4	test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period.	Analyze
		SI762CS.5	apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship	Applying
		SI762CS.6	analyze the functioning of internship organization and recommend changes for improvement in processes.	Analyzing

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES		II SEMESTER		AY:2021-22
Course Name	**Faculty Name**	**CO / PO**	**Course Outcomes**	Taxonomy
Data Structures (Autonomous)	Shaziya Zabeen / Mr. Shaik Rasool/ Mrs. B. Vasavi Sravanthi / Dr Syed Azahad	ES202CS.1	define, understand and write the algorithms	Remembering /Understanding
		ES202CS.2	able to represent linked list and differntiate the trees	Analyzing
		ES202CS.3	analyze the complexities of an algorithm and evaluate the expresions	Analyzing
		ES202CS.4	implement single,double linked list, stacks,queues,trees with its operations	Applying
		ES202CS.5	analyse and compute the average cost by using various amortized methods	Applying
		ES202CS.6	implement various graph traversals to find the best path	Applying
Data Structures Lab	Mrs Shaziya Zabeen / Mr. Shaik Rasool/ Mrs. B. Vasavi Sravanthi / Dr Syed Azahad	ES252CS.1	Understand and Implement the abstract data type and reusability of a particular data structure.	Remembering
		ES252CS.2	Implement linear data structures such as stacks, queues using array and linked list.	Understanding
		ES252CS.3	Understand and implements non-linear data structures such as trees, graphs.	Evaluating
		ES252CS.4	Implement various kinds of searching, sorting and traversal techniques and know when to choose which technique.	Creating
		ES252CS.5	Understanding and implementing hashing techniques.	Analyzing
		ES252CS.6	Decide a suitable data structure and algorithm to solve a real world problem.	Applying

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COURSE OUTCOMES — **IV SEMESTER (CSE)** — **AY:2021-22**

Course Name	Faculty Name	CO / PO	Course Outcomes	Taxonomy
Effective Technical Communication in English	Mr Linga Murthy	HS104EG.1	Develop an understanding of fundamentals of Technical Communication	Understand
		HS104EG.2	Demonstrate the ability to choose the right mode of Written Communication in Official Correspondence	Apply
		HS104EG.3	Analyze and differentiate various types of Reports and would use appropriately based on the requisite.	Analyze
		HS104EG.4	Determine using the importance of using, Writing different kinds of Manuals and l;their Classification.	Analyze
		HS104EG.5	Estimate the deliberate value of a Visual Aid along with its usage , through the understanding of Informatioon Transfer from Verbal to Non-Verbal and Non-Verbal to Verbal.	Evaluate
		HS104EG.6	Combine the Skill of both Oral and Visual Presentation Skills and be able to adapt to the changing scenerio of the present day.	Create
Finance and Accounting	Mr Shyam Sunder	HS105CM.1	Understand the financial and Accounting aspects of a business.	Understanding
		HS105CM.2	Evaluate financial Performance of the business unit.	Evaluate
		HS105CM.3	Understand about the financial system and markets.	Understanding
		HS105CM.4	Evaluate the viability of projects by using Capital budgeting Techniques.	Evaluate
		HS105CM.5	Analyze the overall financial functioning and long term investment	Analyzing
		HS105CM.6	Analyze the financial statement and performance of the company	Analyzing

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M-III(Probability and Statistics)	Mr T joseph / Mr D . Swamy	BS207MT.1	Apply Baye's theorem to find the probability of given functions and Classification of Random Variables	Apply
		BS207MT.2	Evaluation of statistical parameters for Binomial and Poisson distributions and Find moments, skewness and Kurtosis.	Evaluate
		BS207MT.3	Evaluation of statistical parameters for Normal , Uniform and Exponential distributions.	Evaluate
		BS207MT.4	Fitting the curves and find Correlation coefficient and Regression lines.	Analyse
		BS207MT.5	Testing of hypothesis for Large samples.	Apply
		BS207MT.6	Testing of hypothesis for Small samples.	Apply
Signals and Systems	Mr Shravan kumar	ES305EC.1	Differentiate various types of signals and systems in continuous and discrete time	Understanding
		ES305EC.2	Importance of frequency domain analysis and apply Fourier series for continuous time signals	Analyzing
		ES305EC.3	Apply the properties of Fourier transform for continuous time signals (TL:3)	Applying
		ES305EC.4	Relate Laplace transforms to solve differential equations and to determine the response of the CT- LTI Systems	Evaluating
		ES305EC.5	Apply Z-transforms for discrete time signals to solve Difference equations	Evaluating
		ES305EC.6	Determine Linear Convolution and Correlation of discrete time signals with graphical representation	Evaluating
Operating System	Dr P Lavanya / Mr U Moulali	PC401CS.1	Understand System calls and Explain the concepts of OS structure	Understand
		PC401CS.2	Evaluate and design different process scheduling algorithms	Evaluate
		PC401CS.3	Identify the rationale behind various memory management techniques along with issues and challenges of main memory, virtual memory	Apply
		PC401CS.4	Compare different file allocation methods and decide appropriate allocation strategies for given type of file.	Analyse
		PC401CS.5	Explain the mechanisms available in OS to control access to resource and provide system security.	Evaluate
		PC401CS.6	Describe secondary storage structures and disk scheduling algorithms.	Understand

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Computer Organization	Dr Diana Moses / Er R Sandeep	PC402CS.1	Recall and apply a basic concept of block diagram of computer (CPU) with Microprocessor processor unit (MPU)	Understanding
		PC402CS.2	Categorize memory organization and explain the function of each element of a memory hierarchy	Analyzing
		PC402CS.3	Understand the internal architecture, instruction set and addressing modes.	Understanding
		PC402CS.4	Apply knowledge and demonstrate programming proficiency using the various addressing modes and instruction sets of 8085	Applying
		PC402CS.5	Analyze stacks, subroutines and various interfaces usage and working.	Analyzing
		PC402CS.6	Apply knowledge and demonstrate interfaces with 8085 with outside world.	Applying
Database Management System	Dr M Sharada Varalakshmi / Mrs B Vasavi Sravanthi	PC403CS.1	Define, explain and illustrate the fundamental concepts of databases	Understand
		PC403CS.2	Construct an Entity-Relationship (E-R) model from specifications and to perform the transformation of the conceptual model into corresponding logical data structures..	Apply
		PC403CS.3	Model and design a relational database following the design principles	Apply
		PC403CS.4	Develop queries for relational database in the context of practical applications	Applying
		PC403CS.5	Define, explain and illustrate fundamental principles of data organization, query optimization and concurrent transaction processing.	Understand
		PC403CS.6	Design an develop the databases	Create
Computer Organization Lab	Dr Diana Moses / Er R Sandeep	PC451CS.1	Design and implement programs on Intel 8085 microprocessor kit	Creating
		PC451CS.2	Experiment with different addressing modes of 8085 using different assembly language programs	Analyzing
		PC451CS.3	Experiment with different 8-bit and 16-bit arithmetic operations on 8085 using different assembly language programs	Understanding
		PC451CS.4	Design and implement programs for interfacing peripheral devices with Intel 8085 microprocessor.	Applying
		PC451CS.5	Analyze different typyes of I/O Transfer during interfacing with peripheral devices	Analyzing
		PC451CS.6	Design and develop microprosser based control systems	Applying

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Operating System Lab	Dr P Lavanya / Mr U Moulali	PC452CS.1	Experiment with basic Linux Shell Commands and Implementation of UNIX system calls.	Apply
		PC452CS.2	Compare various CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority and Develop programs for all the algorithms.	Create
		PC452CS.3	Analyze the performance of the various Memory Management Algorithms and Develop various Memory Management Schemes.	Analyze
		PC452CS.4	Interpret the benefits of thread over process and Build synchronized programs using multithreading concepts.	Apply
		PC452CS.5	Interpret the concept of Inter – Process Communications, Process Synchronization and Create programs like Dining Philosophers Problem and Readers Writers Problem Producer – Consumer Problem.	Apply
		PC452CS.6	Explain the basics of shell scripting and Develop shell scripts for simple system administration tasks.	Create
Database Management System Lab	Dr M Sharada Varalakshmi / Mrs B Vasavi Sravanthi	PC453CS.1	Define basic functions of DBMS & RDBMS.	Understanding
		PC453CS.2	Analyze database models & entity relationship models.	Applying
		PC453CS.3	Design and implement a database schema for a given problem-domain	Applying
		PC453CS.4	Populate and query a database using SQL DML/DDL commands.	Applying
		PC453CS.5	Programming PL/SQL including stored procedures, stored functions, cursors and package	Understanding
		PC453CS.6	Design and implement for Forms and Reports	Applying

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COURSE OUTCOMES — **IV SEMESTER (AI & DS)** — **AY:2021-22**

Course Name	Faculty Name	CO / PO	Course Outcomes	Taxonomy
Computer Organization & Microprocessor	Mrs J Sowmya	PC401AD.1	Recall and apply a basic concept of block diagram of computer (CPU) with Microprocessor processor unit (MPU)	Applying
		PC401AD.2	Understand the importance of addressing modes, instruction formats and program control instructions	Understanding
		PC401AD.3	Identify and compare different methods for computer I/O mechanisms	Analyzing
		PC401AD.4	Categorize memory organization and explain the function of each element of a memory hierarchy	Analyzing
		PC401AD.5	Understand the internal architecture and register organization of 8086, Apply and demonstrate various addressing modes and instruction sets of 8086	Understanding, Applying
		PC401AD.6	Demonstrate fundamental understanding on the operation between the Microprocessor and its interfacing devices.	Applying
Design And Analysis of Algorithms	Mrs B Sowjanya	PC402AD.1	Analyze the correctness of algorithms, Time and Space Complexities of algorithms using inductive proofs and asymptotic analysis.	Analyzing
		PC402AD.2	Apply various algorithmic strategies like Divide and Conquer, Brute Force for solving Complex problems. (Sorting ,searching ,Travelling salesman problem and String Matching)	Applying
		PC402AD.3	Analyze algorithmic strategies like Greedy method and Dynamic Programming to get optimized solution for complex problems.	Analyzing
		PC402AD.4	Design algorithms using the Backtracking, Branch and Bound strategy, employ these strategies for complex problems.	Creating & Applying
		PC402AD.5	Understand the major graph algorithms and Employ graphs to model engineering problems, when appropriate.	Applying
		PC402AD.6	Understand parallel computing and the classes P, NP, and NP-Complete and be able to prove that a certain problem is NP-Complete	Evaluate

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Data Science	Mr T Praveen Kumar	PC403AD.1	Understanding the mathematical foundations required for data science	Understanding
		PC403AD.2	Understanding exploratory data analysis for probability and statistical distributions	Understanding
		PC403AD.3	Use linear, non-linear regression models for data analysis	Applying
		PC403AD.4	Use various data structures and packages in R for data visualization and summarization	Applying
		PC403AD.5	Applying classification and clustering methods on real world applications	Applying
		PC403AD.6	Develop R codes for data science solutions	Creating
Operating Systems	Mr D Rajashekar	PC404AD.1	Understand the concepts of OS structure and process synchronization.	Understanding
		PC404AD.2	Evaluate and design different process scheduling algorithms	Evaluate
		PC404AD.3	Identify the rationale behind various memory management techniques along with issues and challenges of main memory, virtual memory.deadlock	Analyzing
		PC404AD.4	Compare different file allocation methods and decide appropriate allocation strategies for given type of file.	Analyzing
		PC404AD.5	Contrast the mechanisms available in OS to control access to resource and provide system security.	Analyzing
		PC404AD.6	Appraise secondary storage structure and RAID structure.	Understanding
Computer Networks	Dr Syed Azahad	PC405AD.1	Describe the functions of each layer in OSI and TCP/IP model.	Remembering
		PC405AD.2	Explain the functions of Application layer and Presentation layer paradigms and Protocols.	Understanding
		PC405AD.3	Examine the Transport layer services and protocols.	Analyzing
		PC405AD.4	Interpret the network layer ,routing protocols and analyze how to assign the IP addresses for the given network.	Applying
		PC405AD.5	Determining factors influencing the QoS.	Evaluating
		PC405AD.6	Build Client-Server applications using socket Programming	Creating

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Finance and Accounting	Mr Shyam sunder	HS105CM.1	understand the basic concepts of financial accounting&classify preparation of various books of accounts	Understanding
		HS105CM.2	Analyze & interpret financial statements.	Analyzing
		HS105CM.3	interpret knowledge about the functioning & working of various financial institutions.	Understanding
		HS105CM.4	Apply traditional & modern techniques of capital budgeting in long term investments, to test whether to invest in a particular project or not.	Applying
		HS105CM.5	analyze the liquidity ,solvency & profitability of financial statements.	Analyzing
		HS105CM.6	Evaluate the financial performance of the business unit.	Evaluating
Computer Organization & Microprocessor Lab	Mrs J Sowmya	PC451AD.1	Design and implement programs on Intel 8086 microprocessor kit	Creating
		PC451AD.2	Experiment with different addressing modes of 8086 using different assembly language programs	Analyzing
		PC451AD.3	Experiment with different 8-bit and 16-bit arithmetic operations on 8086 using different assembly language programs	Understanding
		PC451AD.4	Design and implement programs for interfacing peripheral devices with Intel 8086 microprocessor.	Applying
		PC451AD.5	Analyze different typyes of I/O Transfer during interfacing with peripheral devices	Analyzing
		PC451AD.6	Design and develop microprosser based control systems	Applying

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Computer Networks Lab	Dr Syed Azahad	PC452CS.1	Understanding and Exploring different networking Commanda like tcpdump,netstat, ipconfig, nslookup, FTP, TELNET and traceroute	Understanding
		PC452CS.2	Implement various protocols using TCP and UDP	Creating
		PC452CS.3	Develop programs using Sockets	Developing
		PC452CS.4	Analyze the performance of various network protocols using various simulation tools(NS2/NS3/Cisco Packet tracer)	Analyzing
		PC452CS.5	Implement and Analyze various routing algorithms.	Analyzing
		PC452CS.6	Implementation of various Programs using Remote Procedure calls	Creating
Operating System Lab	Mr D Rajashekar	PC452CS.1	Experiment with basic Linux Shell Commands and Implementation of UNIX system calls.	Understanding
		PC452CS.2	Compare various CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority and Develop programs for all the algorithms.	Analyzing
		PC452CS.3	Analyze the performance of the various Memory Management Algorithms and Develop various Memory Management Schemes.	Analyzing
		PC452CS.4	Interpret the benefits of thread over process and Build synchronized programs using multithreading concepts.	Evaluating
		PC452CS.5	Interpret the concept of Inter – Process Communications, Process Synchronization and Create programs like Dining Philosophers Problem and Readers Writers Problem Producer – Consumer Problem.	Create
		PC452CS.6	Explain the basics of shell scripting and Develop shell scripts for simple system administration tasks.	Create

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Data Science Lab	Mr T Praveen Kumar	PC454CS.1	Understand the semantics, data handling and control statements in R	Understanding
		PC454CS.2	Analyze the libraries for data manipulation	Analyzing
		PC454CS.3	Apply hypothesis tests for statistical inference.	Applying
		PC454CS.4	Synthesize data to fit linear and nonlinear models.	Create
		PC454CS.5	Implement regression and clustering analysis using R.	Create
		PC454CS.6	Implement optimization and data visualization using R.	Create
COURSE OUTCOMES		**VI SEMESTER**		**AY:2021-22**
Course Name	**Faculty Name**	**CO / PO**	**Course Outcomes**	Taxonomy
Compiler Design	Mrs Unnati Mohan / Mr A Rajesh	PC601CS.1	Create Lexical rules and grammars for a given language	Creating
		PC601CS.2	Compare top down with bottom up parsers, and develop appropriate parser to produce parse tree representation of the input	Analyzing
		PC601CS.3	Develop syntax directed translation schemes and design a symbol table format for the language	Applying , Creating
		PC601CS.4	Generate intermediate code for statements in high level language	Creating
		PC601CS.5	Use Program analysis techniques for code optimization	Applying
		PC601CS.6	Develop algorithms to generate code for target machine	Creating

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Computer Networks	Mrs G Saritha / Mrs B Sowjanya	PC602CS.1	Explain the functions of the different layer of the OSI and TCP/IP Protocol.	Understanding
		PC602CS.2	Evaluate data communication link considering elementary concepts of data link layer protocols for error detection and correction	Evaluation
		PC602CS.3	Interpret the network layer ,routing protocols and analyze how to assign the IP addresses for the given network	Evaluation
		PC602CS.4	Examine the Transport layer services and protocols.	Analyzing
		PC602CS.5	Comprehend the functionality of application layer	Understanding
		PC602CS.6	Identify the basic security threats of a network and different types of encryption techniques	Applying
Design And Analysis of Algorithms	Mr P V Ramanaiah / Mr D Srinivas	PC603CS.1	Analyze a given algorithm and express its time and space complexities in asymptotic notations	Knowledge
		PC603CS.2	Solve recurrence equations using Iteration Method, Recurrence Tree Method and Master's Theorem	Apply,Analyze, Evaluate
		PC603CS.3	design algorithms using Divide and Conquer Strategy.	Apply-Evaluate
		PC603CS.4	compare Dynamic Programming and Divide and Conquer Strategies	Apply-Analyze
		PC603CS.5	solve Optimization problems using Greedy strategy	Understand and Analyze
		PC603CS.6	design efficient algorithms using Back Tracking and Branch Bound Techniques for solving problems	Create
Cloud Computing	Dr Diana Moses / Mr M V D S Krinshna Murthy	PE628CS.1	Outline main concepts of cloud computing	Understanding
		PE628CS.2	Explain the architecture, deployment and delivery models of cloud computing	Understanding
		PE628CS.3	Identify cloud infrastructure mechanisms and specialized mechanisms	Applying
		PE628CS.4	Examine cloud management mechanisms	Analyzing
		PE628CS.5	Explain core issues of cloud computing viz. security, privacy and interoperability	Evaluating
		PE628CS.6	Explain the usage of cloud software environments in cloud services	Evaluating

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Data Mining	Mr D Rajashekhar / Mr U Moulali	PE651CS.1	Define knowledge discovery process and identify different kinds of data that can be mined.	Remember
		PE651CS.2	Organize and Prepare the data needed for data mining using prepreprocessing techniques	Understand
		PE651CS.3	Understand association rules for mining frequent patterns.	Analyse
		PE651CS.4	Apply Eager & Lazy Classification methods and estimate accuracy of different models.	Create
		PE651CS.5	Distinguish clustering algorithms and evaluate the performance.	Evaluate
		PE651CS.6	Explore recent trends in data mining to solve real world problems	Analyse
Soft Skills and Interpersonal Skills	Mrs I V Sona Lakshmi	OE601EG.1	Train students **identify** effective listening skills required for comprehending and performing the required tasks in Professional Communication	Remember
		OE601EG.2	Enable students to **distinguish** the required speaking skills as per the necessary objective in Professional Communication	Understand
		OE601EG.3	Equip students with appropriate **articulation** – reading, comprehending & summarizing strategies for the prescribed professional assignment	Apply
		OE601EG.4	Develop **organization** of professional writing & publishing varieties of documents and required skills among students	Analyze
		OE601EG.5	Empower the students **assess** the Right Attitude and Coping Techniques required Professionally	Evaluate
		OE601EG.6	Inculcate and **develop** potential skills in the learners to prepare them to deal with the external world in a collaborative manner, communicate effectively, take initiative, think creative, manage stress, solve problems, demonstrate a positive work ethic and facilitate life-long learning	Create

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Compiler Design Lab	Mrs Unnati Mohan / Mr A Rajesh	PC631CS.1	Design Lexical analyzer for given language using LEX tools	Analyze
		PC631CS.2	Generate scanner and parser from formal specification	Create
		PC631CS.3	Generate top down and bottom up parsing tables using Predictive parsing, SLR and LR Parsing techniques	Create
		PC631CS.4	Apply the knowledge of YACC to syntax directed translations for generating intermediate code – 3 address code.	Apply
		PC631CS.5	Apply the code optimization techniques to improve the performance of a program .	Apply
		PC631CS.6	Generate machine code from the intermediate code forms	Create
Computer Networks Lab	Mrs G Saritha / Mrs B Sowjanya	PC632CS.1	Use various networking Commands like tcpdump , netstat, ipconfig, nslookup, FTP, TELNET and traceroute	Applying
		PC632CS.2	Implement Iterative and concurrent servers using TCP and UDP.	Creating
		PC632CS.3	Analyze the performance of various network protocols using various simulation tools(NS2/NS3/Cisco Packet tracer)	Analyzing
		PC632CS.4	Analyze the performance of various routing algorithms using network simulator tools.	Analyzing
		PC632CS.5	Develop programs using Raw Sockets	Creating
		PC632CS.6	Implementation of various Programs using Remote Procedure calls	Creating
Design And Analysis of Algorithms Lab	Mr P V Ramanaiah / Mr D Srinivas	PC633CS.1	Design an algorithm in a effective manner	Create
		PC633CS.2	Design & Apply iterative and recursive algorithms.	Create,Apply
		PC633CS.3	Design & Implement Problems using Divide and conquer strategy.	Create,Apply
		PC633CS.4	Design & Implement Problems using Greedy strategy.	Create,Apply
		PC633CS.5	Design & Implement Problems using Dynamic Programming & backtracking strategy.	Create,Apply
		PC633CS.6	Design & Implement Problems using Brute Force strategy. and network flow algoritms	Create,Apply

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES		VIII SEMESTER		AY:2021-22
Course Name	**Faculty Name**	**CO / PO**	**Course Outcomes**	Taxonomy
Cyber Security & Forensics	Mrs G Saritha / Dr. Shruthi Sk	PE829CS.1	Explain the fundamentals of cyber security and its applicability to operational and organisational security problems in the real world.	Understanding
		PE829CS.2	Identify the different types of cybercrimes, cyber attacks, and cyber laws	Applying
		PE829CS.3	To effectively defend against cyber attacks and have a thorough understanding of how to secure the broader internet community from such attacks.	Evaluate
		PE829CS.4	Predict the intent behind cybercrime and its effects on wireless and mobile devices.	creating
		PE829CS.5	Apprehend the knowledge of fundamentals of computer forensics	Understanding
		PE829CS.6	Develop a forensic examination of a hacked system and information/network security professionals	Creating
Project Work – II	Mr. T. Praveen Kumar / Mr P V Ramanaiah	PW861CS.1	Demonstrate the ability to apply the knowledge and skills acquired in the academic program to the real-world problems	Understanding
		PW861CS.2	Evaluate different solutions based on feasibility study	Evaluating
		PW861CS.3	Effectively plan a project.	Analyzing
		PW861CS.4	Demonstrate effective written and oral communication skills	Understanding
		PW861CS.5	Undertake problem identification, formulation and execution	Creating
		PW861CS.6	Plan, analyze, design,implement and test a software project .	Creating

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Road Safety Engineering	Mr Bharat Nayak	OE801CE.1	Demonstrate about road accidents and its study objectives. Prepare accident investigation reports and database based on data collected.	Understanding
		OE801CE.2	Apply design principles for roadway geometrics improvement with various types of traffic safety appurtenances/tools	Applying
		OE801CE.3	Explain the road safety design operations, counter measures & characteristics to manage traffic including incident management	Understanding
		OE801CE.4	Illustrate the concept of Road Safety Auditing its principles, procedures and code of good practice and checklists	Understanding
		OE801CE.5	Explainabout design and working principles of road signs and traffic signals	Understanding
		OE801CE.6	Describe applications of ITS in effectively managing the traffic incidents.	Understanding

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Methodist College of Engineering and Technology

Department of Electronics and Communication Engineering

AY: 2021-22

Course Outcomes

III Semester

SNO	Course Code	Course Name	CO No.	Course Outcomes	Taxonomy
1	HS102EG	EFFECTIVE TECHNICAL COMMUNICATION IN ENGLISH	CO1	Handle technical communication effectively	Evaluate
			CO2	Use different types of professional correspondence	Analyze
			CO3	Use various techniques of report writing	Understand
			CO4	Acquire adequate skills of manual writing	Remember
			CO5	Enhance their skills of information transfer and presentations	Apply
			CO6	Understand the aspects of data transfer and presentations	Apply
2	HS103CM	FINANCE AND ACCOUNTING	CO1	Understand the financial and Accounting aspects of a business	Analyse
			CO2	Evaluate financial Performance of the business unit	Evaluate
			CO3	Understand about the financial system and markets	Evaluate
			CO4	Evaluate the viability of projects by using Capital budgeting Techniques.	Understand
			CO5	Analyse the overall financial functioning of an Enterprise	Evaluate
			CO6	Understand and take decision on procurement of finances.	Analyze
3	ES303EC	DIGITAL ELECTRONICS	CO1	Explain the basic concepts related to number system and their conversion.	Creating

			CO2	Analyze the Boolean logic equations and simplify using K-map and tabular method .	Analyze
			CO3	Analyze the different combinational circuits and implement them using IC's.	Understand
			CO4	Explain the operation of flip flops and converting one flip flop to another.	Apply
			CO5	Analyze the concepts of sequential circuits.	Understand
			CO6	Design the counter using different IC's.	Create
4	ES304EC	Probability Theory and Stochastic Processes	CO1	Explain definitions of Probability,Axioms,Joint Probability, Conditional Probability, Total Probability, Bayes' Theorem, Independent Events, Random Variable, Conditions of a Random Variable.	Understand
			CO2	Apply the concepts, theorems to derive probability distribution & probability density functions. Expectations, Moments & characteristic functions of Random variable	Applying
			CO3	Make use of Properties of distribution & density functions to solve Mean, Variance for - Binomial, Poisson, Uniform, Gaussian, Exponential, Rayleigh Distributions.	Applying
			CO4	Explain Multiple random variables i.e Joint density, Joint distribution, Central Limit Theorem, expected values of Multiple random variables.	Understand
			CO5	Explain concepts of Random process, and its properties. Variance, co variance, correlation & auto correaltion.Power & cross power density spectrum and its properties.	Understand
			CO6	Examine different types of Noises and response to a random signal	Evaluating
5	PC401EC	ELECTRONIC DEVICES	CO1	Understand the PN Diode V-I Characteristics and its applications.	Creating
			CO2	Identify the merits and demerits of various Rectifier circuits with Calculation of Ripple	Understand

				Factor and %Efficiency.	
			CO3	Discriminate the BJT Configurations to recognize appropriate Transistor Configuration for any given application.	Analyze
			CO4	Design the the biasing circuits with good stability.	Understand
			CO5	Analyze , Compare and design of BJT Amplifiers.	Remember
			CO6	Distinguish the working principles of BJT and FET.	Remember
6	PC402EC	NETWORK THEORY	CO1	Identify different parameters for two-port networks	Understand
			CO2	Explain symmetrical and asymmetrical networks and their electrical properties	Creating
			CO3	Design concepts of different filters	Creating
			CO4	Design different Types of Attenuator and Equalizers	Remember
			CO5	Explain concepts of Network synthesis like Hurwitz polynomials, Positive real functions	Remember
			CO6	Analyse LC, RC,RL Networks by synthesis	Remember
7	PC451EC	ELECTRONIC DEVICES AND CIRCUITS LAB	CO1	Understand characteristics of Diodes	Analyze
			CO2	Plot the characteristics of BJT in different configurations	Understand
			CO3	Record the parameters of BJT and FET amplifiers.	Creating
			CO4	Understand biasing techniques of BJT.	Remember
			CO5	Design and performance evaluation of full wave rectifiers	Understand
			CO6	Use the SPICE software for simulating electronic circuits	Evaluate
8	PC452EC	ELECTRONIC	CO1	Use the basic electronic components and design	Creating

		WORKSHOP LAB		circuits	
			CO2	Verify various parameters of the circuits by applying theorems	Analyze
			CO3	Verify the truth tables of combinational and sequential circuits	Apply
			CO4	Realize combinational and sequential circuits	Evaluate
			CO5	Understand the pin configuration of ICs and verify the operation of basic gates	Evaluate
			CO6	Design and verify the combinational and logic circuits	Understand

Dept Assessment Coordinator

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Methodist College of Engineering and Technology

Department of Electronics and Communication Engineering

Course Outcomes

AY: 2021-22

IV Semester

S.no	Course Code	Course Name	CO No.	Course Outcomes	Taxonomy
1	ES305EC	SIGNALS AND SYSTEMS	CO1	Differentiate various types of signals and systems in continuous and discrete time (TL:2)	Understand
			CO2	Importance of frequency domain analysis and apply Fourier series for continuous time signals (TL:4)	Analyzing
			CO3	Apply the properties of Fourier transform for continuous time signals (TL:3)	Applying
			CO4	Relate Laplace transforms to solve differential equations and to determine the response of the CT- LTI Systems	Evaluating
			CO5	Apply Z-transforms for discrete time signals to solve Difference equations (TL:5)	Evaluating
			CO6	Determine Linear Convolution and Correlation of discrete time signals with graphical representation	Evaluating
2	PC403EC	ANALOG ELECTRONIC CIRCUITS	CO1	Design and Analyse low , mid and high frequency response of small signal single and multistage BJT and FET amplifiers	Creating
			CO2	Identify the type of negative feedback, Analyse and design of negative feedback amplifiers.	Applying
			CO3	Design Audio Frequency and Radio Frequency Oscillators	Creating
			CO4	Distinguish between the classes of Power Amplifiers and their design considerations	Evaluating

			CO5	Compare the performance of single and double tuned amplifiers	Understanding
			CO6	Overcome the problem of stability in RF amplifiers	Analyzing
3	PC404EC	COMPUTER ORGANISATION AND ARCHITECHTURE	CO1	Perform mathematical operations on fixed and floating point digital data.	Understanding
			CO2	Illustrate the operation of a digital computer.	Analyze
			CO3	Understand I/O interfacing of a computer.	Analyze
			CO4	Interface microprocessor with memory devices.	Apply
			CO5	Understand latest trends in microprocessors.	Evaluating
			CO6	Distinguish the organisation of various part of a system memory hierarchy	Creating
4	PC405EC	ELECTROMAGNETIC THEORY AND TRANSMISSION LINES	CO1	Understand the different coordinate systems, vector calculus, coulombs law and gauss law	Understanding
			CO2	Explain about amperes law in magneto static fields and rewrite the Maxwell equations	Evaluating
			CO3	Distinguish the electromagnetic wave equations and study their characteristics propagated in different media	Understanding
			CO4	Analyze the reflection and refraction of electromagnetic waves propagated in normal and oblique incidences	Analyzing
			CO5	Describes the transmission lines with equivalent circuit and explain their characteristics with various lenghs.	Understanding
			CO6	Study the Smith Chart profile and stub matching features, and gain ability to	Remembering

				practically use the same for solving practical problems	
5	PC406EC	PULSE AND LINEAR INTEGRATED CIRCUITS	CO1	Explain Linear and Non Linear wave shaping circuits, Analyse the response of linear wave shaping circuits to the different input signals	Understanding
			CO2	Analyse and design multivibrators and sweep circuits using transistors	Creating
			CO3	Explain the op amp ideal characteristics, parameters and its applications	Applying
			CO4	Analyse DC and AC characteristics for Single/Dual input Balanced/Unbalanced output configurations using BJTs	Analyzing
			CO5	Explain 555 timer functional diagram and its applications	Applying
			CO6	Analyse the operation of the most commonly used D/A and A/D converter types	Analyzing
6	PC407EC	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	CO1	Identify various types of electronic instrument suitable for specific measurement.	Understanding
			CO2	Classify various errors present in measuring instruments.	Understanding and Analyzing
			CO3	Understand construction, working principle and types of oscilloscopes.	Understanding
			CO4	Comprehend different types of signal generators and analyzers, their construction and operation.	Understanding. evaluating
			CO5	Describe the working principle, selection criteria and applications of various transducers used in measurement systems.	Analyzing
			CO6	Understanding of electronic instrumentation and measurement in the real time world	Understanding
7	PC453EC	ANALOG ELECTRONIC CIRCUITS LAB	CO1	Calculate gain and bandwidth of BJT, FET.	Understanding
			CO2	Study Feedback amplifier circuits.	Remembering
			CO3	Study oscillator circuits.	Creating
			CO4	Demonstrate filter circuits.	Understanding
			CO5	Demonstrate power amplifier and OpAmp. Circuits	Understanding
			CO6	Design of regulator circuits	Creating
	PC454EC	PULSE AND	CO1	Design and Analyze Linear and Non Linear	Creating

8		LINEAR INTEGRATED CIRCUITS LAB		wave shaping circuits .	
			CO2	Design Multivibrators by using BJT	Creating
			CO3	Study and performance of linear and non linear applications of op-amp	Remembering
			CO4	Study and performance of various parameters of op-amp	Remembering
			CO5	Design and Analyze different filters & their frequency comparision	Creating
			CO6	Design different multivibrators and their comparision. (theoritical & practical) by using IC 555	Creating

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Course Outcomes

AY: 2021-22 **V Semester**

S.no	Course Code	Course Name	CO No.	Course Outcomes	Taxonomy
1	PC501EC	Analog Communication	CO1	Explain and analyze the various continuous modulation systems	Understanding
			CO2	Demonstrate and contrast the different Angle modulation schemes	Analyzing
			CO3	Illustrate and compare the pulse modulation systems	Applying
			CO4	Interpret with differentiate types of transmitters and receivers used for particular application.	Understanding
			CO5	Identify the noises present in continuous wave modulation systems and analyze Signal to Noise ratio in each system.	Analyzing
			CO6	Students able to Discriminate the design skills to illustrate the different modulation systems and method to implement different communication systems.	Applying
2	PC502EC	Digital Signal Processing	CO1	Identify the importance of DSP in real time processing	Applying
			CO2	Compute DFT & apply its properties in problem solutions , also optimize the calculation using FFT algorithm	Applying
			CO3	Design, evaluate& construct FIR filters to satisfy desired frequency response by hand	Creating
			CO4	Design,evaluate& construct IIR filters on the basis of an analogue design by hand	Creating
			CO5	Compute & comprehend sampling rate conversions & their applications	Evaluating

			CO6	Understand the importance of DSP processor applications and also comprehend the architecture, addressing modes & instruction set of TMS processor	Applying
3	PC503EC	Automatic Control Systems	CO1	Students will be able understand fundamentals of control systems & able to apply the rules of block diagram and signal flow graph to obtain overall transfer function	Understanding, Applying
			CO2	Students will be able to construct Routh Array/Hurwitz determinant and thus analyze system stability in time domain and time response	Applying and analyzing
			CO3	Students will be able to construct Root locus Technique and thus analyze system stability in time domain	Applying and analyzing
			CO4	Students will be able to construct Bode plots and thus analyze system stability in frequency domain	Applying and analyzing
			CO5	Students will be able to understand the digital control system and its importance	Understanding
			CO6	Students will be able to understand state space representation and hence determine stability, controllability and Observability of a system in state space domain	Determining
4	PC504EC	Antennas and wave propagation	CO1	Illustrate the basic principles of antennas and learn the antenna terminology.	Understand
			CO2	Design different types of wire antennas and make proficient in analytical skills for understanding practical antennas.	Apply
			CO3	Design different types of antennas for various frequency ranges and get updated with latest developments in the practical antennas.	Create
			CO4	Apply the principles of antennas, to design antenna arrays and measure various parameters of antennas.	Analyse
			CO5	Identify and understand the suitable modes of Radio Wave propagation used in current practice.	Evaluate
			CO6	Analyze the structure of atmosphere for the	Analyse

				wave propagation	
5	PC505EC	Microprocessor and Microcontroller	CO1	Explain the generalized architecture of microprocessors and microcontrollers. Learn about 8086 Microprocessor and 8051 Microcontroller- different types of addressing modes, instruction set and interrupts.	Understanding
			CO2	Build Interfacing diagram of memory, peripherals using 8086 Microprocessor and 8051 Microcontroller.	Applying
			CO3	Apply 8086 Microprocessor and 8051 Microcontroller instruction set for writing simple assembly language programs.	Applying
			CO4	Explain the algorithm and program for interfacing different peripherals to 8086 microprocessor and 8051 Microcontroller.	Analysing
			CO5	Write an Assembly/C language program for interfacing different peripherals by using different software tools to 8086 microprocessor and 8051 Microcontroller.	Evaluating
			CO6	Design Interfacing of real time applications like ADC, DAC, LCD and stepper motor with 8086 microprocessor and 8051 microcontroller.	Creating
6	PC551EC	Systems and Signal Processing Lab	CO1	Analyze and process signals in the discrete domain	Applying
			CO2	Perform linear and circular convolution on various types of signals	Understanding
			CO3	Analyze and Observe Magnitude and phase characteristics (Frequency response Characteristics) of digital IIR-Butterworth, Chebyshev filters.	Analyzing
			CO4	Analyze and Observe Magnitude and phase characteristics (Frequency response Characteristics) of digital FIR filter using window techniques.	Analyzing

			CO5	Design multi rate signal processing of signals through systems.	Creating
			CO6	Develop and Implement DSP algorithms in software using a computer language such as C with TMS320C6713 floating point Processor	Creating
7	PC552EC	Microprocessor and Microcontroller Lab	CO1	Understand the architecture and its components of 8086 Microprocessor & 8051 Microcontrollers and develop algorithms for simple programs.	Understanding
			CO2	Apply the instruction set of 8086 Microprocessor & 8051 Microcontrollers and develop simple programs.	Applying
			CO3	Explain the usage of Branching, string instructions and Assembler Directives of 8086 Microprocessor for String Manipulations.	Applying
			CO4	Design and Develop interfacing applications by input/output, serial communication devices using 8086 Microprocessor	Evaluating
			CO5	Design algorithms and different programs for SFRs using C cross compilers for 8051 Microcontroller	Analysing
			CO6	Design and Develop interfacing application by input/output ports, serial communication devices using C cross compilers for 8051 Microcontroller	Creating
8	PC553EC	Mini Project	CO1	Get Practical experience of software design and development, and coding practices within Industrial/R&D Environments.	Understanding
			CO2	Gain working practices within Industrial/R&D Environments	Applying
			CO3	To encourage students to work on innovative and entrepreneurial ideas.	Understanding
			CO4	Prepare reports and deliver effective presentation.	Applying
			CO5	Demonstrate effective written and oral communication skills	Analyzing

			CO6	Design, implement and test the prototype/algorithm in order to solve the conceived problem.	Creating

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Course Outcomes

VI Semester

AY: 2021-22

S.No.	Course Code	Course Name	CO No.	Course Outcomes	Taxonomy
1	PC601EC	Digital Communication	CO1	Explain the concepts different types of digital modulation techniques PCM, DPCM, DM and ADM and compare their performance by SNR.	understanding
			CO2	Describe classification of channels and Source coding methods	Remembering
			CO3	Analyze the different types of Error control codes along with their encoding/decoding algorithms	Analyzing
			CO4	Analyze performance of different Digital Carrier Modulation schemes of Coherent and Non-coherent type based on Probability of error	Analyze
			CO5	Explain the base band modulation and matched filter concepts	understand
			CO6	Applying the generation of PN sequence using Spread Spectrum and characterize the Acquisition Schemes for Receivers to track the signals	Apply
2	PC602EC	Digital System Design with Verilog HDL	CO1	Describe Verilog HDL and Write a verilog HDL code for the digital circuits in gate level and dataflow modeling.	Understanding
			CO2	Write a verilog HDL code for the digital circuits in switch level and behavioral modeling	Applying
			CO3	Analyze and synthesize synchronous sequential circuits and design the sequence detector using Moore and	Analyzing

				Mealy FSM	
			CO4	Analyze the Asynchronous sequential circuits & describe the ASM chart for the digital circuits	Analyzing
			CO5	Explain SPLDS, CPLDs and Design various combinational circuits by using PLDs	Applying
			CO6	Explain FPGA and ASIC and describe ASIC / FPGA design flow	Evaluating
3	PC603EC	Data Communication and computer networking	CO1	Understand the basic network infrastructure to learn the overall function of networking systems.	Understand
			CO2	Identify different tasks of computer communications networks and protocol architectures.Analyze and compare circuit switching and packet switching concepts.	Analysis
			CO3	Apply knowledge of different techniques of error detection and correction to detect and solve error bit during data transmissionand explain the MAC Protocols and IEEE standards.	Apply
			CO4	Compare various routing algorithm and select an appropriate one for a routing design and understand ATM network concepts.	Analysis
			CO5	Design a network routing for IP networks and Paraphrase the services & protocols of Transport layer.	Evaluate
			CO6	Comprehend the functionality of application layer and importance of network security	Understand
4	PC604EC	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	CO1	Identify various types of electronic instrument suitable for specific measurement.	Understanding
			CO2	Classify various errors present in measuring instruments.	Understanding and Analyzing

			CO3	Understand construction, working principle and types of oscilloscopes.	Understanding
			CO4	Comprehend different types of signal generators and analyzers, their construction and operation.	Understanding, evaluating
			CO5	Describe the working principle, selection criteria and applications of various transducers used in measurement systems.	Analyzing
			CO6	Understanding of electronic instrumentation and measurement in the real time world	Understanding
5	PE – I (PE674EC)	IOT Sensors	CO1	Explain architecture and design of IoT.	Understanding
			CO2	Describe the Different Sensors connected in IoT.	Applying
			CO3	Understand the underlying Technologies.	Understanding
			CO4	Understand the platforms in IoT.	Understanding
			CO5	Understand cloud interface to IoT	Understanding
			CO6	Understand different applications with case studies.	Applying
6	OE – I (OE601CE)	Disaster Management	CO1	Evaluate the environmental, social, cultural, economical, legal and organizational aspects influencing vulnerabilities and capacities to face disasters and to know different types of environmental hazards	Evaluating
			CO2	Examine different types of natural and man- made disasters, theoretically and practically in the processes of disaster management and relate their interconnections.	Analyzing
			CO3	Interprete endogenous and exogenous hazards and their harmful effects to the environment through case studies in India.	Understanding

			CO4	Organize strategies for mitigation in future scenarios with available risk reduction techniques.	Applying
			CO5	Demonstrate different aspects of the emergencies and disaster events into the potential and limitations of science and its role in society and people's responsibility for how it is used.	Understanding
			CO6	Understanding capacity building concepts and planning of disaster managements	Understanding
7	PC651EC	Communication lab	CO1	Understand and simulate modulation and demodulation of AM and FM	Applying
			CO2	Construct pre-emphasis and de-emphasis at the transmitter and receiver respectively	Creating
			CO3	Understand and simulate the PAM,PWM&PPM circuits	Applying
			CO4	Understand baseband transmission (i.e., PCM, DPCM, DM, and ADM) generation and detection	Analyzing
			CO5	Understand and simulate digital modulation (i.e., ASK, FSK, BPSK,) generation and detection	Analyzing
			CO6	Generation and Detection of PCM and Digital modulation Schemes (ASK. FSK, BPSK) by using MATLAB	Applying
8	PC652EC	DCCN Lab	CO1	Understand the working of various network topologies and circuit and packet switching.	Applying
			CO2	Comprehend the role of data link layers and significance of MAC protocols.	Creating
			CO3	Understand the networking protocols and the internet protocols.	Applying
			CO4	Understand the transport layer working with TCP, UDP and ATM protocols.	Analyzing
			CO5	Comprehend the functionality of application layer and the importance of network security.	Analyzing
			CO6	Understand various routing protocols and network security.	Applying

9	PC653EC	Digital System Design with Verilog Lab	CO1	Appreciate the constructs and conventions of the verilog HDL programming in gate level modeling	Applying
			CO2	Appreciate the constructs and conventions of the verilog HDL programming in data flow modeling.	Understanding
			CO3	Generalize combinational circuits in behavioral modeling and concepts of switch level modeling	Applying
			CO4	Design and analyze digital systems and finite state machines.	Analyzing
			CO5	Perform functional verification by writing appropriate test benches.	Analyzing
			CO6	Implement designs on FPGA/CPLD boards.	Applying
10	PC654EC	Summer Internship	CO1	Students can Able to select a Practical problem and find solution by using current technologies	Understanding
			CO2	Student can go through training for implementing the project	Applying
			CO3	Students can Able to design/develop a small and simple product in hardware or software.	Creating
			CO4	Students can Able to complete the task or realize a pre-specified target, with limited scope	Creating
			CO5	Students can Able to learn to find alternate viable solutions for a given problem and evaluate these alternatives with reference to pre-specified criteria	Applying
			CO6	Students can Able to implement the selected solution and document the same	Creating

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Course Outcomes

AY: 2021-22 **VII Semester**

S.no	Course Code	Course Title	CO No.	Course Outcome	TAXONOMY
1	PC 701 EC	EMBEDDED SYSTEM	CO1	Explain the basic concepts of embedded systems, the selection procedure of Processors, characteristics, and design process in the embedded domain.	Understanding
			CO2	Differentiate architectural features of advanced controllers, instruction sets for programming embedded system design. Apply architectural features of ARM processor for embedded products.	Applying
			CO3	Make use of serial, parallel bus protocols for developing of embedded system products. Also Apply network enabled protocols.	Applying
			CO4	Analyze testing and hardware software co- design issues pertaining to design of an Embedded System. Examine all software development tools for embedded system.	Analyzing
			CO5	Assess the goal of embedded systems in real time design applications. Know about the RTOS based embedded system design concepts. Compare Testing methods and Debugging techniques.	Evaluating
			CO6	Design and develop embedded product in real time design applications by applying steps in design process for hardware and software of embedded product.	Creating
2	PC 702 EC	VLSI DESIGN	CO1	Understand various VLSI design styles, fabrication process of MOS, able to analyze the inverter characteristics, basic electrical properties and power dissipation of MOS transistor.	Analyzing
			CO2	Use Physical design rules to be followed for MOS designs, understand drawbacks of interconnects reliability issues and the effect of scaling on MOS devices.	Understanding
			CO3	Analyze and implement various MOS subsystems at gate level and transistor level.	Analyzing
			CO4	Analyze the operation of various arithmetic circuits and their testability.	Analyzing
			CO5	Design sequential logic circuits using MOS transistors.	Applying
			CO6	Understand the small signal model and characteristics of CMOS amplifiers.	Understanding
3	PC 703 EC	MICROWAVE TECHNIQUES	CO1	Describe the propagation characteristics of Guided waves in different modes	Understanding, Analyzing
			CO2	Evaluate different characteristics for Rectangular & Circular Waveguides &Cavity Resonators.	Applying, Analyzing
			CO3	Analyze microwave circuits using scattering parameters	Applying,

					Analyzing
			CO4	Design and analysis of microwave guides	Analyzing, Creating
			CO5	Understand the principle, operation and characteristics of microwave tubes and oscillators	Remembering, Analyzing
			CO6	Analyze the principle, operation and characteristics of microwave solid state devices including strip lines.	Analyzing, Evaluating
4	HS 707 ME	INDUSTRIAL ADMINISTRATION AND FINANCIAL MANAGEMENT	CO1	Illustrate the types of various business organizations, organization structures, functions of management and able to choose the proper plant layout.	Applying
			CO2	Explain the concept of Work Study and apply work measurement techniques for the calculation of standard time, and the concept of performance rating factors.	Applying
			CO3	Explain various concepts of Job evaluation, performance appraisal and wage payment system and able to apply these techniques.	Applying
			CO4	Demonstrate the concepts of Quality control, process control, material control and by use of control charts could evaluate whether the quality of a product or process in a plant.	Evaluating
			CO5	Demonstrate techniques like Linear Programming, Assignment and Project management & Material Management techniques and able to apply these techniques for optimum utilization of the resources.	Applying
			CO6	Illustrate the different terminology used in Financial Management and able to apply various capital budgeting techniques and break even analysis.	Applying
5	PE 721 EC	MOBILE AND CELLULAR COMMUNICATION	CO1	Understand the concept and implementation of frequency reuse and Handoff techniques	Understanding
			CO2	Analyze interference and capacity enhancement	Analyzing
			CO3	Appreciate the factors influencing outdoor and indoor propagation systems	Evaluate
			CO4	Analyze various multiple access protocols	Analyzing
			CO5	Visualize the system architectures and implementation of GSM and CDMA	Creating
			CO6	Understand the concepts in various Mobile Technologies	Understanding
6	OE 701 ME	OE-II STARTUP ENTREPRENEURSHIP	CO1	Explain Indian Industrial Environment, Entrepreneurship and Economic growth, Small and Large Scale Industries, Types and forms of enterprises.	Understanding
			CO2	Identify the characteristics of entrepreneurs, Emergence of first generation entrepreneurs, Understand and Practice the conception and evaluation of ideas and their source and choice of technology.	Applying
			CO3	Demonstrate the principles of project formulation, analysis of market demand, Financial and profitability analysis and Technical analysis and evaluate the technical feasibility and financial viability of a project.	Evaluate
			CO4	Apply the concepts of Project Management. CPM, PERT techniques and tax assessment burden	Applying

7	OE 781 CE	OE-III ROAD SAFETY ENGINEERING	CO5	Identify the Behavioural aspects of entrepreneurs, Leadership concepts and models, values and attitudes and motivation aspects.	Applying
			CO6	Apply Time Management principles	Applying
			CO1	Demonstrate about road accidents and its study objectives. Prepare accident investigation reports and database based on data collected.	Understanding
			CO2	Apply design principles for roadway geometrics improvement with various types of traffic safety appurtenances/tools	Applying
			CO3	Explain the road safety design operations, counter measures & characteristics to manage traffic including incident management	Understanding
			CO4	Illustrate the concept of Road Safety Auditing its principles, procedures and code of good practice and checklists	Understanding
			CO5	Explain about design and working principles of road signs and traffic signals	Understanding
			CO6	Describe applications of ITS in effectively managing the traffic incidents.	Understanding
8	PC 751 EC	MICROWAVE LAB	CO1	Analyze frequency, Wave length, SWR and Impedance for Reflex klystron Oscillator by using its equation	Analyzing
			CO2	Evaluate of mode characteristics of Reflex klystron and V-I Characteristics of Gunn diode.	Evaluating
			CO3	Analyze of the characteristics of Circulator, Isolator, Directional Coupler, Tees like (Magic tee, E & H plane tees) using the Scattering parameters.	Analyzing
			CO4	To analyze the radiation pattern of antenna	Analyzing
			CO5	Generate the Radiation pattern of different antennas like Yagi-Uda and Horn Antenna and measure the gain of the antennas.	Analyzing
			CO6	Familiarize with the EM simulation software	Creating
9	PC 752 EC	ELECTRONIC DESIGN AUTOMATION LAB	CO1	Explain different architecture of ARM processor, its components and Concept of RTOS	Understanding
			CO2	Develop algorithms for simple programs based on RTOS using embedded C for ARM Processors	Analyzing
			CO3	Design and Develop interfacing Real Time applications using in out pins, serial communication devices for ARM processors	Creating
			CO4	Understand Layout design Rules	Understanding
			CO5	Developing the Verilog code for existing digital designs	Applying
			CO6	Design of Simple Gates using Layouts	Creating
10	PW 761 EC	PROJECT WORK-I	CO1	Decision making on interested topic and subject area in the wide spectrum of course	Analyzing
			CO2	Identify the applicability of modern software tools and technology	Analyze
			CO3	Deliver presentation based on the preparation	Creating
			CO4	Develop communication skills and stage performance	Creating
			CO5	Present the results from the work comprehensively through presentation.	Creating
			CO6	Correct him to improve presentation skills.	Evaluating

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AY: 2021-22

Course Outcomes

VIII Semester

S.no	Course Code	Course Title	CO No.	Course Outcome	TAXONOMY
1	PE 824 EC	SATELLITE COMMUNICATIONS	CO1	Describe the Geography with reference to Satellite Orbits.	Understanding
			CO2	Illustrate the Satellite Subsystems and Link Design.	Applying
			CO3	Categorize the Satellite Multiple Access Techniques and Earth Station Technology.	Understanding
			CO4	Outline the Various Applications of Satellite.	Analyzing
			CO5	Illustrate the Basic Principles of Television.	Understanding
			CO6	Compare competitive satellite services	Understanding
2	PE 832 EC	GLOBAL NAVIGATIONAL SATELLITE SYSTEMS	CO1	Familiarize with the GNSS fundamentals and GPS architecture.	Understanding
			CO2	Describe the different types of DOP"S	Applying
			CO3	Describe the different types of GNSS Signals and GNSS Datum.	Understanding
			CO4	Analyse the GPS errors and their modelling techniques	Analyzing
			CO5	Understanding various GPS data processing and GPS integration techniques	Understanding
			CO6	Conceptualize the augmentation systems and regional navigation satellite systems.	Understanding
3	PE 843 EC	RADAR SYSTEMS	CO1	Demonstrate and understand the factors detecting the radar using radar range equation	Understanding
			CO2	Understand the performance characteristics of radars to enhance range prediction and their losses	Understanding
			CO3	Illustrate various types of radars and their variation displays in radars	Analyzing
			CO4	Explain different types of MTI radars and Non coherent MTI radar	Analyzing
			CO5	Illustrate on radar tracking methods and differences among them.	Remembering
			CO6	Explain search radars and various antennas used in radars.	Understanding, Analyzing
4	PW 961 EC	PROJECT WORK-II	CO1	Prepare abstract for given project by identifying the requirements and prospective solution	Analyzing
			CO2	collect latest information related to the project from various sources to analyse the project	Analyzing
			CO3	design the necessary module of the selected project as per specifications	Creating
			CO4	obtain and analyse the results of the designed module or circuit	Creating

			CO5	develop a prototype of the project by distribution of tasks among the team	Creating
			CO6	prepare a good report of the project as per the guidelines and present to the panel of experts	Evaluating

Dept Assessment Coordinator

(T. Sravan Kumar)

Head of the Department

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		Determine the Centroid and moment of inertia for cross various sections.	Evaluate
		Analyse the forces in the members of a truss using method of joints and method of sections	Analyze
		Explain the concept of friction for single and connected bodies.	Understand
		Apply the basic concepts of dynamics, their behaviour, analysis and motion bodies	Apply
		Solve problems involving work energy principles and impulse momentum theory.	Apply
BS205MT	Mathematics-III	Find the Bayes theorem Expectation, mean,varience and standard deviation.	Remember
		Solve Bionomial, Poission distributions and skewness and kurtics.	Apply
		Solve Normal,Uniform and Exponential distributions.	Apply
		Examine the correlation coefficient and rank correlation for the given da	Analyse
		Determine straight line equation ,parabola equation and exponential equation.	Evaluate
		Evaluate t-distibution F-distribution and chisquaredistibutions.	Evaluate
PC403EC	Analog Electronics	Interpret the characteristics and apply diode models to analyse various applications of diodes	Analyze
		Discriminate the bjt configurations to recognize the appropriate transistor configuration for any Given application and design the biasing circuits with good stability.	Understand
		Analyze and compare feedback amplifiers.	Realize
		Distinguish various classes of power amplifiers.	Analyze
		Analyse the operation of opamp and its applications.	Understand
		Examine the operation of opamp and its functions.	Apply
PC451EE	Electrical Circuits Lab	Evaluate the time response and frequency response character stics of R,L, C Series and parallel circuits	Evaluate
		Simplify the complicated circuits using Thevenin's, Norton's and Superposition theorems.	Analyze

Methodist College of Engineering and Technology

Department of Electrical and Electronics Engineering

Course Outcomes

AY: 21-22 **III Semester**

Course Code	Course Name	Course Outcomes	Taxonomy
PC401EE	Electrical Circuit Analysis	Analyze and obtain the steady state response of electrical circuit.	Analyze
		Analyze the behavior of magnetic circuits.	Analyze
		Apply network theorems for the analysis of electrical circuits.	Apply
		Analyze solution of first and second order RL, RC and RLC networks.	Analyze
		Apply Laplace transforms for electrical circuits for analysis.	Apply
		Analyze the behaviour of two port networks.	Analyze
PC402EE	Electromagnetic Fields	Understand the vector calculus for electromagnetism.	Understand
		Apply the electric fields for simple configurations under static conditions	Apply
		Analyze and apply the static magnetic fields.	Analyze
		Analyze the Electrical Circuits with the concept of Network topology	Analyze
		Understand Maxwell's equation in different forms and different media	Understand
		Understand the propagation of EM wave	Understand
PC403EE	Electrical Machines-I	Understand the concepts of magnetic circuits.	Understand
		Understand electrical principle, laws, and working of DC machines.	Understand
		Identify the parts of DC machines understand its operation	Apply
		Analyze the construction and characteristics and application of various types of DC generators.	Analyze
		Analyze the construction and characteristics and application of various types of DC motors and testing of motors.	Analyze
		Understand electrical principle, laws, and working of 1 – phase transformer and losses and also conduct various tests on the transformer	Understand
ES302CE	Engineering Mechanics	Apply the fundamental concepts of forces, equilibrium conditions for static loads.	Apply

		Examine various parameters of a two-port network.	Analyze
		Develop code to obtain transient analysis of electrical circuits using spice	Apply
		Evaluate the three phase power of balanced loads	Evaluate
		Analyze the networks from a given transfer function	Analyze
PC452EE	Computer Aided Electrical Drawing Lab	Identify and draw different components of electrical systems	Apply
		Draw different control and wiring diagrams	Create
		Draw winding diagrams of electrical machines	create
		To understand the terminology of electric circuit and electrical components	understand
		Familiarize with electrical machines, apparatus and appliances	understand
		To acquire knowledge on various Electrical Engineering software	Evaluate
PC453EC	Analog Electronics Lab	Describe and analyze different types of diodes, their operations and characteristics	Analyze
		Calculate ripple factor, efficiency and % regulation of rectifier circuits	Design
		Analyse feedback amplifiers and op-amp oscillator circuits	Realize
		Design single, and multi-stage amplifier, wave shaping and controller circuits	Design
		Understand the characteristics of electronics devices	Understand
		Design of p, pi and pid controllers using op-amps	Design

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Methodist College of Engineering and Technology

Department of Electrical and Electronics Engineering

Course Outcomes

AY: 21-22 **V Semester**

Course Code	Course Name	Course Outcomes	Taxonomy
PC236EE	Power System-I	Explain to the power /Energy demand in the form of graph Base Load and Peak Load	Understand
		Formulate A.C and D.C distribution networks for necessary variable calculation	Create
		Make use of Understand and acquire knowledge about various power generation.	Apply
		Discuss to Ability of various power sources for generation of power Merit/Demerits	Create
		Analyze to Supports sag and tension and String efficiency.	Analyze
		Modeling and calculating of transmission line parameters and power system components for a specified system and application	Analyze
PC235EE	Electrical Machines-II	Summarize the construction, working principle and performance of Transformers, 1-phase and 3-phase Induction Motors	Understand
		Determine the construction, working principle, performance, starting and speed control of 1-phase and 3-phase Induction Motors.	Evaluate
		Identify the construction, working principle and performance of Transformers and Induction motors.	Apply
		Examine the rating, testing and applications of single phase, three phase transformers.	Analyze
		Adapt the knowledge of Rotating magnetic field theory, Double field revolving theory	Create
		Find the equivalent circuit diagram of transformer, three-phase induction motor and single-phase induction motor	Remember
PC237EE	Linear Control Systems	Understand the concept of the terms control systems, feedback, Mathematical modeling of Electrical and Mechanical systems.	Understand
		Explain the time domain and frequency response analysis of control systems.	Evaluate
		Apply the knowledge of various analytical techniques used to determine the stability of control systems.	Apply

		Understand the importance of design of compensators	Create
		Demonstrate controllability and observability of modern control systems.	Understand
		Understand and develop the state space representation of control systems.	Apply
PC238EE	Microprocessors & Microcontrollers	Adapt the knowledge of Architecture of 8085 and 8051, writing assembly language programming for different applications.	Create
		Explain types of microcontrollers and their applications.	Understand
		Develop a program to run on 8085 microprocessor based systems.	Apply
		Define the techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.	Remember
		Interpret the difference between Microprocessors and Microcontrollers.	Analyze
		Simplify and design system using memory chips and peripheral chips for 8-bit 8085 microprocessor.	Create
PC239EE	Signals & Systems	Classify and analyze the continuous time signals and discrete time signals and systems..	Understand
		Generate discrete time signals through sampling process and reconstruct them.	Apply
		Determine the responses of continuous and discrete-time systems which are represented by differential equations and difference equations	Understand
		Analyze continuous time systems with the help of Laplace transform and discrete time system with Z-transform	Analyze
		Apply convolution, correlation operations on continuous and discrete time signals	Apply
		Analyze the continuous and discrete-time systems in frequency domain with the help of Fourier series and Fourier Transform.	Analyze
PE 103EE	Introduction to Electric Vehicle	Understand the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamental	Understand
		Know about different energy storage technologies used for hybrid electric vehicles and their control.	Understand
		Choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources	Create
		Design the components and their sizing and the power electronics devices used in hybrid electric vehicle	Create

		Understand the maintenance of the electrical vehicle.	Understand
		Understand the basic components of the EV and their design.	Understand
PC265EE	Power Electronics Lab	Classify and design different triggering circuits of SCR and MOSFET.	Create
		Analyze different commutation circuits of SCR	Analyze
		Explain and make use of controlled rectifiers to control the speed of DC motors	Apply
		Explain the applications of cycloconverters and AC voltage controllers	Apply
		Analyze Chopper circuits	Analyze
		Design and Simulate different power electronics circuits using MATLAB software	Create
PC263EE	Electrical Circuits Lab	Evaluate the time response and frequency response character sties of R,L, C Series and parallel circuits	Evaluate
		Simplify the complicated circuits using Thevenin's, Norton's and Superposition theorems.	Analyze
		Examine various parameters of a two-port network.	Analyze
		Develop code to obtain transient analysis of electrical circuits using spice	Apply
		Evaluate the three phase power of balanced loads	Evaluate
		Analyze the networks from a given transfer function	Analyze
PC264EE	Control Systems Lab	Understand Performance of P, PI and PID Controllers.	Understand
		Develop PLC programs for certain applications.	Apply
		Make use of the knowledge of Data acquisition system and Industrial process control in real world.	Apply
		Develop transfer function of various control system plants practically by conducting the experiments.	Apply
		Design and Simulate the Programming and control system concepts using MATLAB.	Create
		Design of lag and lead compensation by using Networks.	Create

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Methodist College of Engineering and Technology

Department of Electrical and Electronics Engineering

Course Outcomes

AY: 21-22 **VII Semester**

Course Code	Course Name	Course Outcomes	Taxonomy
PC428EE	Control of Electric Drives	Develop Control Circuits for remote control and interlocking of electric drives	Create
		Explain the concept of protection of motors using various protecting equipments	Understand
		Develop control circuits for starting and braking of induction motors	Create
		Develop control circuits for starting and braking of synchronous motors	Create
		Develop control circuits for starting and braking of DC motors	Create
		Develop driver circuits for stepper motor	Create
PC429EE	Switchgear and Protection	Outline the need for protection in a power system and explain the types of protection.	Understand
		Explain the constructional features of Solid State relays, their contrast with electro mechanical relays.	Evaluate
		classify relays based on construction , operation , application etc., and choose their usage in power systems.	Analyze
		Analyze the characteristics of differential relays and also their application in power system networks	Analyze
		Compare the different types of circuit breakers performance based on which selection of circuit breaker can be made for a given application	Evaluate
		Explain the merits and importance of GIS stations over conventional substations.	Evaluate
PC430EE	Power Electronic Applications to Power Systems	Understand the reactive power compensation	Understand
		Learn the series and shunt compensation in Power Transmission system.	Understand
		Apply of FACTS devices in Power Transmission system.	Apply
		Apply the power transmission schemes – HVDC Transmission	Apply
		Implement the control circuits based on the Controlling parameters of HVDCsystem	Apply
		Study MTDC Transmission	Understa

PE506EE	Digital Control Systems	Understand the various issues related to digital control systems such as effects of sampling and quantization, discrete time signals and models.	Understand
		Design Root-locus for discrete-time control system.	Create
		Represent a discrete-time control systems using state space technique.	Apply
		Design discrete-time control system via pole placement.	Create
		Design observers for discrete control systems.	Create
		Analyze the stability of a discrete-time control system.	Analyze
PE502EE	Special Electrical Machines	Demonstrate the performance and control of stepper motors	Understan
		Identify the characteristics and applications of stepper motor.	Apply
		Explain the theory of operation and control of switched reluctance motor	Evaluate
		Define the operation and characteristics of permanent magnet dc motor	Membe
		Distinguish between brush dc motor and brush less dc motor	Analyze
		Elaborate the theory of travelling magnetic field and applications of linear motors	Create
PE510EE	Energy Management System and SCADA	Understand energy management centers.	Understar
		Know the concept of power generation scheduling.	Rememb
		Understand SCADA	Rememb
		Be acquainted with the configurations of SCADA	Rememb
		Have a knowledge of SCADA Power system	Apply
		Have a knowledge of SCADA communication	Apply
PC466EE	Electrical Simulation Lab	Compose (Write) MATLAB code using some basic commands.	Creat
		Develop MATLAB code for analyzing power system network by obtaining line parameters, Z, Y matrices, and Economics of power systems	Apply
		Simulate the concepts of Electrical Circuits, to design a led, lag, led and lag compensator and obtain the characteristics by Control Systems and interpret data.	Creat

		Demonstrate (Determine) the knowledge of programming environment, compiling, debugging, linking and executing variety of programs in MATLAB.	Evaluate
		Demonstrate ability to develop Simulink models for various electrical systems.	Apply
		Validate simulated results from programs/Simulink models with theoretical calculations.	Apply
PC462EE	Power Systems Lab	Interpret positive, negative and zero sequence Impedance of Transformer and Alternator	Understand
		Analyze the performance of transmission lines	Analyze
		Determine the dielectric strength of oil and the efficiency of string insulators	Evaluate
		Explain Voltage and current relay settings	Understand
		Measure the capacitance of three core cable	Evaluate
		Understand the operation of Differential protection of transformer	Understand
PW761EE	Project Work-I	Rephrase the basic concepts of electrical engineering and discover the implementation	Analyse
		Develop the design and analysis of a particular problem in project	Apply
		Formulate the programming and interpret the project	Create
		Develop the hardware	Create
		Perceive the practical knowledge within the chosen area of technology for project development	Evaluate
		Evaluate different solutions based on economic and technical feasibility	Create
PW762EE	Summer Internship	Select the task or realize a prespecified target, with limited scope, rather than taking up a complex task and leave it.	Remember
		Outline the alternate viable solutions for a given problem and evaluate these alternatives with reference to prespecified criteria.	Understand
		Choose the selected solution and document the same.	Apply
		Examine with industrial experts to familiarize the work culture and ethics of the industry.	Analyse
		Determine and enhance the confidence while communicating with industry engineers.	Evaluate
		Design/develop a small and simple product in hardware or software.	Create

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Department of Electrical and Electronics Engineering

Course Outcomes

AY: 21-22 **VIII Semester**

Course Code	Course Name	Course Outcomes	Taxonomy
PE515EE	Power System Operation and Control	Solve load flow by appropriate modeling of the given power system and formulation of Y bus.	Apply
		Evaluate generation mix for economic operation with and without transmission losses.	Evaluate
		Explain load frequency control and estimate the frequency deviation through modeling.	Understand
		Analyse and describe different types of power system stability and establish SSSL.	Analyse
		Identify various methods of voltage control and study the reactive power compensation.	Apply
		Design the railway steel bridges and bridge bearings	Create
PE514EE	Smart Grid Technology	Understand what technologies are using for smart grid.	Understand
		Compare smart grid and power grid	Understand
		Classify the technologies used for smart grid technology	Understand
		Analyze communication and measuring methods in smart grid	Analyze
		Understand distribution and transmission in smart grid	Understand
		Understand various control technologies in smart grid system.	Understand
OE801CE	Road Safety Engineering	Demonstrate about road accidents and its study objectives. Prepare accident investigation reports and database based on data collected.	Understand
		Apply design principles for roadway geometrics improvement with various types of traffic safety appurtenances/tools	Apply
		Explain the road safety design operations, counter measures & characteristics to manage traffic including incident management	Understand
		Illustrate the concept of Road Safety Auditing its principles, procedures and code of good practice and checklists	Understand

		Explain about design and working principles of road signs and traffic signals	Understand
		Describe applications of ITS in effectively managing the traffic incidents.	Understand
PC463EE	Digital Signal Processing Lab	Develop code to generate basic waves	Apply
		Develop code perform basic operations on them	Apply
		Develop code to obtain linear and circular convolution	Apply
		Develop code to obtain DFT and FFT.	Apply
		Develop code to design FIR filters.	Apply
		Develop code to design IIR filters	Apply
PW703EE	Project work -II	Rephrase the basic concepts of electrical engineering and discover the implementation	Analyse
		Develop the design and analysis of a particular problem in project	Apply
		Formulate the programming and interpret the project	Create
		Develop the hardware	Create
		Perceive the practical knowledge within the chosen area of technology for project development	Evaluate
		Evaluate different solutions based on economic and technical feasibility	Create

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Department of Electrical and Electronics Engineering

Course Outcomes

AY: 21-22

VI Semester

Course Code	Course Name	Course Outcomes	Taxonomy
PC240EE	Power Systems-II	Develop Control Circuits for remote control and interlocking of electric drives	Create
		Explain the concept of protection of motors using various protecting equipments	Understand
		Develop control circuits for starting and braking of induction motors	Create
		Develop control circuits for starting and braking of synchronous motors	Create
		Develop control circuits for starting and braking of DC motors	Create
		Develop driver circuits for stepper motor	Create
PC241EE	Electrical Measurements and Instrumentation	To explain the different types and constructions of dc and single phase / three phase ac measuring equipment used along with their governing equations	Understand
		Understand the construction and applications of ac meters, their errors, compensation and testing.	Apply
		To identify, out of the various methods using bridge circuits available , for the determination of electrical parameters of Resistance , Inductance Capacitance, and frequency and the importance of gauges and transducers	Apply
		To utilize the importance of B – H curve in electrical apparatus as in CTs and PTs and their errors	Apply
		To Examine the use of ac and dc Potentiometers for use in calibration of meters.	Analyze
		To appraise the importance of special meters like MDI, PF , Frequency , synchro scopes , strain gauges and transducers	Evaluate
PC242EE	Digital Signal Processing and Applications	Classify discrete-time signals and discrete-time systems and determine the response of discrete-time system to a given input.	Understand
		Solve the frequency response of the discrete-time system by applying z-transform to the systems	Apply

		Determine the Discrete-Time Fourier Transform of discrete-time systems	Evaluate
		Find the Discrete Fourier Series coefficients of discrete-time signals and represent discrete-time systems in terms of Discrete Fourier Series coefficients	Remember
		Modify the method of evaluating the Discrete Fourier Transform of discrete-time signals by using Fast Fourier Transform, thereby reducing the computational efforts	Create
		Analyze the characteristics of digital Finite Impulse Response (FIR) filters and digital Finite Impulse Response (FIR) filters and design digital Finite Impulse Response (FIR) filters and digital Infinite Impulse Response (IIR) filters	Analyze
PC243EE	Utilization of Electrical Energy	List and Compare the various Heating and Welding methods and equipment related	Understand
		Explain Schematic utilization, switches and connection diagram for Motor Control	Understand
		Apply illumination concepts and laws for efficient and economic lightning in industries, streets and offices	Apply
		Analyze systems of electric traction, traction motors and parameters	Analyze
		Illustrate batteries maintenance and construction and rating of batteries	Understand
		Analyze the utilization of electric energy for various applications	Analyze
OE1	Soft Skills & Interpersonal Skills	Train the students in effective listening skills required for comprehending and performing the required tasks in Professional Communication	Apply
		Enable the students to develop the required speaking skills as per the necessary objective in Professional Communication	Create
		Equip the students with appropriate reading, comprehending & summarizing strategies for the prescribed professional assignment	Analyse
		Develop professional writing & publishing skills among students	Create
		Empower the students with the Right Attitude and Coping Techniques required Professionally	Create
		Inculcate potential skills in the learners to prepare them to deal with the external world in a collaborative manner,	Apply

		communicate effectively, take initiative, think creative, manage stress, solve problems, demonstrate a positive work ethic and facilitate life-long learning	
OE2	Disaster Mitigation	Define the various terminology and gain understanding of disaster mitigation and management	Understand
		Classify natural and man-made disasters and their causes and effects	Apply
		Understand the disaster management cycle and framework and its applications	Understand
		Gain knowledge of disaster management in India	Understand
		Explain the role of science and technology in disaster management	Understand
		Create innovative solutions for Disaster Mitigation and Management	Create
PC266EE	Electrical Machines-II Lab	Verify the theory and working of electrical machines through laboratory experimental work.	Understand
		Make circuit diagram connections to perform experiments, measure, analyze the observed data to come to a conclusion.	Evaluate
		Organize reports based on performed experiments with effective demonstration of diagrams and characteristics/graphs.	Analyze
		Determine the different parameters of a three-phase alternator and its regulation	Understand
		Determine the different parameters of a three-phase synchronous motor as well as its 'V' and 'inverted V' curves	Analyze
		Compare the performance characteristics of different electrical machines.	Create
PC267EE	Measurements and Instrumentation Lab	Demonstrate measurement of resistance, inductance and capacitance.	Analyze
		Determine the error and calibrate the energy meter.	Apply
		Calibrate ammeter, voltmeter and wattmeter using potentiometer.	Analyze
		Assess the iron loss of given specimen	Analyze
		Determine the amplitude and frequency of an unknown signal.	Apply
		Determine the error and calibrate the power factor meter	Apply
PC268EE	MPMC Lab	Adapt the knowledge of Architecture of 8086 and 8051, writing assembly language programming for different applications.	Create
		Explain types of microcontrollers and their applications.	Understa

		Develop a write programs to run on 8086 microprocessor based systems.	Apply
		Define the techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.	Remember
		Interpret the difference between Microprocessors and Microcontrollers.	Evaluate
		Simplify and design system using memory chips and peripheral chips for 16-bit 8086 microprocessor.	Create
PC901 EE	Summer Internship	Select the task or realize a prespecified target, with limited scope, rather than taking up a complex task and leave it.	Remember
		Outline the alternate viable solutions for a given problem and evaluate these alternatives with reference to prespecified criteria.	Understand
		Choose the selected solution and document the same.	Apply
		Examine with industrial experts to familiarize the work culture and ethics of the industry.	Analyse
		Determine and enhance the confidence while communicating with industry engineers.	Evaluate
		Design/develop a small and simple product in hardware or software.	Create

Dept. Assessment Committee coordinator

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Methodist College of Engineering and Technology

Department of Electrical and Electronics Engineering

Course Outcomes

AY: 21-22 IV Semester

Course Code	Course Name	Course Outcomes	Taxonomy
HS102EG	Effective Technical Communication in English	Define the fundamentals of Technical Communication and relate the knowledge to differentiate between general and technical writing.	Remember
		Demonstrate the ability to choose the right mode of Written Communication in Official Correspondence	Understand
		Classify various types of Reports to competently use them based on the requisite	Analyse
		Determine the importance of using and writing different kinds of Manuals along with their Classification.	Evaluate
		Make use of various kinds of visual aids and develop the skill to use them appropriately in their presentations	Apply
		Compile both Oral and Visual Presentation Skills to be able to adapt to the changing scenario of the present day	Create
PC408EE	Power Systems-I	Explain to the power /Energy demand in the form of graph Base Load and Peak Load	Understand
		Formulate A.C and D.C distribution networks for necessary variable calculation	Create
		Make use of Understand and acquire knowledge about various power generation.	Apply
		Discuss to Ability of various power sources for generation of power Merit/Demerits	Create
		Analyze to Supports sag and tension and String efficiency.	Analyze
		Modeling and calculating of transmission line parameters and power system components for a specified system and application	Analyze
ES305EE	Energy Sciences and Engineering	Understand the basics of various sources of energy	Understand
		Demonstrate and understand the working of different power plants of conventional energy sources	Understand

		Analyze the working principles in generating of power using solar and wind sources	Analyze
		Analyze the power generation using the ocean energy and geothermal sources	Analyze
		Analyze Waste recovery systems and energy storage systems	Analyze
		Examine the pollution control methods , BEE standards, future needs and challenges, Estimation of cost in power production	Analyze
PC409EE	Electrical Machines-II	Summarize the construction, working principle and performance of Transformers, 1-phase and 3-phase Induction Motors	Understand
		Determine the construction, working principle, performance, starting and speed control of 1-phase and 3-phase Induction Motors.	Evaluate
		Identify the construction, working principle and performance of Transformers and Induction motors.	Apply
		Examine the rating, testing and applications of single phase, three phase transformers.	Analyze
		Adapt the knowledge of Rotating magnetic field theory, Double field revolving theory	Create
		Find the equivalent circuit diagram of transformer, three-phase induction motor and single-phase induction motor	Remember
PC410EE	Digital Electronics and Logic Design	Explain number system, codes, Boolean algebra, basic gates and different logic families	Understand
		Apply Boolean laws and K-Map methods to reduce the logic functions and Binary arithmetic	Apply
		Apply and develop combinational digital circuits to realize functions	Apply
		Design and analyze sequential logic circuits using Flip-Flops like registers ,counters	Create
		Design various A/D and D/A converters	Create
		Design various logic gates from simple to complex PLD and Arrays	Create
PC411EE	Power Electronics	Explain the characteristics and performance of various power electronic devices.	Understand
		Classify firing circuits of SCR and commutation circuits of SCR	Understand
		Analyze single and three phase controlled rectifier circuits.	Analyze
		Analyze the performance of AC voltage controllers & choppers circuits	Analyze

		Analyze the performance of single phase inverter circuits.	Analyze
		Explain the operation of three phase voltage source inverters.	Understand
PC455EE	Electrical Machines-I Lab	Apply and Conclude the principles of Electrical Machines through laboratory experimental work.	Evaluate
		Construct the circuit to perform experiments, measure, analyze the observed data &come to a conclusion.	Apply
		Organize reports based on performed experiments with effective demonstration of diagrams and characteristics /graph	Apply
		Demonstrate the starting & speed control of various DC motors	Understand
		Determine efficiency & voltage regulation of electrical machines by various test.	Evaluate
		Compare the performance characteristics of different electrical machines.	Analyze
PC456EE	Power Electronics Lab	Classify and design different triggering circuits of SCR and MOSFET.	Create
		Analyze different commutation circuits of SCR	Analyze
		Explain and make use of controlled rectifiers to control the speed of DC motors	Apply
		Explain the applications of cyclo-converters and AC voltage controllers	Apply
		Analyze Chopper circuits	Analyze
		Design and Simulate different power electronics circuits using MATLAB software	Create
PC457EE	Digital Electronics and Logic Design Lab	Demonstrate working of logic gates and logic families	Understand
		Examine and realization of combinational logic circuits and use of PLC's	Analyze
		Examine the process of A/D and D/A conversion	Analyze
		Interpret sample and hold circuit, multiplxer	Understand
		Analyze the working of sequential circuits	Analyze
		Design the code converters, coders, and flip flops using Multisim	Create

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METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY

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DEPARTMENT OF MECHANICAL ENGINEERING

BE COURSE OUTCOMES | VII SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	PC701ME	Operations Research	CO1	Apply mathematical model (linear programming problem) for a physical situations like production, distribution of goods and economics	Apply
			CO2	Apply the concept of simplex method and its extensions to dual simplex algorithms.	Apply
			CO3	Analyze the various methods under transportation model and apply the model for testing	Analyze
			CO4	Apply the various replacement policy and gaming strategies for arriving at optimal decision	Analyze
			CO5	Analyze and Applying the knowledge of sequencing model and to develop optimum model for job scheduling	Analyze
			CO6	Analyze the Queuing theory models and Optimization techniques.	Analyze
2	PC702ME	Refrigiration and Air Conditioning	CO1	Relate methods of refrigeration and importance of refrigerant selection	Understand
			CO2	Design Air refrigeration and VCR system with methods o improve perfromance	Create
			CO3	Compare VAS with VCR system, steam jet refrigeration and Thernoelectric refrigeration	Understand
			CO4	Identify various air conditioning processes on Psychrometric Chart	Apply
			CO5	Design Air Conditioning System with use of psychrometric chart	Create
			CO6	Explain the types of air conditioning systems, components and applications	Understand
3	PC711ME	Industrial Engineering	CO1	Apply the knowledge of scientific management in industrial environment	Apply
			CO2	Demonstrate the importance of production planning & control in manufacturing industry	Understand
			CO3	Estimate the appropriate inventory control models and financial management practice are applied in industries	Evaluate
			CO4	Analyses the quality control charts and sampling plan in production unit.	Analyse
			CO5	Apply the concept of decision making theory and uncertainty risk in work place.	Apply
			CO6	Develop industrial engineering concepts in industrial environment	Create
		brid	CO1	Choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources	Apply

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DEPARTMENT OF MECHANICAL ENGINEERING

BE COURSE OUTCOMES | VII SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
4	PC713ME	Basics of Electrical and Hybrid Vehicle	CO2	Design and develop basic schemes of electric vehicles and hybrid electric vehicles.	Evaluate
			CO3	Choose proper energy storage systems for vehicle applications	Understand
			CO4	Identify various communication protocols and technologies used in vehicle networks	Analyze
			CO5	Choose a suitable drive scheme for developing an electric hybrid vehicle depending on resources	Create
			CO6	Sizing The Drive System, propulsion motor,sizing the power, electronics	Understand
5	PE721ME	Additive Manufacturing Engineering	CO1	Describe the fundamentals of additive manufacturing,classify and explain advantages and disadvantages of AM process	II. Understand
			CO2	Describe the operating principles ,capabilities and limitations of liquid and solid based additive manufacturing systems.	II. Understand
			CO3	Expalin the operating principles,specifications,advantages and disadvantages of powder based additive manufacturing sysytems.	II. Understand
			CO4	Selection of correct CAD data formats and softwares and AM software skills in additive maufacturing technology.	IV. Analyze
			CO5	Applying the capabilities of additive manufacturing in different industrial sectors.	III. Apply
			CO6	Exploring the different applications of AMT and applying it in various fields through AM softwares.	III. Apply
6	PE722ME	Robotics Engineering	CO1	Recognize the parts of a robot, identify its category, specifications, parts & their functions.	Understand
			CO2	Choose suitable robots for different Industrial applications based on degrees of freedom, type of end effector and other specifications.	Apply
			CO3	Perform forward kinematic analysis using homogeneous transformation matrices & Find Jacobean in the velocity domain.	Analyze
			CO4	Perform Inverse Kinematics analysis, convert a world space problem to joint space problem & develop dynamical equations for control of robots.	Analyze
			CO5	Perform trajectory planning, implement independent joint control & Justify suitability of different control methods.	Apply
			CO6	Interface various hardware and software components to develop robotic systems for industry & evaluate their performance	Apply

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S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
7	OE 701 CE	GBT- Green Building Technology	CO1	Explain the concepts of sustainability and a green buildings, along with its features and benefits.	Understand
			CO2	Describe the criteria and methods used for site selection & planning and in achieving water efficiency in green buildings.	Understand
			CO3	Define the terms and explain the methods used for achieving energy efficiency in green buildings.	Understand
			CO4	Discuss the various types of building materials and waste management methods for a sustainable built environment.	Understand
			CO5	Describe the methods used to maintain indoor environmental quality.	Understand
			CO6	List and explain the various Green Building Rating systems applicable in India, and also the standard national and international codes related to green building practices.	Understand
8	OE701EE	Non Conventional Energy Sources	CO1	Understand the different nonconventional sources and the power generation techniques to generate electrical power.	Understand
			CO2	Understand the fuel cell developments and applications.	Understand
			CO3	Understand the solar energy power development and different applications.	Understand
			CO4	Understand different wind energy power generation techniques and applications.	Understand
			CO5	Understand different ocean energy generation, geothermal and application.	Understand
			CO6	Understand the biomass conversion techniques.	Understand
9	PW721ME	Project Work - I	CO1	Adapt the attitude of writing reviews on the literature	Create
			CO2	Develop practical & professional skills	Apply
			CO3	Apply the tools and technicals of documentations	Apply
			CO4	Make use of the Team work	Apply
			CO5	Develop to the industrial practice and Research Practices	Apply
			CO6	Develop skill to work with Innovative and entrepreneurial ideas	Apply

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S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	PC 501 ME	FMHM - Fluid Mechanics and Hydraullic Machinery	C301.1	Understand the properties of the fluid and measurement of pressure	Understand
			C301.2	Analyze the different types of fluid flows and Applications of Bernaullis equation	Analyze
			C301.3	Analyze the flow between parllel plates and in pipes	Analyze
			C301.4	Design and working of various types of turbines and able to draw the performance characteristic curves of turbines.	Create
			C301.5	Explain the working principles of pumps and estimate the perforamnace of the pump	Evaluate
			C301.6	Analyze the amount of work save by fitting an air vessel to reciprocating pumps.	Analyze
2	PC 502 ME	DME - Design of Machine Elements	C302.1	Evaluate and Determine the stresses using concepts of Theories of failure, and to select proper material for machine components.	Evaluate
			C302.2	Evaluate the Failure stress of machine components using fatigue theories of failure	Evaluate
			C302.3	Evaluate size of the machine components for torque transmission, bending and axial loads	Evaluate
			C302.4	Analyze the fasteners required for a given application and predicting its efficiency	Analyze
			C302.5	Analyze type of joints, power screws.	Analyze
			C302.6	Differential and compound screws and predicting its efficiency	Analyze
3	PC 503 ME	DOM - Dynamics of Machines	C303.1	Understand the gyroscopic effects in ships, aero planes and road vehicles	Understand
			C303.2	Analyze and design centrifugal governors& Flywheels	Analyze
			C303.3	Analyze balancing problems in rotating machinery	Analyze
			C303.4	Analyze balancing problems in reciprocating machinery	Analyze
			C303.5	Understand free and forced vibrations of single degree freedom systems	Understand
			C303.6	Understand Torsional vibrations of single degree freedom systems	Understand

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S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
4	PC 504 ME	MCMT- Metal Cutting and Macine Tools	C304.1	Explain the Tool geometry, tool materials, desired tool properties, tool life, methods of machining, Chip formation, heat generation, Machining operations, cutting fluids, tool and work holding devices etc.	Understand
			C304.2	Develop relations for chip reduction coefficient, shear angle, shear strain, forces, power, specific energy and temperatures associated orthogonal cutting.	Analyze
			C304.3	Illustrate the working principle, constructional features and specifications associated with common machine tools and U C M P.	Understand
			C304.4	Identify a suitable machine tool for a particular machining operation while calculating tool life and can compare one machining process with other or one equipment with other	Apply
			C304.5	Analyse Tool life, Economics of machining MRR, power consumption and other process parameters for various conventional and U C M P.	Analyze
			C304.6	Design Jigs and Fixtures for various modern machining processes.	Create
5	PC 505 ME	HT - Heat Transfer	C305.1	Describe heat conduction problems in rectangular, cylindrical and spherical coordinates	Understand
			C305.2	Analyze heat transfer through the fins and familiarize with the time dependent heat transfer	Analyze
			C305.3	Estimate the convective heat transfer coefficient in Free and Forced convection	Evaluate
			C305.4	Determine the radiation heat transfer by calculating the emissivities and shape factors.	Evaluate
			C305.5	Determine the LMTD and NTU in heat exchangers	Evaluate
			C305.6	Explain the mechanisms involved in boiling and condensation.	Understand
6	PC 591 ME	Thermal Engg Lab II	C306.1	Analyze the effective thermal resistance in composite slabs and thermal conductivity of metal bar	Analyze
			C306.2	Evaluate heat transfer coefficient in Free &Forced convection.	Evaluate
			C306.3	Evaluate the effectiveness and efficiency of parallel flow and counter flow heat exchanger	Evaluate
			C306.4	Analyze the COP of the Refrigeration test Rig and pressure distribution of specimen in wind tunnel	Analyze

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BE COURSE OUTCOMES | V SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
		TE Lab - 2	C306.5	Analyze the overall efficiency of axial flow fan &Centrifugal blower	Analyze
			C306.6	Evaluate the surface emissivity of a test plate& Stefan Boltzmann constant	Evaluate
7	PC 592 ME	Dynamics of Machines Lab	C307.1	Analyze the performance and draw the characteristic curves for different types of governors.	Analyze
			C307.2	Evaluate the effect of gyroscopic couple at different speeds.	Evaluate
			C307.3	Evaluate kinematic and dynamic behavior of different types of	Evaluate
			C307.4	Evaluate static and dynamic balancing of rotating masses.	Evaluate
			C307.5	Analyze natural frequencies of various beams with different	Analyze
			C307.6	Determine the critical speed for shafts of various diameter.	Evaluate
8	PC 593 ME	FMHM Lab- Fluid Mechanics and Hydraulic Machinery Lab	C308.1	Determine the impact of jet on different types of vanes	Evaluate
			C308.2	Determine the efficiencies of various pumps and draw the characteristic curves.	Evaluate
			C308.3	Determine the efficiencies of various turbines and draw the characteristic curves.	Evaluate
			C308.4	Evaluate the coefficient of discharge of various flow meters and draw the characteristic curves.	Evaluate
			C308.5	Explain the principle of Hydraulic Circuit	Understand
			C308.6	Explain Pneumatic Circuits by studying the models.	Understand

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III Semester - BE COURSE OUTCOMES for ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	BS205MT	Mathematics III	CO1	Find the general solutions of the given differential equations.	Remember
			CO2	Solve the wave equation, heat equations and laplace equations of given problems	Apply
			CO3	Solve the desrete and continuos random variables and distibutions.	Apply
			CO4	Examine the correlation coefficient and rank correlation for the given data.	Analyze
			CO5	Determine straight line equation ,parabola equation and exponential equation.	Evaluate
			CO6	Evaluate t-distibution F-distribution and chisquare distibutions.	Evaluate
2	ES211ME	Engineering Mechanics -1	CO1	Apply the fundamental concepts of forces, equilibrium conditions for static loads.	Apply
			CO2	Determine the Centroid and moment of inertia for cross various sections.	Evaluate
			CO3	Analyse the forces in the members of a truss using method of joints and method of sections	Analyze
			CO4	Explain the concept of friction for single and connected bodies.	Understand
			CO5	Apply the basic concepts of dynamics, their behaviour, analysis and motion bodies	Apply
			CO6	Solve problems involving work energy principles and impulse momentum theory.	Apply
3	ES304EC	Basic Electronics	CO1	Explain the basic knowledge on the working of various semi-conductor devices and there importance in the present electronics	Understand
			CO2	Apply and develop analysis capability in BJT and FET Amplifier Circuits	Apply
			CO3	Make use of knowledge on design trade-offs in various digital electronic families with a view towards reduced power consumption	Apply
			CO4	Examine Operational Amplifier circuits as Summer, differentiator, integrator, inverting and non inverting amplifiers as ideal and practical	Analyze
			CO5	Evaluate Boolean laws and theorems. State and explain the different logic gates using truth table. Analyze and design different adder circuits.	Create
			CO6	Design the circuit to produce pure DC using regulators, and produce sinusoidal oscillations with different frequencies using oscillator circuits	Create
		nglish	CO1	Develop an understanding of fundamentals of Technical Communication and handle technical communication effectively	Understand

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III Semester - BE COURSE OUTCOMES for ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
4	HS102EG	Effective Technical Communication in E	CO2	Demonstrate the ability to choose the right mode of Written Communication in Professional Correspondence	Apply
			CO3	Analyze and differentiate various types of Reports and use various techniques of Report writing appropriately based on the requisite.	Analyze
			CO4	Determine the importance of using and Writing different kinds of Manuals,their Classification,and acquire adequate skills of manual writing	Analyze
			CO5	Estimate the deliberate value of a Visual Aid along with its usage , through the understanding of Informatioon Transfer from Verbal to Non-Verbal and Non-Verbal to Verbal.	Evaluate
			CO6	Combine the Skill of both Oral and Visual Presentation Skills and be able to adapt to the changing scenerio of the present day.	Create
5	HS103CM	Finance and Accounting	CO1	Understand the basic concepts of financial accounting&classify preparation of various books of accounts	Understand
			CO2	Analyze & interpret financial statements.	Analyze
			CO3	Interpret knowledge about the functioning & working of various financial institutions.	Understand
			CO4	Apply traditional & modern techniques of capital budgeting in long term investments, to test whether to invest in a particular project or not.	Apply
			CO5	Analyze the liquidity ,solvency & profitability of financial statements.	Analyze
			CO6	Evaluate the financial performance of the business unit.	Evaluate
6	PC401ME	Metallurgy and Material Science	CO1	Explain the structure of materials at various levels and testing their mechanical properties.	Understand
			CO2	Describe fatigue, creep failure and experimentally determine fatigue, creep strength, also list different types of fracture.	Understand
			CO3	Explain phase diagrams and identify various phases, composition by analyzing the phase diagrams.	Analyze
			CO4	Classify different types of plain carbon steels, cast irons and explain their applications.	Analyze
			CO5	Explain various heat treatment techniques, effects of the alloying elements on the properties of steel and select various alloying elements for a particular engineering application.	Apply
			CO6	Explain the properties, of non-ferrous metals, ceramics, polymers, composites and choose a particular material for an application.	Apply
		ics	CO1	Define Thermodynamics concept of Zeroth law of thermodynamics, Temperature Scales and Thermodynamics Equilibrium, partial pressures and partial volumes	Remember

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III Semester - BE COURSE OUTCOMES for ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
7	PC222ME	Thermodynami	CO2	Evaluate Heat and work interactions and calculate work done during flow processes	Evaluate
			CO3	Determine of entropy change during various thermodynamic processes	Evaluate
			CO4	Make use of steam Tables and Mollier diagram for properties of steam	Apply
			CO5	Determine efficiency of power cycles	Evaluate
			CO6	Solve the problems on heat engine, heat pump and refrigerator	Apply
8	PC451ME	Metallurgy & Material Testing Lab	CO1	Apply the procedure for preparing the sample for metallographic observation.	Apply
			CO2	Identify different materials by examining the phases in their microstructure.	Apply
			CO3	Analyze the effects of various heat treatment by studying the grain structure	Analyze
			CO4	Determine the tensile, compressive and impact strength for various materials	Evaluate
			CO5	Measure hardness, shear strength and check their suitability for a given design requirement.	Evaluate
			CO6	Determine the shear force,bending moment and Youngs modulus of different beams under various loading conditions.	Evaluate
9	PC452ME	M.D.M Lab - Machine Drawing and Modeling Lab	CO1	Develop the skills in draftingvarious machine components using AutoCad software.	Understand
			CO2	Interpret the conventions & symbols used in technical drawings into their physical meanings & vice versa	Understand
			CO3	Construct orthographic views of simple machine components.	Apply
			CO4	Demonstrate the working knowledge in solidworks to model, assemble and generate orthographic views.	Understand
			CO5	Develop 3D models, assemble and generate drawings of components using Solidworks.	Evaluate
			CO6	Observe 3D interactive CAD models and determine the steps used in modelling them.	Evaluate

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BE COURSE OUTCOMES | VIII SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	PE826ME	Power Plant Engineering	CO1	Identify the various sources of energy for power generation and explain the working of various sub systems such as coal handling, ash handling in a steam power plant.	Apply
			CO2	Combustion process descriptions and the various sub systems in air and gas circuit, feed water and cooling water circuit and the working of gas turbine power plants.	Understand
			CO3	Explain the working of a hydro power plant & Nuclear power plant	Understand
			CO4	Describe the working of a nuclear power plant and hazard involved	Understand
			CO5	Estimate the cost of power generation and the environmental effects of various power plants	Evaluate
			CO6	Explain the hydrological cycle and water power for electric generation	Understand
2	PE823ME	Entreprenuership Development	CO1	Understand Indian Industrial Environment, Entrepreneurship and Economic growth, Small and Large Scale Industries, Types and forms of enterprises.	Understanding
			CO2	Identify the characteristics of entrepreneurs, Emergence of first generation entrepreneurs, Understand and Practice the conception and evaluation of ideas and their source and choice of technology.	Applying
			CO3	Understand and Practice the principles of project formulation, analysis of market demand, Financial and profitability analysis and Technical analysis and evaluate the technical feasibility and financial viability of a project.	Evaluate
			CO4	Understand and Apply the concepts of Project Management during construction phase, project organization, project planning and control using CPM, PERT techniques.	Applying
			CO5	Understand and Practice the Behavioral aspects of entrepreneurs, Leadership concepts and models, values and attitudes and motivation aspects.	Applying
			CO6	Understand and Apply Time Management, various approaches of time management, urgency addiction and time management matrix.	Applying

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BE COURSE OUTCOMES | VIII SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
3	OE801CE	RSE- Road Safety Engineering	CO1	Demonstrate about road accidents and its study objectives. Prepare accident investigation reports and database based on data collected.	Understand
			CO2	Apply design principles for roadway geometrics improvement with various types of traffic safety appurtenances/tools	Apply
			CO3	Explain the road safety design operations, counter measures & characteristics to manage traffic including incident management	Understand
			CO4	Illustrate the concept of Road Safety Auditing its principles, procedures and code of good practice and checklists	Understand
			CO5	Explain about design and working principles of road signs and traffic signals	Understand
			CO6	Describe applications of ITS in effectively managing the traffic incidents.	Understand
4	PW961ME	Project Work- II	CO1	Adapt the attitude of writing reviews on the literature	Create
			CO2	Develop practical & professional skills	Apply
			CO3	Apply the tools and technicals of documentations	Apply
			CO4	Make use of the Team work	Apply
			CO5	Develop to the industrial practice and Research Practices	Apply
			CO6	Develop skill to work with Innovative and entrepreneurial ideas	Apply

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BE COURSE OUTCOMES | VI SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	PC601ME	MD - Machine Design	CO1	Demonstrate the various types of springs, and analyze for static and fluctuating loads.	Analyze
			CO2	Evaluate the various types of gears, and analyze for static, dynamic and wear loads.	Evaluate
			CO3	Exhibit the ability in design of sliding contact bearing using different empirical relations	Apply
			CO4	Exhibit the ability in design rolling contact bearing and as well as selection of appropriate rolling contact bearings.	Evaluate
			CO5	Design of IC engine parts under mechanical shock and thermal loads.	Create
			CO6	Expertise with the component design according to standards and suggested techniques, which is important in the design and development of machines in industry.	Create
2	PC602ME	M&I - Metrology & Instrumentation	CO1	Explain the concepts of limits , fits and tolerances and their applications, gauges (plug, ring & snap), end bars, linear & angular measurements by Vernier, Micrometers, Sine bar, Autocollimators.	Understand
			CO2	Explain the design of limit gauges, evaluate roughness and its measurement, the concepts of comparators along with their types, Optical projectors, and Microscopes for measuring flatness, roundness & coordinate geometrics.	Understand
			CO3	Explains the importance of surface roughness & its measurement, gear tooth concepts with measurement, & testing of machine tools like lathe, drill & milling.	Understand
			CO4	Illustrate the basic measuring system, static and dynamic characteristics of instruments and different transducers for measuring displacement, strain, load & torsion	Understand
			CO5	Describe the concepts and various principles to measure pressure, displacement, , acceleration force, torque and vibrations temperature (thermoelectricity) with various gauges, tubes, series and parallel circuits by Explaining the principles thoroughly	Remember
			CO6	Explain the basic manufacturing systems,Working Principles of various measuring instruments & Design/create aninstrument to measure any physical property of the existing system	Understand
3	PC603ME	ite Element Analysis	CO1	Understand equations of elasticity and formulate finite element modeling of one dimensional element using Potential energy approach .	Understand
			CO2	Create finite element modeling of truss and frame elements	Create
			CO3	Rember Hermitian shape function of beam element in natural coordinate system.	Remember
			CO4	Create stiffness matrix for a plane stress & plane strain conditions on a CST, Axisymmetric elements .	Create

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S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
		FEA - Fin	CO5	Analyse finite element model to steady state heat transfer analysis using one & two dimensional elements	Analyze
			CO6	Rember mass and stiffness matrices of 1D & beam elements to establish Eigen values &Eigen vectors using Lagarangian and Hamilton principles.	Remember
4	PE612ME	AE - Automobile Engineering	CO1	Explain the different parts and constructional details of the automobile engines.	Understand
			CO2	Identify the working of various systems like engine lubricating system and cooling system, types of ignition system and different batteries used in automobile.	Apply
			CO3	Analyse, the working principle of steering and suspension systems and constructional details of wheels and tyres of automobile.	Analyze
			CO4	Evaluate the constructional and working principle of braking system and its importance in Automobile engines.	Evaluate
			CO5	Evaluate the power generation in engine and transmissions of power from the engine to wheels through the clutch plates and differential gear box.	Evaluate
			CO6	Develop the environmental implications of automobile emissions and strong base for Explaining future developments in the automobile industry.	Apply
5	PE622ME	POM - Production and Operations Management	CO1	Explain the production system and develop a suitable layout	Understand
			CO2	the forecasting and scheduling techniques to production system.	Remember
			CO3	Material requirement planning and analyze aggregate planning techniques.	Analyze
			CO4	Interpret the nature of inventory costs and solve the single period fixed quantity inventory model to suggest lot sizes	Understand
			CO5	explain PERT/CPM techniques for a given project and develop suitable quantitative models for the projects.	Understand
			CO6	Apply a wide variety of production and operation management problems in production and service organization	Apply
		: Skills	CO1	To train the students in effective listening skills required for comprehending and performing the required tasks in Professional Communicati	Remember
			CO2	To enable the students to develop the required speaking skills as per the necessary objective in Professional Communication	Understand
			CO3	To equip the students with appropriate reading, comprehending & summarizing strategies for the prescribed professional assignment	Apply

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S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
6		SS - Soft	CO4	To develop professional writing & publishing varieties of documents and required skills among students	Analyze
			CO5	To empower the students with the Right Attitude and Coping Techniques required Professionally	Evaluate
			CO6	To inculcate potential skills in the learners to prepare them to deal with the external world in a collaborative manner, communicate effectively, take initiative, think creative, manage stress, solve problems, demonstrate a positive work ethic and facilitate life-long learning	Create
7		DM - Disaster Mitigation	CO1	Define Disaster, Hazard, Vulnerability, Resilience, Risks and explain Natural and Manmade disasters	Remember
			CO2	Classify the environmental causes ,Impacts including , social, cultural, economic, legal and organizational aspects influencing vulnerabilities and capacities to face disasters	Understand
			CO3	Classify disasters and destructions due to cyclones floods and droughts	Understand
			CO4	Explain Disaster cycle, its analysis, Phases, Culture of safety, prevention, mitigation and preparedness community based DRR	Understand
			CO5	Describe Factors affecting Vulnerabilities, differential impacts, impact of development projects , Climate Change and Relevance of indigenous knowledge, appropriate technology and local resources.	Understand
			CO6	Experience on conducting independent DM study including data search, analysis and presentation of disaster case study component of disaster relief.	Apply
8	PC691ME	M&MT Lab - Metrology & Machine Tools Lab	CO1	Select and apply the knowledge of measuring tools for external, internal and angular measurements , machine alignment for promoting the qualitative production management.	Apply
			CO2	Adapt the principles of optical measurements in measurement of screw and gear profiles	Create
			CO3	select the appropriate methods of force measuring devices principles for required situation, calibration principles for maintaining the required precision of instruments / tools.	Understand
			CO4	Conduct tests to determine temperatures, Shear angle, cutting forces and tool life in metal cutting	Apply
			CO5	Select the cutting tool materials and Geometries along with appropriate cutting conditions for different work materials and grind the cutting tools to the required geometry.	Understand
			CO6	Recog nise and summarize the features and applications of various machine tools like Lathe , Milling ,Drilling ,Grinding ,Shaping , Slotting etc.	Understand

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METHODIST

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DEPARTMENT OF MECHANICAL ENGINEERING

BE COURSE OUTCOMES | VI SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
9	PC692ME	CAE Lab - Computer Aided Engineering Lab	CO1	Analyse 2D, 3D truss to determine stress and strain in mechanical memeber.	Analyze
			CO2	Measure internal Pressure in case of Curved shell.	Evaluate
			CO3	Measure buckling & natural frequencies and mode shapes of Cantilever Beam.	Evaluate
			CO4	Analyse static stress analysis in case of plate with a hole .	Analyze
			CO5	Analyse two dimesional heat conduction in case of a plate .	Analyze
			CO6	Evaluate Heat Conduction in case of composite wall.	Analyze
10		SI - Summer Internship	CO1	Explain and identify various materials, processes, products and their applications and limitations.	Understand
			CO2	Apply the fundamental and advanced Technical / Engineering knowledge in real industrial situations.	Apply
			CO3	Explain the importance and learn through experience professional ethics, communication and adaptability skills to work in teams to solve real life problems.	Evaluate
			CO4	Explain the social, economic and administrative considerations that influence the working environment of industrial organizations.	Evaluate
			CO5	Explain and sharpen the real time technical / managerial skills required to meet the industry needs.	Understand
			CO6	Compile the information and knowledge gained from the internship and present a written document.	Create

Dept. Assessment Coordinator

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DEPARTMENT OF MECHANICAL ENGINEERING

BE COURSE OUTCOMES | IV SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	ES304ME	EM-II-Engineering Mechanics-II	CO1	Apply the laws of motion to study the kinematic parameters of rigid body motion	Apply
			CO2	Solve the problems involving translation of particle &rigid bodies by applying principles of kinetics.	Apply
			CO3	Analyze the rotation motion of rigid bodies by applying the principles of kinematics, kinetics of rotation and work energy principle.	Analyze
			CO4	Apply the laws of motion, kinematic and kinetic parameters of rigid body motion to analyse plane motion of rigid bodies.	Apply
			CO5	Formulate mathematical models of problems in vibrations	
			CO6	Solve the problems by applying D-Alembert's principle	Apply
2	PC403ME	FM- Fluid Mechanics	CO1	State the Newton's law of viscosity and Explain the mechanics of fluids at rest and in motion by observing the fluid phenomena	Understand
			CO2	Determine the fluid pressure and use various devices for measuring fluid pressure.	Apply
			CO3	Apply Bernoulli's equation to fluid flow problems and boundary layer theory to determine lift and drag forces on a submerged body	Apply
			CO4	Derive Euler's Equation of motion and Deduce Bernoulli's equation	Analyze
			CO5	Distinguish the types of flows and Determine sonic velocity in a fluid.	Understand
			CO6	To develop and apply laws of mass, energy and momentum conservation in compressible flow.	Apply
3	ES305ME	Energy Sciences and Engineering	CO1	Explain the basics of various sources of energy.	Understand
			CO2	Analyse the present status of conventional energy sources	Analyze
			CO3	Illustrate the working principles of Renewable Energy systems	Understand
			CO4	Analyse and Compare waste heat recovery systems and energy storage.	Analyze
			CO5	Relate energy economics, standards and future challenges	Understand
			CO6	Explain causes of pollution, control methods and relate to pollution standards	Understand
		ls	CO1	Understand the theory of elasticity including strain displacement and Hooke's law relationships. and analyzing Stress-Strain diagram.	Analyze

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DEPARTMENT OF MECHANICAL ENGINEERING

BE COURSE OUTCOMES | IV SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
4	PC404ME	MOM - Mechanics of Material	CO2	Analyse the shear stresses and bending moment diagrams with various types of loads (Such as point load, u.d.l and u.v.l). and understand the mohrs circle concept.(comparing uni-axial loading with multi axial loading)	Analyze
			CO3	Evaluate the bending and shear stresses in beams. and Strain energy in bars due to various loads.	Evaluate
			CO4	Evaluate the slope and deflections in beams subjected to transverse loads.	Evaluate
			CO5	Analyze various situations involving structural members subjected to combined stresses and solve the torsion problems in bars.	Analyze
			CO6	Evaluate practical problems on various springs.	Evaluating
5	PC405ME	Applied Thermodynamics	CO1	Analyze the behavior of reciprocating compressors.	Analyze
			CO2	Explain the thermal design and working principles of IC Engines and their supporting systems.	Understand
			CO3	Describe the working principle of IC Engines and combustion phenomenon of SI and CI engines and thermal design of Combustion chambers.	Understand
			CO4	Explain the thermal design and working principles of Power plant devices like Boilers & Condensers.	Understand
			CO5	Analyze the behavior of power plants based on the Ran-kine cycle, including the effect of enhancements such as superheat, reheat and regeneration	Analyze
			CO6	Analyze the working principle and flow through the Nozzles.	Analyze
6	PC406ME	Kinematics of Machinery	CO1	Recall & relate the theoretical terms, concepts used in Machine Kinematics; position, velocity & acceleration analysis; Friction & its applications; cams & gears with their practical applications.	Understand
			CO2	Determine the velocity & acceleration of any point on planar mechanisms with simple revolute & prismatic joints as well as gears & cams.	Apply
			CO3	Apply the knowledge of friction to solve problems on Belts/rope drives, Brakes & Dynamometers.	Apply
			CO4	Analyse the effect of variation in dimensions of a mechanism on motion (position, velocity & acceleration) using CAD software like OnShape or Fusion 360.	Analyze
			CO5	Evaluate the given mechanism for potential problems in the view of requirements provided & eliminate them.	Evaluate
			CO6	Fabricate working mechanisms using whatever material is easily available (including but not limited to plastic waste).	Create

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BE COURSE OUTCOMES | IV SEMESTER | ACADEMIC YEAR 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
7	PC407ME	Manufacturing Processes	CO1	Explain the process of pattern making,preparation of sand mould and designing the gating system in the casting industry.	Understand
			CO2	Identify the suitable special casting processes and causes of casting defects and its remedies.	Apply
			CO3	Select the appropriate joining process according to the industrial application.	Apply
			CO4	Illustrate the concept of solid state welding, and Examine the weldability and defects.	Understand
			CO5	Choose the appropriate metal forming techniques to produce the components.	Apply
			CO6	Demonstrate the plastic molding processes and concept of powder metallurgy in the manufacturing field.	Understand
8	PC453ME	Thermal Engineering Lab I	CO1	Determine volumetric efficiency and isothermal efficiency of a two stage reciprocating air compressor.	Evaluate
			CO2	Construct port timing diagram and valve timing diagram of internal combustion engine.	Apply
			CO3	Evaluate the performance of internal combustion engines	Evaluate
			CO4	Develop heat balance sheet of internal combustion engine	Create
			CO5	Determine the properties of given lubricating oil	Evaluate
			CO6	Analyze the frictional power of multi cylinder engine.	Analyze
9	PC454ME	Manufacturing Processes Lab	CO1	Explain the design of patterns, mould making procedures and testing the sand properties.	Understand
			CO2	Apply the various joining techniques to fabricate different geometries.	Apply
			CO3	Demonstrate the blanking and piercing operations for simple components.	Understand
			CO4	Explain the Applications of plastics and manufacture a simple component by using plastic injection moulding processes.	Understand
			CO5	Evaluate the mechanical properties of welded joints	Evaluate
			CO6	Select suitable manufacturing processes to manufacture the products optimally.	Apply

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Department of Humanities and Sciences

Course Outcomes - Group B (ECE, EEE, Civil,) SEM - 1 AY 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	BS101HS	MATHEMATICS-1	CO1	Find the rank of matrix and its use to find solution of linear equations,eigen value problem, Quadratic forms	Remember
			CO2	Explain the concepts of derivatives using mean value theorems and their generalization. Concepts of curvature, evolutes, involutes, envolpes of family cf curves	Understand
			CO3	Find Partial derivatives of functions of two variables using concept of limits and continuity and study the concepts of maximum and minimum of functions of two variables	Remember
			CO4	Identify the key concepts, theories and mathematical fundamentals to derive mathematical relations involved in evaluation of double integrals and triple integrals and solving Engineering problems	Understand
			CO5	Evaluate gradient of a scalar field, divergence, curl of a vector field to find the values of line, surface and volume integrals and establish their relation using Green, Gauss and Stokes theorems.	Analyse
2	BS106HS	CHEMISTRY	CO1	Apply the concept of electrode potential in identifying feasibility of electro chemical reaction, ellustrate electro anlytical techniques and working of batteries	Remember
			CO2	Identify the mechanism of corrosion of materials on basis of electrochemical approch and device corrosion control method. estimate the physical and chemical parametrs of quality of water and explain the process of water treatment	Understand
			CO3	Explain the influence if chemical structure on properties of materials and their choice in engineering applications.	Remember
			CO4	Classify chemical fules and grade them through qualitative analysis	Understand
			CO5	classify cements and grade them through qualitative analysis	Analyse
3	ES101ME	EM-I	CO1	Apply the concepts of force systems and static equilibrium for solving for unknown forces	Remember
			CO2	Understand free body diagram and apply equilibrium equations to solve for unknown forces	Understand
			CO3	Solve for unknown forces in problems involving friction between contacting bodies	Remember
			CO4	Determine centroids and moments of inertia for elementary, composite figures and solid bodies.	Understand

			CO5	Analyze a plane truss to solve for unknown support reactions and member forces.	Analyse
4	BS153HS	CHEMISTRY LAB	CO1	apply the principles of volumateric analysis in quantitave estimations	Remember
			CO2	analyse the parameters of water by titration method	Understand
			CO3	Understand the principle, concept, working and applications of conductivity meter to determine the concentration of chemicals	Remember
			CO4	Understand the principle, concept, working and applications of potentiometer meter to determine the concentration of chemicals	Understand
			CO5	To apply the law for determining the concentration of a given chemicals	Analyse
5	ES202ME	EM-II	CO1	Solve for the kinematic parameters of rectilinear and curvilinear translations of rigid bodies modelled as particles	Remember
			CO2	Solve for the unknown forces and kinetic parameters for particles and connected bodies using dynamic equilibrium equations	Understand
			CO3	Apply the work-energy principle for solving problems on dynamics for particles and connected bodies	Remember
			CO4	Apply the linear impulse momentum principle for the problems involving impact and collisions of rigid bodies	Understand
			CO5	Formulate dynamic equations and solve for unknown parameters in simple harmonic motion of solid bodies	Analyse
6	ES152ME	WORKSHOP	CO1	Identify and demonstrate the usage of different tools to be used in various manufacturing trades with safety measures.	Remember
			CO2	Apply the skills developed to undertake the jobs connected to various engineering workshop trades including fitting, carpentry, sheet metal, house wiring, welding, and foundry.	Understand
			CO3	Demonstrate the knowledge of various machine tools and their operations such as machining, injection moulding, casting and 3D printing and basic electronics lab instruments.	Remember
			CO4	Illustrate the advanced machining processes like CNC, rapid prototyping.	Understand
			CO5	Apply the basic knowledge of computers to assemble and disassemble various components of computer and able to install various operating systems such as windows or Linux.	Analyse
7	HS101HS	ENGLISH	CO1	Read, understand, interpret and comprehend a variety of written texts and develop positive attitude and commitment towards their (students') goal and society.	Remember
			CO2	Remember and recognize the significance of vocabulary (roots and affixes, homonyms, one- word substitutes, etc.) and use language accurately for effective communication.	Understand

			CO3	Apply appropriate grammatical concepts (tenses, articles, prepositions, etc.) to spoken and written English in informal and formal ambience.	Remember
			CO4	Compile information of various aspects of English diction – Develop creativity in writing skills by framing Paragraphs, Essays, Letters, Emails and SOPs.	Understand
			CO5	Analyze different ways of life through reading prose and poetry, each symbolizing a particular virtue and the learners develop the ability to be creative.	Analyse
8	HS151HS	**ENGLISH LAB**	CO1	Enhance Pronunciation, Stress, Intonation and Articulation Skills	Remember
			CO2	Speak the Language coherently, with a lesser MTI	Understand
			CO3	Employ Language and Body Language intelligibly	Remember
			CO4	Engage in Group Discussions efficiently	Understand
			CO5	Prepare and Produce Decent Presentations to Fare, Well in Interviews	Analyse
9	ES103ME	**EME**	CO1	Understand the concepts of electrical circuits and Analyze complex electrical circuits with the help of different network theorems.	Remember
			CO2	Understand the basic concepts of Electrical DC Machines.	Understand
			CO3	Understand the basic concepts of transformers and three phase induction motors.	Remember
			CO4	Analyze the rectifiers and regulator circuits.	Understand
			CO5	Analyze the performance of BJTs, FETs on the basis of their operation and working	Analyse

Department Assessment Coordinator

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Department of Humanities and Sciences

Course Outcomes - Group A (CSE, AI & DS) SEM - 1 AY 2021-22

S No	Code	Course Name	CO No.	Course Outcomes	Taxonomy Level
1	BS101HS	MATHEMATICS-1	CO1	Find the rank of matrix and its use to find solution of linear equations, eigen value problem, Quadratic forms	Remember
			CO2	Explain the concepts of derivatives using mean value theorems and their generalization. Concepts of curvature, evolutes, involutes, envolpes of family cf curves	Understand
			CO3	Find Partial derivatives of functions of two variables using concept of limits and continuity and study the concepts of maximum and minimum of functions of two variables	Remember
			CO4	Identify the key concepts, theories and mathematical fundamentals to derive mathematical relations involved in evaluation of double integrals and triple integrals and solving Engineering problems	Understand
			CO5	Evaluate gradient of a scalar field, divergence, curl of a vector field to find the values of line, surface and volume integrals and establish their relation using Green, Gauss and Stokes theorems.	Analyse
2	BS104HS	PHYSICS	CO1	Classify solids based on their energy band structures. Identify semiconductors for engineering applications.	Remember
			CO2	Classify magnetic and dielectric materials	Understand
			CO3	Explain the fundamental concepts on superconductivity and Quantum behavior of matter waves.	Remember
			CO4	Explain the lasing action in lasers, propagation of light in optical fibers and compile their applications different fields.	Understand
			CO5	Knowledge about preparation they're of thin film and Nano material, this helps the students to prepare new materials.	Analyse
3	ES102EE	EEEE	CO1	Understand the concepts of electrical circuits and Analyze complex electrical circuits with the help of different network theorems.	Remember
			CO2	Understand the basic concepts of Electrical DC Machines.	Understand
			CO3	Understand the basic concepts of transformers and three phase induction motors.	Remember

			CO4	Analyze the rectifiers and regulator circuits.	Understand
			CO5	Analyze the performance of BJTs, FETs on the basis of their operation and working.	Analyse
4		PHYSICS LAB	CO1	Develop analytical/experimental skills and impart prerequisite hands-on experience for engineering laboratories.	Remember
			CO2	Understand the need for precise measurement practices for data recording.	Understand
			CO3	Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations.	Remember
			CO4	Analyze the techniques and skills associated with modern scientific tools such as lasers and fiber optics	Understand
			CO5	Acquire knowledge in communication skills through working in groups in performing the laboratory experiments and by interpreting the results	Analyse
5	ES152EE	EEEE LAB	CO1	Explain common electrical components and their ratings.	Remember
			CO2	Analyze performance of DC and AC electrical circuits.	Understand
			CO3	Analyze performance of electrical machines	Remember
			CO4	Design diode circuit and understand application of zener diode.	Understand
			CO5	Analyze characteristics of BJTs and FETs.	Analyse
6	ES152CE	ENGG GRAPHIS & DESIGN	CO1	Use appropriate instruments and apply the engineering conventions to draw engineering objects to scale on a drawing sheet.	Remember
			CO2	Make use of AutoCAD software to draft engineering curves like conics, involutes & cycloids.	Understand
			CO3	Make use of AutoCAD software to draft projections of lines, planes, solids and determine unknown lengths & angles in lines	Remember
			CO4	Make use of AutoCAD software to draft sections of solids and development of surfaces.	Understand
			CO5	Convert isometric views to orthographic & vice versa.	Analyse
7	ES101CS	PPS	CO1	Formulate algorithms and learn fundamental program methodologies of C programming.	Remember
			CO2	2. Understand control statements and interpret derived data types with mathematical and engineering problems.	Understand
			CO3	3. Develop modular programming techniques to solve searching, sorting and file system problems.	Remember
			CO4	Recognize pre-processor directives and user defined usage.	Understand
			CO5	Recognize pre-processor directives and user	Analyse

				defined usage.	
8	ES101CS	PPS LAB	CO1	Choose appropriate data type for implementing programs in C language	Remember
			CO2	Design and implement modular programs involving input output operations, decision making and looping constructs	Understand
			CO3	Apply derived data types and implement programs to store data in structures and files	Remember
			CO4	Develop confidence for self-education and ability towards lifelong learning need of computer languages	Understand
			CO5	Develop confidence for self-education and ability towards lifelong learning need of computer languages	Analyse
9	MC101CE	ES	CO1	.Describe the various types of natural resources.	Remember
			CO2	Differentiate between various biotic and abiotic components of ecosystem.	Understand
			CO3	Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India.	Remember
			CO4	Illustrate causes, effects, control measures of various types of environmental pollutions.	Understand
			CO5	Explain the methods of water conservation, causes, effects of climate change, global warming, acid rain and ozone layer depletion, population explosion.	Analyse

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