VIGHNAHARATA TRUST'S

SHIVAJIRAO S. JONDHLE COLLEGE OF ENGINEERING & TECHNOLOGY, ASANGAON

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List of PSO's for all Deparment for AY 2020-21

Sr.No.	Name of Department	List Of PSO's
1	ELECTRONICS AND TELECOMMUNICATION ENGG	**PSO 1:** Apply fundamentals of electronics in various domains of analog and digital systems.
		PSO 2: Build a model by applying profound knowledge in Communication, Signal Processing, Image Processing and VLSI along with programming & simulation tools for research and advancement.
		PSO 3: Analyze and research appropriate technologies for implementation of the electronics and telecommunication engineering systems and exhibits the soft skills for the presentation of the systems.
2	COMPUTER ENGINEERING	**PSO 1: Professional Skills**: The ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, and networking for efficient design of computer-based systems of varying complexity
		PSO 2: Problem-Solving Skills: The ability to apply standard practices and strategies in software project development using open-ended programming environments to deliver a quality product for business success
		PSO 3: Successful Career and Entrepreneurship: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur, and a zest for higher studies.
3	MECHANICAL ENGINEERING	**PSO 1:** Students should be able to solve problems in the field of design, thermal and Production Engineering.
		PSO 2: Students should be able to analyze mechanical systems and simulate using Software
		PSO 3: Students should be able to resolve issues related to renewable energy sources and contribute to reduce atmospheric pollution
4	CIVIL ENGINEERING	**PSO1** :The graduates will have the ability to plan, analyze, construct and maintain cost effective civil engineering structures.
		PSO2: The graduates will have the ability to take up employment, entrepreneurship, research and development for sustainable civil society.
		PSO3 :The graduates will have the ability to recognize the need of the hour like housing, sanitation, waste management, irrigation, use of renewable energy etc. for a sustainable environment.
5	MASTER OF MANAGEMENT	**PSO1:**An ability to apply conceptual foundations of management to solve practical decision-making problems.
		PSO2: Excellent adaptability to function in multi-disciplinary work environment, good. Interpersonal skills as a leader in a team in appreciation of professional ethics and societal responsibilities.
		PSO3: Providing opportunities to students for competing in corporate world characterized bydiversity, rapid technological development, and a fiercely competitive marketplace.

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List of PO's for all Deparment for AY 2020-21

Sr.No	List of PO's
1	**PO1.Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2	**PO**2. **Problem analysi** : Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	**PO**3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4	**PO**4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	**PO**5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6	**PO**6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	**PO**7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	**PO**8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	**PO**9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	**PO**10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	**PO**11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12	**PO12. Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2020-21

COURSE OUTCOMES (UG)

SEM-III

SR.NO	SUBJECT	COURSE OUTCOMES
1	ENGG. MATHMATICS-III (CEC301)	Apply the concept of Laplace Transform to solve real integrals in engineering problems.
		Apply the concept of Inverse Laplace Transform to various functions in engineering problems.
		Expand the periodic function by using Fourier series for real life problems & complex engineering problems
		Find orthogonal trajectories and analytic function by using basic concepts of complex variable theory
		Apply Matrix algebra to solve engineering problems
		Solve Partial differential equations by applying numerical solution and analytical methods for one dimensional heat and wave equations
2	MECHANICS OF SOLIDS (CEC302)	Behaviour of stress strain curve for different materials and the cylinder under internal fluid pressure discussed, students can do the applications now
		Students able to draw SFD,BMD & ASFD for various loadings on beams and frames
		Students are in a position to calculate moment of inertia and various sections
		Students gained the knowledge of Torque, Direct and bending stress, for various column sections
		Students are in a position to calculate moment of inertia and various sections
		Students are able to solve problems on principal planes, & Principal stress in a two dimensional strained body and strain energy due to different loading
		Students are now ready to calculate Slope and Deflection for various loading under different methods
3	ENGG.GEOLOGY(CEC 303)	Explain the concepts of Geology and its application for safe, stable and economic design of any civil engineering structure.
		Interpret the lithological characters of the rock specimen and distinguish them on the basis of studied parameters.
		Describe the structural elements of the rocks and implement the knowledge for collection and analysis of the geological data.
		Interpret the geological conditions for the dam site and calculate RQD for the assessment of rock masses.
		Analyze the given data and suggest rock mass rating for assessment of tunnelling conditions.
		Interpret the causes of geological hazards and implement the knowledge for their prevention
4	ARCHITECTURAL PLANNING AND DESIGN OF BULDINGS(CEC304)	Remember and recall the intricate details of building design and drawing.
		Understand the basic concepts of building design and drawing.
		Learn how to apply professional ethics and act responsibly pertaining to the norms of building design and drawing practices.
		Identify, analyze, research literate and solve complex building design and drawing problems.
		Have new solutions for complex building design and drawing problems.
		Effectively communicate ideas, related to building design and drawing, both orally as well as in written format like reports & drawings.
5	FLUID MECHANICS - I(CEC305)	Describe various properties of fluids and types of flow
		Determine the pressure difference in pipe flows, application of Continuity equation and Bernoulli's theorem to determine velocity and discharge
		Apply hydrostatic and dynamic solutions for fluid flow applications
		Analyse the stability of floating bodies
		Apply the working concepts of various devices to measure the flow through pipes and channels
		Explain the compressible flow, propagation of pressure waves and stagnation properties

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COURSE OUTCOMES (UG)

SEM-III

SR.NO	SUBJECT	COURSE OUTCOMES
6	MECHANICS OF SOLDS(CEL301)	Evaluate stress - strain behavior of materials and assess the structural behavior by the virtue of stresses developed and deformation of elastic members.
		Analyze the material response under the action of shear and the effect of flexure (bending).
		Predict the angle of twist and shear stress developed in torsion
		Evaluate slope and deflection of beams supported and loaded in different ways.
7	ENGG.GEOLOGY(CEL 302)	Identify various rock forming minerals on the basis of physical properties.
		Explain the characteristics of Igneous, Sedimentary and Metamorphic rocks and assess their suitability as construction material and foundation rock.
		Interpret the rock characteristics and comment on their suitability as water bearing horizons.
		Interpret the geological map and assess the suitability of the site for Civil Engineering works
		Solve the borehole problems and interpret it in order to understand subsurface Geology of the area.
		Calculate RQD and evaluate the rock masses for Civil Engineering Works.
8	ARCHITECTURAL PLANNING AND DESIGN OF BULDINGS(CEL303)	Plan and design of residential and public building by implementing the principles of planning of buildings, Green building principles, byelaws, regulations and codes for planning
		Preparing various working and detailed drawing of the buildings in CAD.
		Preparing layouts of various building services.
		Preparing perspective views for all types of buildings
		Preparing the reports based on the drawings prepared, if required
9	FLUID MECHANICS - I(CEL304)	Calculate the metacentric height of a floating body.
		Find out coefficient of discharge through venturimeter.
		Determination of coefficient of discharge through orifice meter.
		Determination of coefficient of discharge through rectangular and triangular notch.
		To determine the value of coefficient of contraction, velocity and discharge for the given orifice.
10	SKILL BASED LAB COURSE-I(CEL305)	Transfer the plan from a drawing sheet to a 2-D drafting software
		Visualize the various elements in the software like points, lines, polygons, etc. as objects of the real world and relate it with civil engineering components
		Apply civil engineering concepts to draft efficient civil engineering plans in accordance to various building bye laws and forms
		Conceptualize the space, logistic and statutory constraints in the real world to draw an efficient plan so that optimization is achieved
		Attach and retrieve information pertaining to various civil engineering components through 3-D modelling software 6. Demonstrate a virtual walkthrough of buildings
11	MINI PROJECT-1A(CEM301)	Identify problems based on societal /research needs. 2. Apply Knowledge and skill to solve societal problems in a group.
		Apply Knowledge and skill to solve societal problems in a group
		Develop interpersonal skills to work as member of a group or leader
		Draw the proper inferences from available results through theoretical/ experimental/simulations.
		Analyse the impact of solutions in societal and environmental context for sustainable development.
		Use standard norms of engineering practices and Excel in written and oral communication.
		Demonstrate capabilities of self-learning in a group, which leads to life long learning.
		Demonstrate project management principles during project work.

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COURSE OUTCOMES (UG)

SEM-IV

SR.NO	SUBJECT	COURSE OUTCOMES
1	ENGG. MATHMATICS-IV (CEC401)	Apply the concept of Vector calculus to evaluate line integrals,surface integrals using Green's theorem,Stoke's theorem & Gauss divergence theorem
		Use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals
		Apply the concept of correlation , Regression & Curve fitting to engineering problems in data science
		Use the concepts of probability and expectation for getting the spread of the data & distribution of probabilities
		Apply the concept of probaility distribution to engineering problems & testing of hypothesis using sampling theory
		Apply the concepts of parametric & nonparametric tests for analyzing practical problems.
2	SRTUCTURAL ANALYSIS (CEC402)	Students now understand, Analysis of trusses by method of joints & method of sections and also various types of arches and their applications
		Students are able to solve ILD & rolling loads and to draw ILD for reactions SF and BM
		Students are now able to calculate Slope and Deflection under various methods and also kinematic indeterminacy & static indeterminacy
		Students are now familiar with flexibility method and clapyron's theorem
		Students are now familiar with Stiffness method
		Students are now able to follow moment distribution method and plastic analysis
3	SURVEYING (CEC403)	To Understand the use of various surveying types and their applications on field.
		To explain different methods and their procedure for levelling.
		To Execute theodolite and work out different tasks associated with it
		To Execute Total station and GPS work out different tasks associated with it
		To Interpret area, volume and topography using surveying formulas and instruments.
		To identify the requirement of Types of curve as per topoghapy and execute the calculative parameter of it.
4	BUILDING MATERIALS AND CONCRETE TECHNOLOGY (CEC404)	To develop and implement the conceptual knowledge of building materials in the construction industry.
		Assess the properties of building stones and their classifications. Understand the concept of various methods of manufacturing bricks and different types of concrete blocks.
		To expose students to various quality control aspects of civil engineering materials by performing different lab tests on materials.
		Identify the ingredients and properties of fresh and hardened concrete.
		To interpret and design concrete mix for various grades for various exposure conditions.
		To study the new technology for manufacturing, testing and quality of concrete.
5	FLUID MECHANICS-II (CEC405)	Analyze flow through pipes, various losses through pipes, pipe network and power transmission through nozzle
		Explain the concept of Laminar flow and velocity distribution through parallel plates and pipes
		Explain the concept of Turbulent flow and velocity distribution in pipes
		Describe boundary layer concept , boundary layer separation and flow around submerged bodies
		Apply Moment of Momentum Principle
		Explain the importance of dimensionless numbers, dimensional analysis and similarity behavior of model and prototype

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COURSE OUTCOMES (UG)

SEM-IV

SR.NO	SUBJECT	COURSE OUTCOMES
6	STRUCTURAL ANALYSIS TUTORIAL (CEL401)	Calculate axial forces in the Coplanar trusses by using Method of joints and method of sections and also calculate radial shear, normal thrust and bending moment in parabolic 3- Hinged arches.
		Draw Influence Line Diagrams for axial forces in trusses, Reactions, SF and B M in beams and find their values when rolling loads are passing over them.
		Evaluate rotation and displacement at a joint of frames and deflection at any joint of truss and will be able to compute static and kinematic indeterminacy of structure.
		Analyse the indeterminate structures such as beams & simple rigid jointed frames using Flexibility methods and direct stiffness method.
7	SURVEYING (CEL402)	To understand the use of various surveying methods and their applications on field.
		To Handle various advanced instruments required for surveying.
		To Take linear and angular measurement in different conditions.
		To Record the various measurements in the field book during practical and projects.
		To Prepare the plans and sections required for civil engineering projects.
		To set out Horizontal curve and foundation plan on field.
8	BUILDING MATERIALS AND CONCRETE TECHNOLOGY (CEL403)	Test physical properties of cement
		Test physical properties of fine and coarse aggregates.
		Test physical attributes and mechanical strength of burnt clay bricks used in the construction of structures.
		Evaluate the effect of water cement ratio on workability and strength of concrete.
		Evaluate the effects of admixtures on physical properties of concrete.
		Determine the durability and strength of existing concrete structures by basic non-destructive tests.
		Design the concrete mix.
9	FLUID MECHANICS-II (CEL404)	Verify the Reynold's experiment
		Estimate the viscosity of fluid
		Calculate the losses in pipes
		Assess the flow pattern and velocity distribution in pipe flow
		learn the water hammer phenomenon through demonstration
		learn the wind tunnel testing through demonstration.
10	SKILL BASED LAB COURSE-II(CEL405)	Operate a Total Station and traverse the field
		Perform various operations like computing height of a structure, computing area of plot, subdividing area, demarcating boundaries, etc. Using Total Station
		Set out foundation plan using Total Station
		Compute the point, line and area features using Global Navigation Satellite System
		Plot various existing features in a geographic area on a GIS platform
		Add attribute and perform various statistical operations in GIS
11	MINI PROJECT- 1B (CEM401)	Identify problems based on societal /research needs.
		Apply Knowledge and skill to solve societal problems in a group.
		Develop interpersonal skills to work as member of a group or leader.
		Draw the proper inferences from available results through theoretical/ experimental/simulations.
		Analyse the impact of solutions in societal and environmental context for sustainable development.
		Use standard norms of engineering practices
		Excel in written and oral communication.
		Demonstrate capabilities of self-learning in a group, which leads to life long learning.
		Demonstrate project management principles during project work.

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COURSE OUTCOMES(UG)

SEM-V

1	Structural Analysis - II	Explain the behavior of various statically indeterminate structures.
		Explain two hinged arches and draw SFD , BMD for various loading conditions.
		Analyze various structures and find out the internal forces.
		Further, the students shall be able to extend the knowledge gained in this subject.
		Explain application of structural engineering mechanics in the higher years of their UG programme.
		The knowledge gained in this subject shall be useful for application in the structural design in later years.
2	Geotechnical Engginering-I	Analyse stability of slopes and soft rocks.
		Explain the behavior and strength of the soil such as earth retaining, rigit retaining wall.
		Identify different types of shallow foundations and establish the most economical design of structures.
		Explain the effect of dynamic interaction between pile-foundations & soil on strength demand spectra
		expalin fibre reinforced soil and its strength variation
		Investigate effects of foundation stiffness on failure mechanisms & strength of foundation soil.
3	Applied Hydrolics	Apply the momentum principle to pipe bend problems & moment of momentum equation to sprinklers
		Demonstrate the model laws to real life devices
		Understand the mechanism of impact of jets on stationary & moving objects
		Solve the problems related to hydraulic turbines
		Understand the phenomenons invoved in centrifugal pumps
		Demonstrate the principles, mechanims & working of various hydraulic machines such as ram, press, accumulator, intensifier , cranes & lift
4	Transportation Engginering - I	Explain planning requirements of different types of highways. Conduct surveys and prepare report
		Calculate geometric design elements of highways
		Conduct traffic study. Explain traffic control devices and Intersections
		Explain materials used for highway construction. Explain soil stabilization and geosynthetics
		Explain pavement design of various pavements. Explain IRC requirements for pavement design
		Explain construction of different types of roads. Investigate failure of pavements and suggest strengthening measures. Explain highway drainage
5	Environmental Engineering-I	Explain the planning, design and construction of water systems
		Aanalyze the quality of water and will be able to conduct the quality control test on samples.
		Explain the different processes in the water treatment facility.
		Design the different units of treatment for water treatment plants.
		Explain the components of building water supply system, storage and rain water harvesting.
		Understand the problems of air and noise pollution and contribute practical solutions to environmental problems in our society.
6	DLOC-Building Services & Repairs	Compare the best utility services and installation.
		Differentiate and execute different plumbing systems.
		Generate and execute different Electric System in building and Explain modern theory of light and colour.
		Summarize problems associated with concrete deterioration and suggest solution of it
		Design and evaluate damage to the structure by different methods.
		Conduct survey of structural concrete & Rebars, suggest its protection techniques
7	DLOC-Advance concrete Technology	Identify various types of material and properties in concrete.
		Define the various properties of special concrete
		understand the mix design by different methods
		explain use of fiber reinforced concrete.
		Explain the different procedures for concrete testing
		Provide guidance of the concept of durability and cracking in concrete.

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COURSE OUTCOMES(UG)

SEM-VI

1	Geotechnical Engginering-II	Evaluate the consolidation parameters for the soil.
		Calculate the shear strength parameters for the soil.
		Calculate the factors of safety of different types of slopes under various soil conditions, analyze the stability of slopes, calculate lateral earth pressures and analyse the stability of retaining walls.
		Analyse bearing capacity of shallow foundations using theoretical and field methods, calculate load bearing capacity of pile foundations
		Explain conduits and calculate the load carried by the struts of a braced cut under various soil conditions.
		Explain ground improvement techniques.
2	Design and Drwing of Steel Sturcture	Explain advantages of steel members, LSM design philosophy for design of steel members.
		Analyse and design tension and compression member,
		Analyse and design laterally supported and laterally unsupported beam,
		Analyse and design column and column base
		Calculate loading on truss and design truss.
		Independently design steel structures using relevant IS codes
3	Water Resource Engg.-I	Discuss various types of irrigation projects
		Explain different irrigation method and effective use of water resources.
		Analyse the crop water requirement and irrigation requirement
		Derive hydrographs and evalute runoff of a catchment area.
		Describe the steady and unsteady state conditions of any aquifer and water wells.
		Analyse the capcity of reservoir for different purposes.
4	Transportation Engginering - II	Explain different transportation systems in Society.
		Explain different transportation systems and their planning
		Explain planning, construction and maintenance of Railway tracks.
		Explain planning, construction and different types of airports.
		Explain in deatiled the maintenance of airports.
		Describe Water Transportation system in details and its facilities & including harbors docks, port facilities.
5	Environmental Engineering-II	Evaluate the role of sanitation in the urban water cycle, its relation to public health and environment
		Analysis of characteristics of sewage treatment process
		Analysis of biological processes and their mutual relationships within various sanitation components
		Explain the treatment, Reclamation and resource recovery and re-use at both centralized and decentralized levels
		Evaluate the characteristics of sludge and its disposal of drying beds.
		Explain Environmental pollution its occupational hazards.
6	DLOC -Advance construction equipment	Explain the use/applications of various conventional construction equipment and select the best out of them for a particular site requirement.
		Explain modern methods used for underground as well as underwater tunnelling.
		Differentiate conventional and modern methods of formwork on the basis of productivity,reuse value,ease of erection and dismantling,flexibility offered and overall cost.
		Explain techniques and equipment required for construction of various transporting facilities.
		Explain about the setting up ofdifferent kinds of the power generating structures.
		select proper equpiment for construction of transporting facilities based on requirements.
7	DLOC -Ground Improvement Technique	Explain problematic soils and their associated issues.
		Discuss various the various ground improvement techniques and propose suitable remedial techniques and design.
		select appropriate soil improvement technique based on the soil type and application.
		Analyse grouting for various engineering applications in field.
		Analyse stone column layout
		Analyse the geotechnical structres with the pseudo-static method under seismic condition.

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COURSE OUTCOMES (UG)

SEM-VII

1	Theory Of Reinforced concrete structures(TRCS)	Explain concept and problems on WSM And LSM
		Explain various limit states and interpret IS 456 provisions.
		Analyze and design members Limit state of collapse in flexure, shear, bond, torsion and serviceability. Analyze and design singly and doubly reinforced rectangular and T sections. Explain and draw reinforcement detailing.
		Analyze and design one way and two way slabs
		Analyze and design columns subjected to combined axial and uni-axial as well as biaxial short and slender column.
		Analyze and design single and combined footings, slab beam type footing and strap footing subjected to axial load and moments.
2	Quantity Survey Estimation and Valuation (QSEV)	To read and interpret plans, sections, detailed drawings and specifications, calculate quantities of various items and prepare estimate a construction project.
		Prepare bar bending schedules and draw mass haul diagrams
		Calculate the market rates of basic materials Review the current market rates for labour and material required for construction, perform rate analysis and compare with DSR
		Draft the specifications for various items required for construction.
		Draft tenders, prepare valid contract documents.
		Explain different terms related to valuation and conduct valuation of property
3	Water Resource Engg.-II(WRE-II)	Design the section of gravity dams,
		Explain various types of earth and rockfill dams.
		Apply silt theories to design irrigation canals.
		Apply silt theories to design irrigation canals.
		Explain various types of canals and its maintenance.
		Explain different cross drainage works of a canal system.
4	Dept. level Elective - III Solid Waste Management (SWM)	Explain generation, storage, collection transfer and transport, recovery, and disposal in the management of solid waste.
		Understand the characteristics of different types of solid waste and the factors affecting variation.
		Identify the method of collection, storage and transportation of solid waste.
		Suggest suitable technical solutions for processing of waste.
		Ability to plan waste minimization and disposal of municipal solid waste.
		Ensure the safe handling and treatment of Hazardous, Electronic and Bio medical waste.
5	Inst.level Elective - I Disaster Management & Mitigation Measures	Understand the disaster phenomenon, its different contextual aspects.
		Explain the types of disasters, samples and distribution of disaster in the world and in India.
		Understand the disaster management policy and diaster risks in india.
		Explain public awareness, emergency management & avoid disasters.
		Identify damaging capacity of a disasters.
		Explain the concepts of prevention measures mitigation measures, community disaster volunteers and business continuity.

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COURSE OUTCOMES(UG)

SEM-VIII

1	Design and Drwing of reinforced concrete structure (DDRCS)	Understand the complete analysis and design of public building using relevant IS codes.
		Analyze and Design of different types of Staircase.
		Interpret the complete analysis and design different types of retaining wall by Limit state method.
		Design Different Types of water Tank.
		Explain response of structure during an earthquake and calculate design forces.
		Explain principle of PSC and calculate losses .
2	Construction Management (CM)	To understand the mnanagement functions like planning, scheduling, executing & controlling the construction projects.
		Explain the roles and responibilities of various angencies involved in construction project.
		Apply the knowledge of management functions like planning, scheduling, executing and controlling to construction projects.
		Demonstrate their capability for preparing the project networks to work out best possible time for completing the project.
		Exercise the optimum time- cost relationship for construction projects.
		Implement the safety aspects during the execution of civil engineering project & quality aspects during the execution of civil engineering project
3	Dept. level Elective -IV Industrial Waste Treatment	Understand the characteristics of industrial wastewater
		Identify sampling method and analyze industrial waste
		Design facilities for the processing and reclamation of industrial waste water.
		Explain on-site treatment methods and solve Analyze and design wastewater treatment systems.
		Detailed on-site manufacturing processes and treatments of industrial waste water.
		Analyze proposed development project plans for possible environmental effects and to improve treated effluent quality to confirm standard prescribed by regulatory agencies.
4	Inst.level Elective - II Environment Management	Identify environment, management, systems & organisations in relation to environmental management.
		Demonstrate an integrative approach to environmental issues with a focus on sustainability.
		Understand concepts of ecology
		Understand corporate environmental responsibility & environment quality management.
		Identify the role of the IS 14000 series of standard in industry.
		General overview of major legislations of different types of environmental act

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COURSE OUTCOMES(PG)

SEM-I

1	Probability and Statistics	Explain the quantitative data and draw results from it using probability distribution to project management.
		Apply sampling techniques to construction industry
		Apply correlation analysis techniques and develop linear regression equation between various civil engineering parameters
		Apply regression analysis in resources management and prediction of concrete structures
		Predict the performance of a particular system, based on past performance using simulation and other tools.
		Apply Griffi's waiting line models and other such models to decide the optimum number of servicing units required for a prime mover
2	Management and project planning in construction	Analyze and explain the contributions of various researchers Henry Fayol, Fredrick Taylor etc. in modern management.
		explain the concept of project Life cycle, the responsibilities of project managers & PMCs, define the scope of the Project and various documentations required on major projects
		Prepare project schedule using different methods using primavera, MSP. Apply CPM PERT techniques.
		Explain project controlling and related issues. explain incentives & work study applications for civil engineering projects
		Analyze various domains of construction management as regards to mobilization, demobilization, co-coordinating, communicating, reporting and training aspects
		Identify the causes of accidents on construction site, suggest Preventive measures and discuss various acts for safety.
48	Construction Contract Administration and Management	Explain the basic procedure of bidding for construction projects
		Explain different types of contract along with their suitability in construction practices with various issues like specifications, breach of contract.
		Explain different methods for resolving the disputes arisen
		Analyze various industrial acts & their relevance to construction Industry
		Compare bailment procedure and related issues
		Explain injuctions, indemnity and guarantee
3	Repairs, Rehabilitation & Retrofitting of Structures	Explain Need for strengthening due to various reasons and explain holistic models for deterioration of concrete
		Explain Condition Survey for identification and estimation of damage and Non-Destructive and Destructive Testing Methods. analyze, interprete the data and draw conclusions.
		Compare various Repair Materials and their selection, essential parameters
		Analyze different Repair/ Rehabilitation Techniques for materials, procedures advantages etc.
		Prepare Guidelines for Repair and Rehabilitation Work and Post repair inspection and maintainace.
		Explain Seismic retrofitting and Maintenance of Heritage Structures
		Analyze Repair of water retaining structures, hydraulic structures, Pavements and Runways, bridges, sewage treatment plants Tunnels, industrial structures- Specialized repairs for chemical disruption, fire, marine exposure etc.
4	Disaster Management and Mitigation Measures	State the global and Indian scenario of disaster, importance of study in human life, Direct and indirect effects of disasters.
		Analyze various Natural Disaster and Manmade disasters, causes and management for mitigation.
		Explain Disaster Management, Policy and Administration
		Explain Institutional Framework for Disaster Management in India, NIDM and NDMA. Applications of GIS, Remote sensing and GPS.
		Explain Financing Relief Measures including raising finance, Legal aspects related to finance raising as well as overall management of disasters. International relief aid agencies and their role in extreme events
		Explain Preventive and Mitigation Measures at Pre-disaster, during disaster and post-disaster stages. Analyze Risk mapping, assessment.

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2020-21

COURSE OUTCOMES(PG))

SEM-II

1	Advanced Construction Technology	Summarize the construction of underwater and underground construction and various activities involved, machinery used and precautions
		Explain various form systems Formwork and design requirements, materials used.
		Explain Construction systems for High Rise structures and Prefabricated Construction techniques, Special techniques required for construction and maintenance.
		Describe construction of transporting facilities like Roads and Bridges, Railways and Ports.
		Prepare action plan for the various construction activities for Power Generating Structures.
		Prepare action plan for Hydro power station, Atomic power Stations, Thermal power station, Windmills, Solar Power, transmission towers.
2	Infrastructure Development	Describe the role of infrastructure in overall development of the nation. Analyze global and Indian perspective and roles of various agencies involved in construction industry
		Classify infrastructure projects and explain major achievements in infrastructure sector in India.
		Describe financing of infrastructure projects and various issues like GDP and its role, government policies & strategies, sources of financing infrastructure projects, FDI in construction industry.
		Explain the concept of public private partnership & its implementation in practice. compare various PPP models involved in construction industry and role of role and functions of PMC in infrastructure projects
		Explain issues related to infrastructure development like environmental clearances. Role of FICCI.
		Explain delay and failures in infrastructure projects. Analyze causes of delay; calculate cost over-run and time over runs.
3	Project Economics & Financial Management	Explain the principles of economics and analyze factors bearing on size of firms, obstacles to growth of firms.
		Analyze the various issues affecting working capital and estimate the working capital required on a construction project
		Calculate cost implication to different forms of construction. Calculate break-even analysis.
		Explain financial planning and various issues like stock, borrowings, debentures, shares, venture capital financing, SEBI regulations, micro financing.
		Perform capital budgeting and project portfolio analysis
		Explain corporate sector and corporate tax planning, role of financing institutes in construction, CIDC-ICRA grading.& various terms related to accounting and prepare construction accounts.
4	Energy Conservation Techniques in Building Construction	Explain energy systems, production and conservation. Explain energy and its impact on environment like heat- iceland effect, greenhouse gas effect, global warming.
		Explain energy management system. Prepare energy audit and explain post audit activities.
		Prepare energy efficient & environment friendly design of heating and ventilation systems. Explain solar energy fundamentals and prepare active solar and passive solar design. Explain principles and design of green buildings.
		Describe Energy Saving Opportunities in various Building Services, like Lighting Systems, Air Conditioning Systems, Water Heat Recovery, and Savings in Pumps-Fans-Compressed air systems.
		Explain energy systems and savings through case studies.
5	Research Methodoly	Explain primary characteristics of quantitative research and qualitative research. Explain describe Need of Research in Business and Social Sciences, identify Issues and Problems in Research.
		Describe and compare Types of Research like Basic Research, Applied Research, Descriptive Research, Analytical Research etc.
		Explain Research Design and Sample Design techniques.& the stages in Research process such as identification of problem to Preparation of Research Report
		Explain Formulation of Research Problem and related issues like Interest, Data Availability, Choice of data, Analysis of data, Generalization and Interpretation of analysis.
		Explain the Preparation of the report on conclusion reached and its contents like Validity Testing & Ethical Issues, Suggestions and Recommendation

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DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: SE **SEM: III** **SCHEME:CBCS**

COURSE OUTCOMES

On succesful completion of course learner will be able to

SR.NO.	SUBJECT	COURSE OUTCOMES
1	Applied Mathematics - III (CSC301)	Use the concept of Laplace transform and its application to solve the real integrals in engineering problems.
		Use the concept of inverse Laplace transform of various functions and its applications in engineering problems.
		Expand the periodic function by using the Fourier series for real-life problems and complex engineering problems.
		Use complex variable theory & concept of harmonic conjugate to get orthogonal trajectories and analytic functions.
		Apply the concept of Correlation and Regression to the engineering problems in data science, machine learning, and AI.
		Apply the concepts of probability and expectation for getting the spread of the data and distribution of probabilities.
2	Digital Structure and Graph Theory (CSC302)	Understand the notion of mathematical thinking, mathematical proofs and to apply them in problem solving.
		Ability to reason logically.
		Ability to understand relations, functions, Diagraph and Lattice.
		Ability to understand and apply concepts of graph theory in solving real world problems
		Understand use of groups and codes in Encoding-Decoding
		Analyze a complex computing problem and apply principles of discrete mathematics to identify solutions
3	Data Structure (CSC303)	Implement Linear and Non-Linear data structures.
		To handle various operations like searching, insertion, deletion and traversals on various data structures.
		Explain various data structures, related terminologies and its types.
		choose appropriate data structure and apply it to solve problems in various domains.
		analyze and Implement appropriate searching techniques for a given problem.
		demonstrate the ability to analyze, design, apply and use data structures to solve engineering problems and evaluate their solutions.
4	Digital Logic &Computer Organization and Architecture(CSC304)	To learn different number systems and basic structure of computer system.
		To demonstrate the arithmetic algorithms.
		To understand the basic concepts of digital components and processor organization.
		To understand the generation of control signals of computer.
		To demonstrate the memory organization.
		To describe the concepts of parallel processing and different Buses.
5	Computer Graphics(CSC305)	Describe the basic concepts of Computer Graphics.
		Demonstrate various algorithms for basic graphics primitives
		Apply 2-D geometric transformations on graphical objects.
		Use various Clipping algorithms on graphical objects
		Explore 3-D geometric transformations, curve representation techniques and projections methods.
		Explain visible surface detection techniques and Animation.
6	Data Structure Lab (CSL301)	Students will be able to implement linear data structures & be able to handle operations like insertion, deletion, searching and traversing on them.
		Students will be able to implement nonlinear data structures & be able to handle operations like insertion, deletion, searching and traversing on them
		Students will be able to choose appropriate data structure and apply it in various problems
		Students will be able to select appropriate searching techniques for given problems.
7	Digital Logic &Computer Organisationn and Architecture Lab (CSL302)	To understand the basics of digital components
		Design the basic building blocks of a computer: ALU, registers, CPU and memory
		To recognize the importance of digital systems in computer architecture
		To implement various algorithms for arithmetic operations.
8	Computer Graphics Lab(CSL303)	Implement various output and filled area primitive algorithms
		Apply transformation, projection and clipping algorithms on graphical objects.
		Perform curve and fractal generation methods.
		Develop a Graphical application/Animation based on learned concept
9	Skill base Lab course: Object Oriented Programming with Java (CSL304)	To apply fundamental programming constructs.
		To illustrate the concept of packages, classes and objects.
		To elaborate the concept of strings, arrays and vectors.
		To implement the concept of inheritance and interfaces.
		To implement the concept of exception handling and multithreading.
		To develop GUI based application.

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DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: SE **SEM: IV** **SCHEME:CBCS**

COURSE OUTCOMES

On succesful completion of course learner will be able to

SR.NO.	SUBJECT	COURSE OUTCOMES
1	Applied Mathematics-IV ((CSC401)	Apply the concepts of eigenvalues and eigenvectors in engineering problems.
		Use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.
		Apply the concept of Z- transformation and inverse in engineering problems.
		Use the concept of probability distribution and sampling theory to engineering problems.
		Apply the concept of Linear Programming Problems to optimization.
		Solve Non-Linear Programming Problems for optimization of engineering problems.
2	Analysis of Algorithms(CSC402)	Analyze the running time and space complexity of algorithms.
		Describe, apply and analyze the complexity of divide and conquer strategy.
		Describe, apply and analyze the complexity of greedy strategy.
		Describe, apply and analyze the complexity of dynamic programming strategy.
		Explain and apply backtracking, branch and bound.
		Explain and apply string matching techniques.
3	Database Management System(CSC403)	Recognize the need of database management system
		Design ER and EER diagram for real life applications
		Construct relational model and write relational algebra queries.
		Formulate SQL queries
		Apply the concept of normalization to relational database design.
		Describe the concept of transaction, concurrency and recovery.
4	Operating System(CSC404)	Understand the objectives, functions and structure of OS
		Analyze the concept of process management and evaluate performance of processscheduling algorithms
		Understand and apply the concepts of synchronization and deadlocks
		Evaluate performance of Memory allocation and replacement policies
		Understand the concepts of file management.
		Apply concepts of I/O management and analyze techniques of disk scheduling.
5	Microprocessor (CSC405)	Describe core concepts of 8086 microprocessor.
		Interpret the instructions of 8086 and write assembly and Mixed language programs.
		Identify the specifications of peripheral chip.
		Design 8086 based system using memory and peripheral chips.
		Appraise the architecture of advanced processors
		Understand hyperthreading technology
6	Analysis of Algorithms Lab(CSL401)	Implement the algorithms using different approaches.
		Analyze the complexities of various algorithms.
		Compare the complexity of the algorithms for specific problem.
7	Database Management System Lab (CSL402)	Design ER /EER diagram and convert to relational model for the realworld application.
		Apply DDL, DML, DCL and TCL commands
		Write simple and complex queries
		UsePL / SQL Constructs.
		Demonstrate the concept of concurrent transactions execution and frontend-backend connectivity
8	Operating System Lab(CSL403)	Demonstrate basic Operating system Commands, Shell scripts, System Calls and API wrt Linux
		Implement various process scheduling algorithms and evaluate their performance.
		Implement and analyze concepts of synchronization and deadlocks.
		Implement various Memory Management techniques and evaluate their performance.
		Implement and analyze concepts of virtual memory.
		Demonstrate and analyze concepts of file management and I/O management techniques.
9	Microprocessor Lab(CSL404)	Use appropriate instructions to program microprocessor to perform various task
		Develop the program in assembly/ mixed language for Intel 8086 processor
		Demonstrate the execution and debugging of assembly/ mixed language program
10	Skill base Lab course: PythonPrograming(CSL 405)	To understand basic concepts in python.
		To explore contents of files, directories and text processing with python
		To develop program for data structure using built in functions in python.
		To explore django web framework for developing python-based web application.
		To understand Multithreading concepts using python.

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DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: TE **SEM:V** **SCHEME:CBCS**

COURSE OUTCOMES

On succesful completion of course learner will be able to

SR.NO.	SUBJECT	COURSE OUTCOMES
1	Microprocessor (CSC501)	Analyze microprocessors and Intel 8086/8088 Architecture.
		Demonstrate the programs to run on 8086 microprocessor systems.
		Design system using memory chips and peripheral chips for 16 bit 8086microprocessor
		Analyze techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.
		Distinguish between RISC and CISC processors.
		Analyze multi core processor and its advantages.
2	Database Management System(CSC502)	Analyze the fundamentals of a database systems.
		Design and draw ER and EER diagram for the real life problem.
		Analyze the conceptual model relational model and formulate relational algebra queries.
		Design and querying database using SQL.
		Analyze and apply concepts of normalization relational database design.
		Analyze concept of transaction, concurrency and recovery.
3	Computer Network(CSC503)	Analyze concepts and fundamentals of data communication and computer networks.
		Explore the inter-working of various layers of OSI.
		Analyze the issues and challenges of procols design while developing in TCP/IP procol suite.
		Demonstrate the strengths and weaknesses of various routing algorithms.
		Analyze transport layer and various application layer procols.
		Demonstrate Network Layer with switching and routing technologies.
4	Theory of Computer Science(CSC504)	Identify the central concepts in theory of computation and Simplify between deterministic and nondeterministic automata, also obtain equivalence of NFA and DFA.
		Design the equivalence of languages Explaind by finite automata and regular expressions.
		Demonstrate regular, context free grammars while recognizing the strings and tokens.
		Design pushdown automata recognize the language.
		Develop an Analyzing of computation through Turing Machine.
		Analyze fundamental Analyzing of decidability and undecidability.
5	Advanced Operating Systems (CSDLO5012)	Demonstrate Analyzing of design issues of Advanced operating systems.
		Classify different types of operating systems.
		Analyze the design aspects and data structures for file subsystem, memory subsystem.
		Demonstrate process subsystem of Unix OS.
		Demonstrate different architectures of Multiprocessor OS.
		Design data structures in Multiprocessor operating systems.
6	Microprocessor Lab(CSL501)	Build appropriate instructions program in microprocessor to perform various tasks.
		Develop the program in assembly language for Intel 8086 processor.
		Demonstrate the execution and debugging of assembly language program.
7	Computer Network Lab (CSL502)	Design and setup networking environment in Linux.
		Build Network OS mulars such as NS2, Wireshark
		Improve programs using core programming APIs for Analyzeing networking concepts.
8	Database & Information System Lab (CSL503)	Design and draw ER and EER diagram for the real life problem with software ol.
		Create and update database and tables with different DDL and DML statements.
		Apply integrity constraints and able to provide security data.
		Improve and execute Complex queries.
		Apply triggers and procedures for specific modules.
		Utilize concurrent transactions and able to access data through front end (using JDBC ODBC Connectivity).
9	Web Design Lab (CSL504)	Analyze the core concepts and features of Web Technology.
		Design static web pages using HTML5 and CSS3.
		Apply the concept of client side validation and design dynamic web pages using JavaScript.
		Evaluate client and server side technologies and create Interactive web pages using PHP , AJAX with database connectivity using MySQL.
		Analyze the basics of XML, DTD and XSL and develop web pages using XML / XSLT.
		Analyze end Buildr requirements and Create web application using appropriate web technologies and web development framework.
10	Business Communication & Ethics (CSL505)	Design a technical document using precise language, suitable vocabulary and apt style.
		Develop the life skills/interpersonal skills progress professionally by building stronger.
		Demonstrate awareness of contemporary issues knowledge of professional and ethical.
		Apply the traits of a suitable candidate for a job/higher education.
		Apply techniques of holding a group discussion, facing interviews and writing resume/SOP.
		Select formal presentations effectively Improveing the verbal and non-verbal skills

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DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: TE **SEM: VI** **SCHEME:CBCS**

COURSE OUTCOMES

On succesful completion of course learner will be able to

SR.NO.	SUBJECT	COURSE OUTCOMES
1	Software Engineering(CSC601)	Analyze and demonstrate basic knowledge in software engineering.
		Identify requirements, analyze and prepare models.
		Plan, schedule and track the progress of the projects.
		Design & develop the software projects.
		Identify risks, manage the change assure quality in software projects.
		Apply testing principles on software project and Analyze the maintenance concepts.
2	System Programming and Compiler Construction(CSC602)	Identify the relevance of different system programs.
		Explain the various data structures and passes of assembler design.
		Identify the need for different features and designing of macros.
		Classify different loaders and linkers and their contribution in developing efficient Buildr application
		Construct different parsers for given context free grammars.
		Identify the need synthesis phase produce object code optimized in terms of high execution speed and less memory usage
3	Data Warehousing & Mining(CSC603)	Analyze Data WarehoBuild fundamentals, Data Mining Principles
		Design data warehoBuild with dimensional modelling and apply OLAP operations.
		Identify appropriate data mining algorithms solve real world problems
		Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
		Explain complex data types with respect spatial and web mining.
		Demonstrate Buildr experiences wards research and innovation.
4	Cryptography and System Security(CSC604)	Analyze system security goals and concepts, classical encryption techniques.
		Analyze encryption and decryption techniques verifying the integrity of varying message sizes.
		Apply the knowledge of crypgraphic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.
		Apply different digital signature algorithms achieve authentication and design secure applications.
		Explore and analyze sniffers, port scanners and other related ols for analysing packets in a network.
		Analyze confidentiality ,authentication and design secure applications.
5	Advanced Computer Network(CSDLO6024)	Demonstrate the Analyzeing of advance data communication technologies.
		Demonstrate the Analyzeing of WAN Technology typically ATM .
		Demonstrate the Analyzeing of packet switching procols such as X.25, X.75.
		Explore the issues of advance internet routing procols and also QoS based procols.
		Analyze issues of traffic requirements and perform capacity planning.
		Demonstrate the Analyzeing of procol Buildd for management of network
6	Software Engineering Lab (CSL601)	Identify requirements and apply process model selected case study.
		Analyze and design models for the selected case study using UML modeling.
		Analyze the use of various software engineering ols
7	System Software Lab(CSL602)	Apply machine code by using various databases generated in pass one of two pass assembler.
		Construct different databases of single pass macro processor.
		Identify and validate different tokens for given high level language code.
		Apply input string by constructing p down /Botm up parser.
		Improve synthesis phase of compiler with code optimization techniques.
		Apply various ols like LEX and YACC.
8	Data warehousing & Mining(CSC603)	Design data warehoBuild and perform various OLAP operations.
		Improve classification, prediction, clustering and association rule mining algorithms.
		Demonstrate classifications, prediction, clustering and association rule mining algorithms on a given set of data sample using data mining ols.
		Demonstrate spatial and web mining algorithms.
9	System Security Lab(CSL604)	Apply the knowledge of symmetric crypgraphy Improve simple ciphers.
		Apply analyze and Improve public key algorithms like RSA and El Gamal.
		Analyze and evaluate performance of hashing algorithms.
		Explore the different network reconnaissance ols gather information about networks.
		Demonstrate firewalls and intrusion detection systems using open source technologies and explore email security.
		Explore various attacks like buffer-overflow, and web-application attacks.

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DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: BE **SEM: VII** **SCHEME:CBGS**

COURSE OUTCOMES

On succesful completion of course learner will be able to

SR.NO.	SUBJECT	COURSE OUTCOMES
1	Digital Signal & Image Processing(CSC701)	Analyze the concept of DT Signal and perform signal manipulation.
		Analyze the DT Systems and find analysis of system in time domain.
		Analyze Fourier Transform System in frequency domain.
		Develop different DSP Algorithms.
		Analyze different operations and algorithm in image segmentation and image representations.
		Solve the image processing algorithms and techniques in image enhancement.
2	Mobile Communication & Computing(CSC702)	Analyze basic concepts and principles in mobile computing.
		Explain GSM, GPRS system ,mobile services and protocol.
		Analyze Medium Access Control, Mobile TCP,IP.
		Analyze WEP ,WPA, Wireless LAN Threats , Securing Wireless Networks.
		Explain Mobility Management.
		Analyze Long-Term Evolution.
3	Artificial Intelligence & Soft Computing(CSC703)	Develop a basic Analyzing of AI.
		Develop a basic Analyzing of AI building blocks presented in intelligent agents.
		Select the appropriate problem solving method and knowledge representation technique.
		Explain strength and weaknesses of AI approaches knowledge– intensive problem solving.
		Design models for reasoning with uncertainty as well as the Build of unreliable information.
		Design and develop the AI applications in real world scenario.
4	Advance System Security&Digital Forensics (CSDLO7031)	Analyze the concept of Cybercrime.
		Analyze underlying principles of access control mechanisms.
		Analyze Preserving and recovering of digital evidences.
		Analyze different attacks on a network.
		Analyze security management and policies
		Analyze understand and explore techniques used in digital forensics
5	Cyber Security and Laws(ILO7016)	Explain and identify different types cybercrime and cyber law
		Analyze Cyber offenses & Cybercrime.
		Analyze Tools and Methods Used in Cyberline.
		Analyze the Concept of Cyberspace.
		Explain Cyber Crime and Criminal Justice.
		Analyze Information Security Standard compliances.
6	Digital Signal & Image Processing(CSL701)	Analyze Sample and reconstruct the signal
		Analyze and apply operations like Convolution, Correlation, DFT and FFT on DT signals
		Analyze and Implement spatial domain Image enhancement techniques.
7	Mobile App.Devlopment Tech Lab(CSL702)	Demonstrate mobile applications using various tools
		Develop an application that uses GUI components.
		Demontrate an application that draws basic graphical primitives on the screen.
8	Artificial Intelligence & Soft Computing Lab(CSL703)	Explain Hybrid systems and build expert system.
		Explain basics of Neural Networks and Fuzzy Logic.
		Analyze supervised and unsupervised ANN for real world applications.
9	Computational Lab-I(CSL704)	Analyze static code and program vulnerabilities using open source tools.
		Explore and analyze network vulnerabilities using open source tools.
		Explore and analyze different security tools to detect web application and browser vulnerabilities.

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DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: BE **SEM: VIII** **SCHEME:CBGS**

COURSE OUTCOMES

On succesful completion of course learner will be able to

SR.NO.	SUBJECT	COURSE OUTCOMES
1	Human Machine Interaction(CSC801)	Analyze the psychology of humans for interaction with machines.
		Analyze and design for different experience of levels of Builders.
		Analyze make design of graphics for making GUI and Web UI.
		Analyze make good design for GUI and Web UI considering designing guidelines.
		Design good design using interaction styles.
		Analyze and design good communication style using Text messages.
2	Distributed Computing(CSC802)	Classify distributed systems, Distributed System Model.
		Analyze Message Oriented Communication, Stream Oriented Communication, Group Communication
		Analyze various Token Based and Non Token based Algorithms
		Analyze and desirable Features of global Scheduling algorithm
		Analyze Consistency, Replication and Fault Tolerance
		Explain Distributed File Systems and Name Services.
3	High Performance Computing(DLO8011)	Analyze Parallel Computing and Classification Models.
		Analyze various Pipeline Performances and Dynamic instruction scheduling.
		Demonstrate Parallel Programming Platforms with Memory System Performances.
		Demonstrate Parallel Algorithm Design
		Analyze Performance Measures : Speedup, execution time, efficiency, cost, scalability,etc
		Analyze Message Passing Interface, Topology and Embedding.
4	Environmental Management (ILO8029)	Analyze and identify environmental issues relevant to India and global concerns
		Analyze Global Environmental concerns.
		Analyze Ecosystems and interdependence between living organisms.
		Analyze Environment Quality Management and Corporate Environmental Responsibility
		Analyze Total Quality Environmental Management.
		Analyze General overview of major legislations.
5	Human Machine Interaction Lab(CSL801)	Demonstration of various interfaces like centric,user friendly,etc.
		Demonstration various application for social task,technical task,etc.
		Demonstrate appropriate icons pertaining to a given domain .
6	Distributed Computing Lab(CSL802)	Demonstrate applications like Client/Server application Using RMI,Multi-threaded application.
		Analyze Inter-Process communication ,Group Communication .
		Analyze various algorithm like Bully Election algorithm,Clock Synchronization algorithm
7	Cloud Computing Lab(CSL803)	Analyze and running virtual machines on open source OS.
		Analyze the concept of SaaS and implement using own Cloud.
		Analyze identity management in cloud and simulate it by using OpenStack.
8	Computational Lab-II(CSL804)	Analyze MPI platform by various programs.
		Demonstrate balancing of workload on MPI platform
		Demonstrate OpenMP implement parallel programming for calculator application

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: SE **SEM: III** **SCHEME:C-SCHEME**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
1	ENGINEERING MATHEMATICS-III (ECC301)	Apply the concept of Laplace Transforms to solve real integrals in Engineering problems.
		Apply the concept of Inverse Laplace Transforms to various functions in Engineering problems.
		Expand the periodic function by using Fourier series for real life problems and complex engineering problems.
		Apply complex variable theory to find harmonic conjugate,orthogonal trajectories & analytic function.
		Use Matrix algebra to solve engineering problems.
		Apply the concept of vector calculus in real life problems.
2	ELECTRONIC DEVICES AND CIRCUITS (ECC302)	Know functionality and applications of various electronic devices.
		Explain working of various electronics devices with the help of V-I characteristics.
		Derive expressions for performance parameters of BJT and MOSFET circuits.
		Evaluate performance of Electronic circuits (BJT and MOSFET based).
		Select appropriate circuit for given application.
		Design electronic circuit (BJT, MOSFET based) circuits for given specifications.
3	DIGITAL SYSTEM AND DESIGN (ECC303)	Explain number systems and digital codes and conversions.
		Describe types of digital logic, logic gates and logic families.
		Analyse, design and implement combinational logic circuits.
		Analyse, design and implement sequential logic circuits.
		Classify different types of memories and PLDs.
		Simulate and implement basic combinational and sequential circuits using VHDL/Verilog.
4	NETWORKS THEORY (ECC304)	Apply their knowledge in analyzing Circuits by using network theorems.
		Apply the time and frequency method of analysis.
		Evaluate circuit using graph theory.
		Find the various parameters of two port network.
		Apply network topology for analyzing the circuit.
		Synthesize the network using passive elements.
5	ELECTRONIC INSTRUMENTS AND CONTROL (ECC305)	Discuss basic Concept of Instruments and Measure various parameters.
		Explain Principal of operations for various Sensors and Transducers.
		Determine transfer functions for given systems.
		Explain response of control system.
		Calculate time domain parameter for given
		system and Predict its Stability using appropriate Criteria.
6	ELECTRONIC DEVICES AND CIRCUIT LAB (ECL301)	Outline of various equipment's, electronics devices and components, and measuring Instruments used to perform laboratory work.
		Explain functionality of various equipment's, electronics devices and Components and measuring instruments used to perform laboratory work.
		Make use of various equipment's, devices, components and measuring devices using bread board as per the circuit diagram for experiment to be performed.
		Design experiment to gather appropriate data.
		Analyze data obtained from experiment to relate theory with experiment results
7	DIGITAL SYSTEM AND DESIGN LAB (ECL302)	Identify various Digital ICs and basic building blocks of digital system design
		Design and implement combinational circuits like adder, subtractor, multiplexer, code converters etc.
		Identify and understand working of various types of flip flops and their inter conversions.
		Design and implement basic sequential circuits such as counters, registers etc.
		Acquire basic knowledge of VHDL/Verilog basic programming.

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: SE **SEM: III** **SCHEME:C-SCHEME**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
8	ELECTRONICS INSTRUMENTATION AND CONTROL(ECL303)	Plot and validate the performance characteristics of transducers.
		Observe the frequency response specifications of systems by using bode-plot, Polar plot,Nyquist-plot techniques, and comment on the stability of system
9	SKILL LAB: OOP USING JAVA AND C++ LAB (ECL304)	Describe the basic principles of OOP.
		Design and apply OOP principles for effective programming.
		Develop programming applications using OOP language.
		Implement different programming applications using packaging.
		Analyze the strength of OOP.
		Percept the Utility and applicability of OOP.
10	MINI PROJECT-1A (ECC305)	Create the electronics circuit for particular application/experiment.
		Design and simulate the circuits by putting together the analog and digital components.
		Learn the technique of soldering and circuit implementation on general purpose printed circuit board (GPP).
		Realize the PCB design process and gain up-to-date knowledge of PCB design software.
		Utilize the basic electronic tools and equipment's
		Analysis of hardware fault (Fault detection and correction)

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ACADEMIC YEAR 2020-21

YEAR: SE **SEM: IV** **SCHEME:C-SCHEME**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
1	APPLIED MATHMATICS - IV (ECC401)	Use the concept of complex integration for evaluating integrals, computing residues and various contour integrals.
		Apply the concept of correlation and regression to engineering problems in data science , machine learning and AI.
		Apply the concept of probability and expectation for getting the spread of data and distribution of probabilities.
		Apply the concept of vectors spaces and orthogonalisation process in engineering problems.
		Use the concept of Quadratic forms and singular value decomposition which are very useful tools in various engineering applications.
		Find the extremals of the functional using the concept of calculus of Variation.
2	MICROCONTROLLER (ECC402)	Discuss Computer and Microprocessor based System.
		Explain Memory for computer Systems
		Describe the detailed architecture of 8051
		Write programs for 8051 microcontrollers and Design an applications using microcontroller.
		Describe the detailed architecture of ARM7 Core.
		Select proper microcontroller for an application
3	LINEAR INTEGRATED CIRCUITS (ECC-403)	Explain the various current mirror circuits and analyze differential amplifier with active load
		Describe the linear application of operational amplifier
		Describe the non-linear application of operational amplifier
		Explain timer IC 555 with its applications
		Explain various voltage regulators
		Review the special function Integrated circuits
4	SIGNALS AND SYSTEMS (ECC404)	Classify and analyze different types of signals and systems
		Analyze continuous and discrete time LTI signals and systems in transform domain
		Represent signals using Fourier series and analyze the systems using the Fourier transform
		Analyze the systems using the Laplace transform
		Analyze the systems using the Z - transform
		Demonstrate the concepts learnt in signals and systems.Course using the modern engineering tools
5	PRINCIPLES OF COMMUNICATION ENGINEERING (ECC405)	Understand the basic components and types of noises in communication system.
		Analyze the concepts of amplitude modulation and demodulation.
		Analyze the concepts of angle modulation and demodulation.
		Compare the performance of AM and FM receivers.
		Describe analog and digital pulse modulation techniques.
		Illustrate the principles of multiplexing and demultiplexing techniques.
6	MICROCONTROLLER LAB (ECL401)	Discuss different development tools required to develop microcontroller based systems.
		Write assembly language programs for arithmetic and logical operations, code conversion & data transfer operations.
		Write assembly language programs for general purpose I/O, Timers & Interrupts.
		Interface & write programs for Input and Output devices
		Develop microcontroller based Applications
7	LINEAR INTEGRATED CIRCUITS LAB (ECL-402)	Demonstrate and calculate linear and non-linear application of OP-AMP
		Demonstrate basic Amplifier Circuit using OP-AMP
		Use of P-spice model for different linear circuit.

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YEAR: SE **SEM: IV** **SCHEME:C-SCHEME**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
8	PRINCIPLES OF COMMUNICATION ENGINEERING LAB (ECL403)	Analyze analog modulation techniques.
		Implement analog pulse modulation and demodulation circuits.
		Demonstrate digital pulse modulation and demodulation techniques.
		Verify the concepts of TDM and FDM.
9	SKILL LAB: PYHON (ECL404)	Describe syntax and semantics in Python
		Illustrate different file handling operations
		Interpret object oriented programming in Python
		Design GUI Applications in Python
		Express proficiency in the handling Python libraries for data science
		Develop machine learning applications using Python
10	MINI PROJECT 1B (ECM401)	Write basic codes for the Arduino board using the IDE for utilizing the onboard resources
		Apply the knowledge of interfacing different devices to the Arduino board to accomplish a given ta
		Design Arduino based projects for a given problem.
		Write code using python language using IDE for utilizing the onboard resources.

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ACADEMIC YEAR 2020-21

YEAR: TE **SEM: V** **SCHEME:CBCS**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
1	MICROPROCESSOR AND PERIPHERALS INTERFACING (ECC501)	Explain the basic concepts of microcomputer systems
		Explain the architecture and discuss software aspects of microprocessor 8086
		Compose Assembly language program in 8086
		Design 8086 systems to interface various peripherals and apply it for a task
		Design 8086 systems to interface ADC & DAC and apply it for a task
		Design elementary aspect of microprocessor based system
2	DIGITAL COMMUNICATION (ECC502)	Explain random variable and random process of signal.
		Apply the concept of Information theory in source coding.
		Evaluate performance of different error control codes.
		Compare different band-pass modulation techniques.
		Evaluate different method to eliminate Inter-symbol interference.
		Explain optimum reception of digital signal.
3	ELECTROMAGNETIC ENGINEERING (ECC503)	Discuss electromagnetics, including static and dynamic electromagnetic fields.
		Explain and analyse the knowledge of Electric Field In Material Space.
		Explain Steady Magnetic Field on the basis of various laws.
		Analyse Maxwell's equations and explain electromagnetic wave propagation.
		Analyse transmission line parameters and calculate them using smith chart.
		Explain applications of electromagnetics.
4	DISCRETE TIME SIGNAL PROCESSING (ECC504)	Explain the concepts of discrete-time Fourier transform and fast Fourier transform.
		Apply the knowledge of design of IIR digital filters to meet arbitrary specifications.
		Apply the knowledge of design of FIR digital filters to meet arbitrary specifications.
		Analyze the effect of hardware limitations on performance of digital filters.
		Apply the knowledge of DSP processors for various applications.
5	TV AND VIDEO ENGINEERING (ECCDLO 5012)	Explain types of picture tubes ,scanning & Transmission & Reception of signals
		Classify Colour Television system characteristics and different types of encoding systems
		Explain Basics of digital video formats and there comparison
		Explain types Digital Video Broadcasting
		Explain Advanced Digital Smart TV ,IP TV and its applications
		Discuss LCD LED and Chromcast TV
6	MICROPROCESSOR AND PERIPHERALS INTERFACING LAB (ECL501)	Discuss and draw architecture of microprocessor.
		Compile different tasks on microprocessor 8086 by using debug.
		Design the interface of peripheral with 8086.
7	DIGITAL COMMUNICATION LAB (ECL502)	Illustrate and verify sampling theorem.
		Illustrate various line code using MATLAB.
		Analyze bandpass modulation and demodulation technique using MATLAB.
		Analyze different error correcting codes by using MATLAB.
8	BUSINESS COMMUNICATION AND ETHICS LAB (ECL503)	Discuss buisness and professional writing skill
		Interpret technical proposal at buisness level.
		Apply interpersonal skill like leadership, team building and management proficiency.
		Illustrate ethical code of conduct in buisness and corparate activities.
		Illustrate employment skill like presentaiton skill, interview technique and group discussion.
9	OPEN SOURCE TECHNOLOGY FOR COMMUNJICATION LAB (ECL504)	Demonstrate Installation of Scilab and LT Spice
		Make use of SCILAB to perform different operations on signals..
		Design modulation waveform using Scilab
		Design different analog circuits LTSpice
10	TV AND VIDEO ENGINEERING LAB (ECCDLO 5012)	Demonstrate and test sound section of monochrome (b/w) television
		Demonstrate different layers of lcd display and led display
		Test and modify receiving frequency of dth receiver
		Test and **d**emonstrate settings of set top box
		Design and test basic remote control circuit and lvds cable for lcd panel.

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YEAR: TE **SEM: VI** **SCHEME:CBCS**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
1	MICROCONTROLLERS &APPLICATIONS (ECC601)	Discuss in detail architecture of 8051.
		Explain working of the microcontroller 8051 in depth and their instruction set & programming
		Design microcontroller 8051 system for interfacing various peripheral devices
		Discuss architecture of ARM 7 microcontroller.
		Explain working of ARM 7 microcontroller and their instruction set and compose program.
		Compose Assembly language and Embedded C program for microcontrollers
2	COMPUTER COMMUNICATION NETWORKS (ECC602)	Design a small or medium sized computer network including media types, end devices, and interconnecting devices that meets a customer‘s specific needs
		Apply the basic configurations on routers and Ethernet switches.
		Demonstrate knowledge of programming for network communications.
		Create computer networks and analyse the simulation results.
		Identify the connectivity problems in a host occurring at multiple layers of the OSI model.
		Develop knowledge and skills necessary to gain employment as computer network engineer and network administrator.
3	ANTENNA AND RADIO WAVE PROPAGATION (ECC603)	Define basic antenna parameters like radiation pattern, directivity and gain.
		Determine the field equations for the basic radiating elements like wire antenna and loop antenna.
		Analyze and design of uniform linear and planner arrays
		Discuss and analysis of aperture antennas.
		Analysis and apply microstrip antennas
		Analysis of antenna measurements & wave propagation.
4	IMAGE PROCESSING AND MACHINE VISION (ECC604)	Explain the fundamentals of digital image processing and its color image models.
		Discuss the need for image transforms, types and their properties.
		Classify different techniques employed for the enhancement of images both in spatial and frequency domain.
		Examine image morphology & restoration techniques and methods.
		Discuss need of image segmentation for feature extraction.
		Discuss the basics of boundary description and object recognition.
5	DIGITAL VLSI DESIGN (ECCDLO6021)	Explain the semiconductor technology, scaling and performance
		Analyze logic circuits with different design styles.
		Explain the operation of memory, storage circuits and data path elements
		Explain VLSI clocking style & I/O Circuit
6	MICROCONTROLLER &APPLICATIONS LAB	Make use of SPJ Simulator to perform different tasks on 8051 microcontroller.
		Make use of MPLAB & Proteus for Microcontroller 8051 Interfacing
7	COMPUTER COMMUNICATION NETWORKS LAB (ECL602)	Discuss network tools and their configuration.
		Construct the configuration of various network devices
		Design the network topology and services eg. Telnet, FTP
		Analyze the topology in NS-2 and configuration of WSN nodes with TCP and UDP
8	ANTENNA AND RADIO WAVE PROPAGATION	Classify different antenna parameters.
		Make use of MATLAB software for different types of antenna
9	IMAGE PROCESSING AND MACHINE VISION LAB (ECL604)	Make a use of MATLAB to perform different techniques of image processing.
		Demonstrate Image Processing for boundary description
		Analyze object recognition using MATLAB
10	DIGITAL VLSI DESIGN LAB (ECLDLO6021)	Discuss the semiconductor technology, scaling and performance
		Analyze logic circuits with different design styles.
		Explain the operation of memory, storage circuits and data path elements
		Explain VLSI clocking style & I/O Circuit

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YEAR: BE **SEM: VII** **SCHEME:CBCS**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
1	MICROWAVE ENGINEERING (ECC701)	Explain the microwaves, transmission lines and design matching networks.
		Differentiate and identify waveguides and microwave components
		State generation and amplification of microwaves
		Identify semiconductor devices
		Assess microwave measurements.
		Explain types of microwave integrated circuits.
2	MOBILE COMMUNICATION (ECC702)	Explain the cellular fundamentals and estimate the coverage and capacity of cellular systems.
		Classify different types of propagation models and analyse the link budget.
		Illustrate the fundamentals and system architecture of GSM, 2.5G and IS-95.
		Apply the concepts of 3G technologies of UMTS and CDMA 2000.
		Elaborate the principles of 3GPP LTE.
		Identify the emerging technologies for upcoming mobile communication systems.
3	OPTICAL COMMUNICATION (ECC703)	Explain fundamentals characteristics of optical fiber communication.
		Explain transmission characteristic of optical fiber.
		List and explain principles and characteristics of various sources of optical fiber.
		List and explain principles and characteristics of various detectors of optical fiber.
		List and explain principles and characteristics of various optical fiber components.
		Calculate parameters for optical link budgeting and analyze the link.
4	INTERNET COMMUNICATION ENGINEERING (ECCDLO7033)	Explain origin and current status of Internet and its services
		Explain Transport Layer protocols and Flow control, error control, congestion control Mechanism
		Classify internetworking routing protocols and there versions
		Explain the concepts of Internet Security system at different layer
		Explain concept of Multimedia Communications technique and standard
		Classify different Integrated and Differentiated Quality of Services (QoS)
5	CYBER SECURITY AND LAWS (ILO 7016)	Understand and recognize the consept of cyber crime and define its aspects of outside world.
		Able to identify and apply IT law in various legal issues
		Analyze and Evaluate different aspects of cyber law
		Evaluate the concept of Cyberspace and Intellectual property aspect.
		Recognize different Indian Act based on cyber security.
		Compile and Apply Information Security Standards during software design and development.
6	MICROWAVE ENGINEERING LAB (ECL701)	Explain different components used in lab.
		Measure S-parameters of two port networks
		Demonstrate matching networks using CAD tool
		Show analysis of microstrip lines
		Create matching networks using distributed papameters
		Measure frequency and wavelength using test bench
		Outline VSWR measurement using test bench
		Draw V-I characteristics of GUNN diode.
7	MOBILE COMMUNICATION LAB (ECC702)	Use of AT commands of MHT software to perform different task on MHT hardware
		Use of CDMA Architecture in Mobile Communication System
		Use of GPRS Architecture in Mobile Communication System
8	OPTICAL COMMUNICATION LAB (ECL703)	Demonstration and calculation of numerical aperture.
		Demonstration of signal transmission using different optical sources.
		Demonstration of dispersion and detection of fault using OTDR
		Demonstration of optical multiplexer.
		calculate link power budget.
9	INTERNET COMMUNICATION ENGINEERING (ECLDLO7033)	Create different types of Server on Packet Tracer
		Design a Network and Configure IP related services
		Create and Configure protocol for communication over internet
		Create and Configure Network Security System
		Compare the different Protocols using any Simulation Tool

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YEAR: BE	**SEM: VIII**

COURSE OUTCOMES

SR.NO	SUBJECT	COURSE OUTCOMES
1	RF DESIGN (ECC801)	Design impedance matching networks and passive RF filters.
		Design and appraise RF amplifier
		Design and characterize RF oscillators and mixers
		Discuss types of frequency synthesizers
		Analyze types of electromagnetic interference in RF circuits
		Discuss types of electromagnetic compatibility in RF circuits
2	WIRELESS NETWORK (ECC802)	Explain the fundamentals, architecture, design issues and standards of wireless networks along with Body Area Network (BAN).
		Describe personal area network (PAN) technologies such as Zigbee, Bluetooth, UWB, RFID, NFC etc.
		Lists different LAN topologies and technologies.
		Illustrate the fundamentals and architecture of wireless Metropolitan Area Networks (WMAN) and describe the phases of planning and design of wireless networks
		Describe various wireless adhoc networks architecture, traffic related protocols and transmission technology.
		Explain basic architecture and working of WSN, WMN and IOT.
3	SATELLITE COMMUNICATION (ECCDLO8043)	Explain the basics of satellite communication and discuss satellite orbital parameter.
		Analyze and design satellites as per various conditions of space
		Discuss earth station configurations.
		Explain and analyzes link budget of satellite signal for proper communication
		Explain space segment access and utilization.
		Discuss the different application of satellite communication
4	ENVIORMENTAL MANAGEMENT	Identify environment, management, systems & organisations in relation to environmental management.
		Demonstrate an integrative approach to environmental issues with a focus on sustainability.
		Understand concepts of ecology
		Understand corporate environmental responsibility & environment quality management.
		Identify the role of the IS 14000 series of standard in industry.
		General overview of major legislations of different types of environmental act.
5	RF DESIGN LAB (ECL801)	To characterize type of RF filter.
		Design passive massive network.
		Demonstrate Smith chart for microwave amplifier design
		Design gain and noise circles for transistor amplifier design.
6	WIRELESS NETWORKS LAB (ECL802)	Make use of NS-2 software to simulate wireless networks.
		Analyze and design wireless network.
		Design and analyze link budget of GSM and CDMA.
7	SATELLITE COMMUNICATION LAB (ECLDLO8043)	Analyze and measure different signal of satellite communication.
		Analyze and Measure different parameter of satellite link budget.
		Make Use of STK and Celestia software for domestic and space satellite system.

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DEPARTMENT OF FIRST YEAR ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: FE **SEM: I** **SCHEME:C**

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	ENGINEERING MATHMATICS-I (FEC101)	Apply the basic concept of complex numbers and will be able to use it for engineering programs
		Apply hyperbolic functions and logarithms in the subject like electrical circuit.
		Apply the basic concept of partial differentiation of functions of several variables and will be able to use in subjects like electromagnetic theory.
		Apply the concept of maxims ,minima and successive will be able to use it for optimization and tuning the systems.
		Apply the concept of matrices and will be able to use it for solving engineering programs.
		Apply the concept of numerical methods for solving the engineering programs with the help of scilab software.
2	ENGINEERING PHYSICS-I(FEC102)	Illustrate the fundamentals of Quantum Mechanics & apply the knowledge of Quantum Mechanics to uncertainty principle & motion of free particle.
		Illustrate the knowledge of crystal planes, X- ray diffraction & use XRD technique to determine crystal structure.
		Illustrate the knowledge of Fermi level in semiconductors & applications of semiconductors in electronic devices.
		Illustrate the knowledge of interference in thin films & use this knowledge to Antireflecting & Highly reflecting film.
		Illustrate the basic knowledge of superconductors & supercapacitors.
		Illustrate the knowledge of engineering materials like multiferroics & applications
3	ENGINEERING CHEMISTRY-I (FEC103)	Explain the concept of atomic and molecular orbital theory and relate it to diatomic molecule.
		Describe the concept of aromaticity and interpret it with relation to specific aromatic systems
		Explain the various types of intermolecular forces and relate it to real gases.
		Understand thermodynamics in studying different chemical systems in equilibrium obeying Gibb's phase rule.
		Describe chemistry of polymers; apply knowledge of various polymers in their classification synthesis, properties and uses along with their compounding and fabrication techniques.
		Describe types of hardness of water and its estimation & Calculate percentage of impurities in water, apply the knowledge of various softening and disinfecting methods.
4	ENGINEERING MECHANICS (FEC104)	Illustrate the concept of force, moment and apply the same along with the concept of equilibrium in two and three dimensional systems with the help of FBD.
		Demonstrate the understanding of Centroid and its significance and locate the same.
		Correlate real life application to specific type of friction and estimate required force to overcome friction.
		Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation
		Illustrate different types of motions and establish Kinematic relations for a rigid body
		Analyze particles in motion using force and acceleration, work-energy and impulsemomentum principles
5	BASIC ELECTRICAL ENGINEERING (FEC105)	Apply various network theorems to determine the circuit response / behaviour.
		Evaluate and analyse 1-Φ circuits.
		Evaluate and analyse 3-Φ AC circuits.
		Explain the constructional features and operation of 1-Φ transformer.
		Illustrate the working principle of 3-Φ machine.
		Illustrate the working principle of 1-Φ machines.
6	ENGINEERING PHYSICS-I(FEL101)	Perform the experiment based on interference in thin film & analyse the result.
		Verify the theory learned in module Crystallography.
		Perform the experiment on Hall effect & determine Hall coefficient.
		Perform the experiment on junction diode & analyse I/V charecteristics of diode.
		Perform the experiment on Zener diode & analyse its use.

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DEPARTMENT OF FIRST YEAR ENGINEERING

ACADEMIC YEAR 2019-20

YEAR: FE **SEM: I** **SCHEME:C**

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
7	ENGINEERING CHEMISTRY-I (FEL102)	Demonstrate Chloride content and hardness of water sample
		Demonstrate free acid ph of different solutions
		Demonstrate metal ion concentration,
		Synthesize polymers, biodegradable plastics.
		Demonstrate Viscosity of oil
8	ENGINEERING MECHANICS (FEL103)	Illustrate the concept of force, moment and apply the same along with the concept of equilibrium in two and three dimensional systems with the help of FBD.
		Demonstrate the understanding of Centroid and its significance and locate the same.
		Correlate real life application to specific type of friction and estimate required force to overcome friction.
		Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation
		Illustrate different types of motions and establish Kinematic relations for a rigid body
		Analyze particles in motion using force and acceleration, work-energy and impulse momentum principles
9	BASIC ELECTRICAL ENGINEERING (FEL104)	Determine and analyse the behaviour of DC circuits using network theorems.
		Perform and infer experiment on single phase AC circuits.
		Demonstrate experiment on three phase AC circuits.
		Illustrate the performance of single phase transformer
		Illustrate the performance of D C Machines.
10	WORKSHOP PRACTICS-I(FEL105)	Develop the necessary skill required to handle/use different fitting tools.
		Develop skill required for hardware maintenance.
		Able to install an operating system and system drives.
		Able to identify the network components and perform basic networking and crimping.
		Able to prepare the edges of jobs and do simple arc welding.
		Develop the necessary skill required to handle/use different plumping tools.
		Demonstrate the turning operation with the help of a simple job

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DEPARTMENT OF FIRST YEAR ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: FE **SEM: II** **SCHEME:C**

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	ENGINEERING MATHMATICS-II (FEC201)	Apply the basic concept of first order and first degree differential equation to the problems in the field of engineering.
		Apply the concepts of higher order linear differential equation to the engineering programs.
		Apply the concept of beta and gamma function to solve improper integrals.
		Apply the concept of double integral of different coordinate systems to the engineering programs like area and mass.
		Apply the concept of triple integral of different coordinate systems to the engineering programs and problems based on volume of solids.
		Solve differential equations and integratios numerically using scilab software to experimental aspects of Engineering mathematics.
2	ENGINEERING PHYSICS-II(FEC202)	Describe the diffraction through slits and its applications.
		Apply the foundation of laser and fiber optics in development of modern communication technology.
		Relate the basics of electrodynamics which is prerequisite for satellite communications, antenna theory etc.
		Explain the fundamentals of relativity.
		Assimilate the wide scope of nanotechnology in modern developments and its role in emerging innovating applications.
		Interpret and explore basic sensing techniques for physical measurements in modern instrumentations
3	ENGINEERING CHEMISTRY-II (FEC203)	Describe the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
		Explain the concept of emission spectroscopy and describe the phenomena of
		fluorescence and phosphorescence in relation to it
		Explain the concept of electrode potential and nernst theory and relate it to electrochemical
		cells.
		Describe Types of Corrosion, Factors affecting the rate of corrosion, Proper designing, Use of inhibitors,
		Describe Twelve Principles of Green chemistry, numerical on atom economy, Conventional and green synthesis
		Apply classification of fuels-solid, liquid and gaseous., Cracking- Definition, Types of cracking, Combustion
4	ENGINEERING GRAPHICS (FEC204)	Apply the basic principles of projections in Projection of Lines and Planes
		Apply the basic principles of projections in Projection of Solids.
		Apply the basic principles of sectional views in Section of solids.
		Apply the basic principles of projections in converting 3D view to 2D drawing.
		Read a given drawing.
		Visualize an object from the given two views.
5	C PROGRAMMING (FEC205)	Illustrate the concept of force, moment and apply the same along with the concept of equilibrium in two and three dimensional systems with the help of FBD.
		Demonstrate the understanding of Centroid and its significance and locate the same.
		Correlate real life application to specific type of friction and estimate required force to overcome friction.
		Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation
		Illustrate different types of motions and establish Kinematic relations for a rigid body
		Analyze particles in motion using force and acceleration, work-energy and impulsemomentum principles

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DEPARTMENT OF FIRST YEAR ENGINEERING

ACADEMIC YEAR 2019-20

YEAR: FE **SEM: II** **SCHEME:C**

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
6	PROFESSIONAL COMMUNICATION AND ETHICS- I (FEC206)	Eliminate barriers and use verbal/non-verbal cues at social and workplace situations.
		Employ listening strategies to comprehend wide-ranging vocabulary, grammatical structures, tone and pronunciation
		Prepare effectively for speaking at social, academic and business situations.
		Use reading strategies for faster comprehension, summarization and evaluation of texts
		Acquire effective writing skills for drafting academic, business and technical documents
		Successfully interact in all kinds of settings, displaying refined grooming and social skills.
7	ENGINEERING PHYSICS-II(FEL201)	Perform the experiments based on diffraction through slits using Hg source and analyze the results.
		Perform the experiments based on diffraction through slits using Laser source and analyze the results.
		Perform the experiments based on diffraction through slits using Laser source and analyze the results.
		Perform the experiments based on diffraction through slits using Laser source and analyze the results.
		Perform the experiments using optical fibre to measure numerical aperture of a given fibre.
		Perform the experiments on ultrasonic transducer for distance measurement and analyze the result.
8	ENGINEERING CHEMISTRY-II (FEL202)	Demonstrate moisture and ash content of coal
		Demonstrate saponification and acid value of oil
		Demonstrate flash point of a lubricating oil
		Synthesize a drug and a biofuel.
9	ENGINEERING GRAPHICS (FEL203)	Make use of command to draw 2D drawing using software.
		Apply to convert given 3D into 2D views using tools in software
		Apply convert given 2D into 3D drawing using software
10	C-PROGRAMMING (FEC204)	Translate given algorithms to a program..
		Correct syntax and logical errors
		Write iterative as well as recursive programs.
		Represent data in arrays, strings and structures and manipulate them through a program.
		Declare pointers and demonstrate call by reference concept
11	PROFESSIONAL COMMUNICATION AND ETHICS- I (FEL205)	Listen and comprehend all types of spoken discourse successfully.
		Speak fluently and make effective professional presentations.
		Read large quantities of text in a short time to comprehend, summarise and evaluate
		Content.
		Draft precise business letters, academic essays and technical guidelines.
		Dress finely and conduct themselves with panache in social, academic and professional situations.
12	WORKSHOP PRACTICS-II(FEL206)	Develop the necessary skill required to handle/use different carpentry tools.
		Identify and understand the safe practices to adopt in electrical environment.
		Demonstrate the wiring practices for the connection of simple electrical load/ equipment.
		Design, fabricate and assemble pcb.
		Develop the necessary skill required to handle/use different masons' tools.
		Develop the necessary skill required to use different sheet metal and brazing tools.
		Able to demonstrate the operation, forging with the help of a simple job.

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: SE **SEM: III** **SCHEME: C (R-19)**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Engineering Mathematics-III (MEC301)	Apply the concept of Laplace transform to solve the real integrals in engineering problems.
		Apply the concept of inverse Laplace transform of various functions in engineering problems.
		Expand the periodic function by using Fourier series for real life problems and complex engineering problems.
		Find orthogonal trajectories and analytic function by using basic concepts of complex variable theory.
		Apply Matrix algebra to solve the engineering problems.
		Solve Partial differential equations by applying numerical solution and analytical methods for one dimensional heat and wave equations
2	Strength of Materials (MEC302)	Demonstrate fundamental knowledge about various types of loading and stresses induced.
		Draw the SFD and BMD for different types of loads and support conditions.
		Analyse the bending and shear stresses induced in beam.
		Analyse the deflection in beams and stresses in shaft.
		Analyse the stresses and deflection in beams and Estimate the strain energy in mechanical elements
		Analyse buckling phenomenon in columns.
3	Production Processes (MEC303)	Demonstrate an understanding of casting process
		Illustrate principles of forming processes.
		Demonstrate applications of various types of welding processes.
		Illustrate the concept of producing polymer components and ceramic components.
		Illustrate principles and working of non-traditional manufacturing
		Understand the manufacturing technologies enabling Industry 4.0
4	Materials and Metallurgy (MEC304)	Identify the various classes of materials and comprehend their properties
		Apply phase diagram concepts to engineering applications
		Apply particular heat treatment for required property development
		Identify the probable mode of failure in materials and suggest measures to prevent them
		Choose or develop new materials for better performance
		Decide an appropriate method to evaluate different components in service

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YEAR: SE **SEM: III** **SCHEME: C (R-19)**

SR.NO	SUBJECT	COURSE OUTCOMES
5	Thermodynamics (MEC305)	Demonstrate application of the laws of thermodynamics to a wide range ofsystems.
		Compute heat and work interactions in thermodynamicsystems
		Demonstrate the interrelations between thermodynamic functions to solve practicalproblems.
		Compute thermodynamicinteractions using the steam table and Mollier chart
		Compute efficiencies of heat engines, power cycles.
		Apply the fundamentals of compressible fluid flow to the relevant systems
6	Materials Testing (MEL301)	Prepare metallic samples for studying its microstructure following the appropriate procedure.
		Identify effects of heat treatment on microstructure of medium carbon steel and hardenability of steel using Jominy end Quench test
		Perform Fatigue Test and draw S-N curve
		Perform Tension test to Analyze the stress - strain behaviour of materials
		Measure torsional strength, hardness and impact resistanceof the material
		Perform flexural test with central and three point loading conditions
7	Machine Shop Practice (MEL302)	Know the specifications, controls and safety measures related to machines and machining operations.
		Use the machines for making various engineering jobs.
		Perform various machining operations
		Perform Tool Grinding
		Perform welding operations
8	Skill Based Lab: CAD – Modeling (MESBL301)	Illustrate basic understanding of types of CAD model creation.
		Visualize and prepare 2D modeling of a given object using modeling software.
		Build solid model of a given object using 3D modeling software.
		Visualize and develop the surface model of a given object using modeling software.
		Generate assembly models of given objects using assembly tools of a modeling software
		Perform product data exchange among CAD systems.
9	Mini Project - 1A (MEPBL301)	Identify problems based on societal /research needs.
		Apply Knowledge and skill to solve societal problems in a group.
		Develop interpersonal skills to work as member of a group or leader.
		Demonstrate capabilities of self-learning in a group, which leads to life long learning
		Analyse the impact of solutions in societal and environmental context for sustainable development.
		Demonstrate project management principles during project work.

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: SE **SEM: IV** **SCHEME: C (R-19)**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Engineering Mathematics-IV (MEC401)	Apply the concept of Vector calculus to evaluate line integrals, surface integrals using Green's theorem, Stoke's theorem & Gauss Divergence theorem.
		Use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.
		Apply the concept of Correlation, Regression and curve fitting to the engineering problems in data science
		Illustrate understanding of the concepts of probability and expectation for getting the spread of the data and distribution of probabilities.
		Apply the concept of probability distribution to engineering problems & testing hypothesis of small samples using sampling theory.
		Apply the concepts of parametric and nonparametric tests for analyzing practical problems.
2	Fluid Mechanics (MEC402)	Define properties of fluids, classify fluids and evaluate hydrostatic forces on various surfaces.
		Illustrate understanding ofdimensional analysis of Thermal and Fluid systems.
		Differentiate velocity potential function and stream function and solve for velocity and acceleration of a fluid at a given location in a fluid flow.
		Formulate and solve equations of the control volume for fluid flow systems and Apply Bernoulli's equation to various flow measuring devices.
		Calculate pressure drop in laminar and turbulent flow, evaluate major and minor losses in pipes.
		Calculate resistance to flow of incompressible fluids through closed conduits and over surfaces.
3	Kinematics of Machinery (MEC403)	Identify various components of mechanisms
		Develop mechanisms to provide specific motion
		Draw velocity and acceleration diagrams of various mechanisms
		Choose a cam profile for the specific follower motion
		Predict condition for maximum power transmission in the case of a belt drive
		Illustrate requirements for an interference-free gear pair
4	CAD/CAM (MEC404)	Identify suitable computer graphics techniques for 3D modeling.
		Transform, manipulate objects & store and manage data.
		Develop 3D model using various types of available biomedical data.
		Create the CAM Toolpath for specific given operations.
		Build and create data for 3D printing of any given object using rapid prototyping and tooling processes.
		Illustrate understanding of various cost effective alternatives for manufacturing products.

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ACADEMIC YEAR 2020-21

YEAR: SE **SEM: IV** **SCHEME: C (R-19)**

SR.NO	SUBJECT	COURSE OUTCOMES
5	Industrial Electronics (MEC404)	Illustrate construction, working principles and applications of power electronic switches.
		Identify rectifiers and inverters for dc and ac motor speed control.
		Develop circuits using OPAMP and Timer IC 555.
		Identify digital circuits for industrial applications.
		Demonstrate the knowledge of basic functioning of microcontrollers.
		Analyze speed-torque characteristics of electrical machines for speed control.
6	Python Programming (MEL403)	Demonstrate understand of basic concepts of python programming.
		Identify, install and utilize python packages
		Develop and execute python programs for specific applications.
		Develop and build python program to solve real-world engineering problems
		Prepare a report on case studies selected
7	Skill based Lab: CNC and 3-D Printing (MESBL401)	Develop and execute part programing for any given specific operation.
		Build any given object using various CNC operations.
		Demonstrate CAM Tool path and prepare NC- G code.
		Develop 3D model using available biomedical data
		Build any given real life object using 3D printing process.
		Convert 2D images into 3D model
8	Mini Project - 1B (MEPBL 401)	Identify problems based on societal /research needs.
		Apply Knowledge and skill to solve societal problems in a group.
		Develop interpersonal skills to work as member of a group or leader
		Use standard norms of engineering practices
		Demonstrate capabilities of self-learning in a group, which leads to life long learning.
		Demonstrate project management principles during project work.

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ACADEMIC YEAR 2020-21

YEAR: TE **SEM: V** **SCHEME:CBCGS**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Dynamics of Machinery (MEC504)	Demonstrate working Principles of different types of governors and Gyroscopic effects on the mechanical systems.
		Illustrate basic of static and dynamic forces.
		Determine natural frequency of element/system.
		Determine vibration response of mechanical elements / systems.
		Illustratevibration isolation system for a specific application.
		Demonstrate basic concepts of balancing of forces and couples.
2	Mechanical Measurements and Control (MEC502)	Classify various types of static characteristics and types of errors occurring in the system.
		Classify and select proper measuring instrument for linear and angular displacement.
		Classify and select proper measuring instrument for pressure and temperature measurement.
		Analyse mathematical model of system/process for standard input responses.
		Analyse error and differentiate various types of control systems and time domain specifications.
		Analyse the problems associated with stability.
3	Internal Combustion Engines (MEC501)	Demonstrate working of systems and processes of S I and CI Engine
		Demonstrate the lubrication, fuel and ignition system SI and CI engines
		Analyze the Engine performance
		Illustrate the emission and how to control in Engine
		Demonstrate the electronic controls
4	Press Tool Design (MEDLO5011)	Demonstrate various press working operations for mass production of sheet metal parts.
		Identify and build the concepts pertaining to design of press tools.
		Explain the working drawing and setup for economic production of sheet metal component .
		Select suitable material for different element of press tool.
		Illustrate the principles and blank development in bent & drawn components.
		Illustrate failure mechanisms of pressed components, safety aspects and automation in press working.
5	Heat Transfer (MEC503)	Identify the three modes of heat transfer.
		Illustrate basic modes of heat transfer.
		Develop mathematical model for each mode of heat transfer.
		Develop mathematical model for transient heat transfer.
		Demonstrate and explain mechanism of boiling and condensation.
		Analyse different heat exchangers and quantify their performance.

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ACADEMIC YEAR 2020-21

YEAR: TE **SEM: VI** **SCHEME:CBCGS**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Metrology and Quality engineering (MEC601)	Demonstrate the basic measurement unit and different gauges.
		Illustrate working principle of measuring instruments and calibration methodology.
		Illustrate basic concepts and statistical methods in quality control.
		Demonstrate characteristics of screw threads, gear profile, and tool profile.
		Illustrate the different sampling techniques in quality control.
		Illustrate different nondestructive techniques used for quality evaluation.
2	Refrigeration and Air Conditioning (MEC604)	Demonstrate fundamental principles of refrigeration and air conditioning .
		Identify and locate various important components of the refrigeration and air conditioning system .
		Illustrate various refrigeration and air conditioning processes using psychometric chart.
		Design Air Conditioning system using cooling load calculations.
		Estimate air conditioning system parameters.
		Estimate duct size and design concepts.
3	Machine Design I (MEC602)	Demonstrate understanding of various design considerations.
		Illustrate basic principles of machine design.
		Design machine elements for static as well as dynamic loading.
		Design machine elements on the basis of strength/ rigidity concepts.
		Utilize design data books in designing various components.
		Apply skill in preparing production drawings pertaining to various designs.
4	Finite Element analysis (MEC603)	Solve differential equations using weighted residual methods.
		Develop the finite element equations to model engineering problems governed by second order differential equations.
		Apply the basic finite element formulation techniques to solve engineering problems by using one dimensional elements.
		Apply the basic finite element formulation techniques to solve engineering problems by using two dimensional elements.
		Apply the basic finite element formulation techniques to find natural frequency of single degree of vibration system.
		Utilize commercial FEA software, to solve problems related to mechanical engineering.
5	Mechatronics (MEDLO6021)	Identify the suitable sensor and actuator for a mechatronics system.
		Select suitable logic controls.
		Analyse continuous control logics for standard input conditions
		Develop ladder logic programming.
		Design hydraulic/pneumatic circuits.
		Design a mechatronic system.

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: BE **SEM: VII** **SCHEME:CBCGS**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Machine Design -II MEC701	Design of spur, helical, bevel and worm Gears.
		Design of rolling contact bearings .
		Design of hydro dynamically lubricated bearings .
		Design of cam and roller follower.
		Design and selection of Belts .
2	CAD/CAM/CAE MEC702	Identify proper computer graphics techniques for geometric modeling.
		Explain the 2-D Transform, manipulate objects and store and manage data.
		Plan part programming applicable to CNC machines.
		Discuss rapid prototyping and tooling concepts in any real life applications.
		Identify the tools for Analysis of a complex engineering component.
		Explain transform manipulate objects store and manage data.
3	Automobile Engineering MEDLO7032	Compare Transmission systems, Live axle and differential.
		Discuss the Necessity of Brakes, Steering and Front axles.
		Discuss the Necessity of Suspension, Wheels and Tyres.
		Demonstrate the Electrical system.
		Analyse the forces concerned with Body Engineering.
		Discuss & compare the recent trends in Automobiles.
4	Production Planning and Control MEC703	Illustrate production planning functions and manage manufacturing functions in a better way.
		Develop competency in scheduling and sequencing of manufacturing operations.
		Discuss the inventory model, demand of the product and prepare an aggregate plan.
		Develop the skills of Inventory Management and cost effectiveness.
		Create a logical approach to Line Balancing in various production systems.
		Build techniques of manufacturing planning and control.
5	Product Lifecycle Management ILO7011	Gain knowledge about phases of PLM, PLM strategies and methodology for PLM feasibility study and PDM implementation.
		Illustrate various approaches and techniques for designing and developing products.
		Apply product engineering guidelines / thumb rules in designing products for moulding, machining, sheet metal working etc.
		Acquire knowledge in applying virtual product development tools for components, machining and manufacturing plant

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: BE **SEM: VIII** **SCHEME:CBCGS**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Design of Mechanical Systems MEC801	Apply the concept of system design .
		Design of hoisting mechanism of EOT crane.
		Design belt conveyor systems .
		Design pumps for the given applications .
		Design engine components such as cylinder, piston, connecting rod and crankshaft .
		Design of machine tool gearbox .
2	Power Engineering MEC803	Compute heat interactions in combustion of reactive mixtures
		Differentiate boilers, boiler mountings and accessories
		Calculate boiler efficiency and assess boiler performance
		Demonstrare working cycles ofgas turbines
		Draw velocity triangles of impulse/reaction turbines and calculate performance parameters/efficiency
		Demonstrate basic working of pumps
3	Power Plant Engineering MEDLO8041	List various equipment/systems utilized in power plants.
		Demonstrate site selection methodology, construction and operation of Hydro Electric Power Plants.
		Discuss working, site selection, advantages, disadvantages of steam power plants.
		Discuss operation of Combined Cycle Power Plants.
		Discuss types of reactors, waste disposal issues in nuclear power plants.
		Illustrate power plant economics.
4	Industrial Engineering and Management MEC802	Illustrate need for optimization of resource and its significance in manufacturing industries..
		Develop capability in integrating knowledge of design along with other aspects of value addition in the conceptualization and manufacturing stage of various products. .
		Demonstrate the concept of value analysis and its relevance.
		Explain different concepts involved in methods study.
		Classify different aspects of work system design and facilities design pertinent to manufacturing industries..
		Explian Agile manufacturing, flexible manufacturing and lean Manufacturing
5	Environmental Management ILO8029	Identify environment, management, systems & organisations in relation to environmental management.
		Demonstrate an integrative approach to environmental issues with a focus on sustainability.
		Understand concepts of ecology
		Understand corporate environmental responsibility & environment quality management.
		Identify the role of the IS 14000 series of standard in industry.
		General overview of major legislations of different types of environmental act
6	Renewable Energy Sources MEDLO8043	Define the need of different renewable energy sources
		Illustrate importance of renewable energy sources
		Explian various renewable energy sourses in Indian context
		Simply and find utilization of solar and wind energy
		Analyse the design of bio gas
		Explain basics of hydrogen energy

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: ME **SEM: I** **SCHEME:CBCGS**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Energy scenario, policy and environment (ESMC101)	Define the role of energy in global economic development.
		Analyze energy consumption pattern in India and its effect on economic development..
		Determine impact of International energy policy on national energy growth..
		discuss the Indian and International energy policies.
		Analyze Industrial Energy and environment .
		Explain relationship between energy, ecology and environment.
2	Energy efficiency in thermal system (ESMC102)	Define the reasons of incomplete combustion and attempt to reduce the subsequent impact..
		Discuss the ENCON opportunities and Furnace..
		Discuss the ENCON opportunities and Boilers..
		Measure performance evalution of cogeneration.
		Determine ENCON opportunities in thermal systems.
		Measure and improve the quality of recovered waste energy.
3	Conventional power plant (ESMC103)	Distinguish between energy & power and understand power plant cycles in detail.
		Explain steam systems and steam power plant installation, operation, maintenance, and life cycle economics.
		What are Hydroectric power plants site selection and elements..
		Illustrate Gas Turbine power plants site selection and elements.
		Illustrate nuclear power plant installation, operation, maintenance, and life cycle economics.
		Define the advantages and disadvantages of combined operation of power plants.
4	Utilization of solar energy (ESMDLO1011)	Estimate and quantify available solar radiation.
		Discuss simulation of solar processes.
		Explain the Solar Photovoltaic cells.
		Identify and describe the basic principles and methodologies of solar systems.
		Design the solar energy collection system.
		Discuss the basic economics ofsolar energy systems.
5	Energy audit and management (ILO1018)	Identify and describe present state of energy security and its importance.
		describe the basic principles and methodologies adopted in energy audit of an utility..
		Define energy audit principles.
		Discuss the energy performance evaluation of some common electrical installations and identify the energy saving opportunities.
		Explain the energy performance evaluation of some common thermal installations and identify the energy saving opportunities.
		Explain the energy performance evaluation of some common thermal installations and identify the energy saving opportunities.

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR 2020-21

YEAR: ME **SEM: II** **SCHEME:CBCGS**

COURSE OUTCOMES

Learner will be able to

SR.NO	SUBJECT	COURSE OUTCOMES
1	Advances in energy audit and management (ESMC201)	Distinguish between energy auditing stages & detailed energy auditing procedure.
		Explain Energy Auditing in PAT Cycle Explain the Roles of Energy manager and Energy audit.
		Discuss the Monitor and setting target in energy consumption..
		Discuss the framework of PAT cycle and understand M&V audit.
		Discuss the framework of PAT cycle and understand M&V audit.
		Discuss the commercial energy audits.
2	Energy efficiency in electrical systems (ESMC202)	Evaluate losses in electrical and power systems and improve its energy efficiency..
		Determine ENCON opportunities in Fan, Blowers and Compressors.
		Determine ENCON opportunities in HVAC Systems.
		Determine ENCON opportunities in electrical motor systems.
		Determine ENCON opportunities in fluids handling systems.
		Determine ENCON opportunities in lighting systems.
3	Renewable and sustainable energy systems (ESMC203)	Discuss sustainability initiatives for reducing energy impacts on environment.
		Explain the solar energy Technology.
		Explain the Wind power Technology.
		Discuss the role of renewable energy in climate change..
		Determine the efficient solar and wind energy technology.
		Discuss the current trends in sustainable and renewable energy.
4	Fuels combustion and emission control (ESMDLO2022)	Distinguish between conventional, non-conventional and nuclear fuels.
		Explain the types and production process of fuels.
		Determine the requirements for complete combustion process.
		List the Emission control methods .
		Analyse the effects of emission control.
		Discuss the combustion of fuels.
5	Research methodology (ESMDLO2022)	Explain a preliminary research design for projects in their subject matter areas.
		Explain the accurately collect, analyze and report data.
		Explain the IPR .
		Analyze research findings.
		List the various Research techniques for research data collection.
		Discuss present complex data or situations clearly.

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Department of Master of Management Studies

ACADEMIC YEAR 2020-21

COURSE OUTCOMES

YEAR: FY **SEM: 1** **SCHEME:C-SCHEME**

SR. NO	SUBJECT	COURSE OUTCOMES
1	Perspective Management	To Define look atmultiple perspectives that impact business and life.
		To demonstrate empirical To demonstrate empirical organizational processes and behaviors and the theories associated with them
		To Define demonstrate leadership behaviourswhich will be three pronged:leading self, leading for change and impact
		explore differentm approaches and their consequences during crisis management
		To understand the role of managers and citizens in society
		To Classify ways of staying positive and having a healthy mind
		To understand the roles and functions of managers at various (entry, middle and the top) levels
		To Examine the behavior, skills and mindset of a manager and of a leader.
		To Analyze various concepts and examples related to Strategic Managemen
		To Define about the various steps to be followed to bring about change
		To understand the concepts and examples of TQM
2	Financial Accounting	To Define Clarity and understanding of the basic concepts of accounting and financial statements
		To Understanding the principles of revenue recognition and ability to distinguish between revenue and capital income and expenditure and their treatment in corporate financial statements
		To Understanding different methods of depreciation and their impact on profitability and asset valuation
		To apply the principles and concepts of accounting in preparing the financial statements
		To Understanding the concepts of inventory valuation and their effect on profit and cost of goods sold.
		To Define Ability to prepare a statement of changes in financial position with respect to working capital and cash
		To Choose Ability to execute the accounting processRecording- Classifying and Summarizing.
		To Identify Detailed and in depth understanding of all the items in the corporate financial statements
		To Understand Ability to read Annual Reports,Presentation and analysis of audit reports and directors' report
		To Understanding basic cost concepts and ability to prepare a simple cost sheet
		To Understanding the difference between errors and frauds; creative accounting and the Corporate Governance Report.
3	Business Statistics	To apply these basic concepts in business situations, Analyse charts graphs to analyse business situations
		To Understand the uncertainty in business situations as probability
		To Understand decision under risk, use of conditional expectation as basis for comparison
		To Find of distributions in Quality control, Six sigma and process control
		To Analyze Importance of Central limit theorem
		To Understand Confidence interval as way of hypothesis testing
		To Understand Model building
4	Operations Management	To Understand the basic concepts and learn how to apply the same.
		To Understand the physical processes
		To Analyze characteristics of equipment, machines and workflow
		To Identifycharacteristics of equipment, machines and workflow
		To how, when, what and how much to order, stock and cost implications
		To Identify capacity utilization, overall production planning and control
		To Identify concept of dependency

	Management	Understand and implement optimal ordering of jobs
		To Apply application of operation to services
		To Find measurement of time management
		To Choose quality and control methods, understand sources of variation and identify them on charts, process improvement
		To Find global standards, cost reduction
		To Define basic concept of supply chain
5	Managerial Economics	To decipher, analyse and apply the theory and practice of Managerial Economics
		To Identify of a businessman need to locate various factors affecting demand of his product and plan marketing & business strategies accordingly. Students develop an understanding of the practical application of law of demand.
		To develop an understanding of the various concepts and its applications
		To Select the analytics of supply and demand and its various uses.
		To Define should get an holistic understanding of production economy.
		To Define the relationship between costs, revenues, profits and losses
		To learn about the intricacies of the various market forms and their impact on the economy and business.
		To Identify about the intricacies of the various market forms and their impact on the economy and business.
		To Define students about various pricing practices
		To learn about the role of profit in business.
		To Define realize the importance of the different methods of capital budgeting as a tool of project manageme
6	Effective & Management Communication	To Select Historical background and the development of communication; Importance and role of communication in everyday life
		To Adopt Mechanics behind the communication process, difficulties experienced in communication
		To Identify Different types of communication, impedance due to extraneous factors called “barriers
		To Define Important non-verbal parameters in communication
		How to make your communication effective and attractive
		How to Communication in groups, guidelines to improve performance/effectiveness in group interactions
		How to become a convincing and forceful public speaker
		To Identify Ways to achieve impressive and meaningful written communication
		To Define Correct and effective Reportwriting techniques
		To Understanding cultural diversity and Business etiquette with foreign clients
		To Analyze Methods of effective audiovisual communication
		To Define Experiential learning through audio-visual means
7	Negotiations and selling skills	To Adopt Developing basic understanding of students related to Negotiation
		To Understand Providing deeper insight relatedto Negotiation framework
		To Find Familiarizing students with basics of models in negotiation and strategies
		To Explain students to understand the difference between Marketing and Selling and giving them useful tips for
		Introducingstudents to understand the difference between Marketing and Selling and giving them useful tips for
		To Define Creating awareness about importance of customer in selling process
		To Analyze Familiarizing students with different approaches required For selling different stakeholders
		To Define Familiarizing students with different approaches required for selling to different segments of customers.
		Creating awareness about challenges and opportunities available in Start-ups domains
		To enhance effectiveness of a Salesperson by understanding Clues provided by body language
		To Understand the nature and scope of organizational behavior at individual, group, organizational and societal levels
		To Understand Comprehend the meaning and determinants of personality and the effects of perception, attitude and values on work
		To Understand the concepts of group dynamics, team effectiveness , team roles and conflict management
		To Learn Distinguish between the various theories of motivation and their application in organizations

8	Organizationa l Behaviour	To Define the concept of leadership and distinguish between a number of different leadership theories
		To Identify the different bases of power; and discuss how individuals and groups use power in organizations
		To Understand the impact of organizational culture and structure on organizational behavior
		To Define the concept and practice of change management and organizational development; with an analytical insight related to application of interventions strategicaly
		To Enhanced understanding of the behavior of superiors, peers and subordinates especially in problem situations and the ways to deal with them more effectively
		To Illustrate , practice & solve report on improving discipline in college, the development of technology for managers, business etiquette when dealing with people, tips to become self-confident while .
		To Define Developing basic understanding of students related to Negotiation.Understanding Negotiation.
		To Understand Providing deeper insight relatedto Negotiation framework.
		To Define students to understand the difference between Marketing and Selling and giving them useful tips for succeeding in Sales.
		To enhance effectiveness of a Salesperson by understanding Clues provided by body language.
		To Analyze the nature and scope of organizational behavior at individual, group, organizational and societal.
		To Analize the concepts of group dynamics, team effectiveness , team roles and conflict management.
		To Identify Distinguish between the various theories of motivation and their application in organizations.
		To Dvelop the impact of organizational culture and structure.
		To Learn students to understand the difference between Marketing and Selling and giving them useful tips for succeeding in Sales.

COURSE OUTCOMES

YEAR: FY **SEM: 2** **SCHEME:C-SCHEME**

SR.NO	SUBJECT	COURSE OUTCOMES
1	Perspective Management	To Analyze the concepts in the marketing with respect to historical development of the subject
		To Define Fundamental concepts and vocabulary or practices from business perspective in the Organization.
		Define Marketing environment to help students to compare various opportunities available in various sectors
		To familiarize students with various concepts related to market research and its utility.
		Helping students to focus on Important issues related to success in consumer buying behavioural process vis a vis organizational buying behaviour process
		To Analyze Imparting knowledge of various important marketing concepts
		To Understand Various practices related to The important aspects of marketing in decision Making
		Understanding mechanism of developing a new product related process
		To familiarize students with various concepts relatedto Communication Design Process in effective marketing practice
		To understand the pricing dynamics being practiced by the organizations in different Sectors
		To anslyze basics of various models and their application in their field of work
		To Understanding of operational issues in order to support marketing process
2	Financial Management	To Understanding the basic concepts of corporate finance and Indian financial system
		To analyse the financial statements of companies using ratios
		To Ability to calculate the working capital requirements; analyse working capital policies and understanding operating and cash cycle
		To prepare pro-forma financial statements and calculate the EFR
		To Identify various evaluation techniques like NPV, IRR, PI, payback period etc. for evaluating capital expenditure decision
		Understanding the features and characteristics of various financing options
		Understanding different capital structure theories and the impact of D/E ratio on EPS
		To design the optimal capital structure
		To calculate DOL, DFL and DCL
		To Understanding the impact of dividend payout ratio and retention ratio on company's financial position
3	Operations Research	To Understand application in business. Data Envelopment Analysis as extension of LPP model
		To Understand special cases of LPP and apply in appropriate situation
		To Understand special case of LPP and apply in appropriate situation
		To Understand Competitive environment of business
		To Understand project management techniques
		To Understand queue model as a measure of performance of system
		To Identify In want of assumptions of the model a working system can be created
		To Define research; Types of researchExploratory research, Conclusive research; The process of research; Research applications in social and business sciences; Features of a Good research study.
		To Defining the Research problem; Management Decision Problem vs Management Research Problem; Problem identification process; Components of the research problem Formulating the research hypothesis- Types of Research hypothesis Writing a research proposal- Contents of a research proposal and types of research proposals.

4	Business Research Methods	To Identify Meaning of Research Designs; Nature and Classification of Research Designs Exploratory Research Designs: Secondary Resource analysis, Case study Method, Expert opinion survey Focus group discussions;Descriptive Research Designs: Crosssectional studies and Longitudinal studies; Experimental Designs, Errors affecting Research Design
		To Classification of Data; Secondary Data: Uses,Advantages, Disadvantages, Types and sources; Primary Data Collection:Observation method, Focus Group Discussion, Personal Interview method
		To Identyfy Types of Measurement Scales; Attitude;Classification of Scales: Single item vs Multiple Item scale, Comparative vs NonComparative scales, Measurement Error,Criteria for Good Measurement
		To Define Questionnaire method; Types of Questionnaires; Process of Questionnaire Designing; Advantages and Disadvantages of Questionnaire Method
		To Analyze Sampling concepts- Sample vs Census, Sampling vs Non Sampling error; Sampling Design- Probability and Non Probability Sampling design; Determination of Sample size- Sample size for estimating population mean, Determination of sample size for estimating the population proportion Data Editing- Field Editing, Centralized in house editing; Coding- Coding Closed ended structured Questions, Coding open ended structured Questions; Classification and Tabulation of Data.
		To Define Descriptive vs Inferential Analysis, Descriptive Analysis of Univariate dataAnalysis of Nominal scale data with only one possible response, Analysis of Nominal scale data with multiple category responses Analysis of Ordinal Scaled Questions,Measures of Central Tendency, Measures of Dispersion; Descriptive Analysis of Bivariate data
		Concepts in Testing of Hypothesis – Steps in testing of hypothesis, Test Statistic for testing hypothesis about population mean; Tests concerning Means- the case of single population; Tests for Difference between two population means; Tests concerning population proportion- the case of single population; Tests for difference between two population proportions.
		Chi square test for the Goodness of Fit; Chi square test for the independence of variables Chi square test for the equality of more than two population proportions
		Completely randomized design in a one-way ANOVA; Randomized block design in two way ANOVA; Factorial design
		To Identyfy Types of research reports – Brief reports and Detailed reports; Report writing: Structure of the research report- Preliminary section, Main report, Interpretations of Results and Suggested Recommendations; Report writing: Formulation rules for writing the report: Guidelines for presenting tabular data, Guidelines for visual Representations. Meaning of Research Ethics; Clients Ethical code; Researchers Ethical code; Ethical Codes related to respondents; Responsibility of ethics in research
5	Human Resource Management	To Apply the theoretical and practical aspects of human resource management to formulate strategies that will enable organizations to achieve both operational and strategic goals related to the organization's human capital
		To achieve both operational and strategic goals related to the organization's human capital
		To Define Study the personnel function with respect to its organization , polices and responsibilities in an organization
		To Understand the importance and the process of man power planning, the process of job analysis, compare and contrast methods used for selection and placement of human resources.
		To Understand the application of the theories of motivation , explaining the difference between internal and external equity in terms of monetary and non-monetary rewards and recognition
		To Explain the importance and process of performance management, organizational strategic planning and succession planning.
		To Describe the steps required to analyze needs ,develop and evaluate an employee training and development programs in organizations
		To Define the concept and practice of change management and organizational development with an analytical insight related to application of OD interventions strategically
6	Cost & Management Accounting	To Understanding the concepts related to Financial, Cost and Management Accounting
		To Understanding the difference between direct and indirect cost as well as apportionment and allocation of cost
		To Define Ability to prepare the cost sheet
		Understanding the computation methods of cost under various costing methods
		To Identify Ability to make decisions using marginal cost concept and calculate BEP and Margin of safety
		Ability to prepare various types of budgets and analyze the functional as well as the master budgets
		To Define set a benchmark and calculate and analyze variances.
		To Understanding various responsibility centres and different transfer pricing methods for setting interdepartmental price
		To Understanding the concepts and application of activity based costing
		To calculate the selling price based on pre-determined target
		To calculate the cost of a product as it moves through the various phases of its life cycle
		To trace the direct costs and allocate indirect costs to present information on social and environmental costs and benefits
		To set up a cost sheet for service industry
7	legal and tax aspect	To Understanding the law and concepts of parties to the contract, consideration andother legal concepts related to Contract
		To Understanding the meaning of sale of goods and the rights and duties of vendor andconsumer under the Act.
		To Understanding various negotiable instruments available under the Act
		To Understanding the rights and duties of consumers under the Consumer Protection Act
		To Understanding the requirements of forming a company under different categories and the importance of MOA, AOA and Prospectus
		To Understanding the meaning and definition of intellectual property, types of intellectual property and the safeguards available through law against violation of intellectual property rights.
		To Understanding the framework of Indian Income Tax Act with concepts of tax slabs,TDS, etc.
		To compute the income tax and tax liability of various assesses based on different cases
		To Show Getting clarity on concepts of Indirect taxes, manufacturing, excisable goods, classification of goods, valuation of goods and CENVAT
		To Understanding the scope and coverage of Customs Act. Students should be clear about the types of customs duties and the classification and valuation of goods.
		To Understanding the difference between MVAT and State Sales tax and the tax slabs and exemptions in the AcT

8	Business environment	To decipher, analyse and understand the environment of business
		To analyse and understand the environment of business.
		To decipher, analyse and understand the environment of business.
		To understand the need for various campaigns and also the impact of changes in the various macroeconomic variables on economy as well as on business.
		To Define the need for various campaigns and also the impact of changes in the various macroeconomic variables on economy as well as on business.
		To develop understanding about the Union Budget and its impact on the various sectors
		To develop an understanding of the opportunities & challenges of the policies relating to LPG with reference to business
		To develop a holistic understanding of the external sector as well as multilateral organization
		To develop a holistic understanding of the external sectoras well as multilateral organization

COURSE OUTCOMES

YEAR: SY		**SEM: 3** **finance** **SCHEME:C-SCHEME**
R.N	**SUBJECT**	**COURSE OUTCOMES**
1	Perspective Management	To Identify Familiarization with terminologies and processes ofStrategic Management
		To Understanding of Strategic Management so as to enable the students shoulder responsibilities in the ever changing global arena
		To Show Environmental scanning and appreciation of external business environment for effective strategy formulation
		To DefineSBU portfolio managementand strategic coherence
		To Define Acquaintance with tools of strategic fit
		To Understanding industry analysis and sustainable competitive advantag
		To Exaplain Leveraging Sustainable unique advantage with path dependence
		To Identifying strategic gaps in the market and filling them with unique advantage
		To Understanding organizational growth options, strategizing and implementing them
		To Understanding non- financial perspective and strategic parameters in the globalized world
2	Financial Markets and Institutions	To Understanding Indian financial system and its components
		To Understanding the role of RBI in the IFS
		To Enhanse Comprehension of SE functioning and various products issued by different financial institutions in primary market of India
		To Identify Ability to understand different financial products issued in domestic and foreign markets and the working of clearing houses, broking houses, stock exchang
		To Understand new markets,products and players
		To outline the basics of derivative products available in financial markets
		To comprehend the working of intermediaries
		To understand different concepts of fixed income securities
		To understand and compute different measures of risk of fixed income securities
		To Exaplain General understanding of currency markets and its role in the financial system
3	Financial Regulations	To Understanding regulatory framework for international funds and commodit market
		To Understanding the financial regulations framework and its significance in financial system
		To Define Clarity and understanding the framework of various financial regulatory and statutory bodies
		To Define Clarity and understanding of the regulatory framework with respect to SEBI in regulating the capital market
		To Understanding the regulatory framework of IRDA and CCI
		To Understand Clarity on money laundering concept and its regulation
		To Understanding the significance of regulating the credit rating agencies
		To Understanding the significance of FEMA and foreign trade policy regulations framework
		To Understanding the basics of derivatives markets
		To Understanding the process of pricing and valuation of forwards and futures
		To Understanding mechanics of options and creating synthetic options
4	Derivatives and Risk Management	To understand pay off of each strategy
		To Define Valuations of options and creating scenario analysis using Excel
		To Understanding risk assessment methods and Options Greeks
		To Understanding volatility and its relation to demand and supply of options
		To Understanding the process of trading, clearing and settlement
5	Invesment Banking	To Define Clarity and understanding of the basic concepts of investment banking
		To Understanding of core functions of investment banking
		To Understanding the concept of market intermediaries, support service providers and regulatory provisions of market and security issurance
		To Understanding the concept of IPO, FPO and important provisions of ICDR
		To Understanding the concept of underwriting as well as underwriters services in IPO process.
		To Explain Developing skills in valuation in an M & A setting
		To Understanding the buyback and delisting process
		To Understanding international bond markets, GDR and ADR and international regulatory framework
		To Understanding meaning, need and scope of corporate restructuring, models of restructuring, role of professionals in restructuring process
		To Understanding the entire framework of private placements
		To Understanding the basics of securities
		To Understand the risk return analysis
		To calculate prices using EMH

6	Security Analysis and Portfolio Management	To carry on company analysis and valuation of equity shares
		To Understand the fixed income securities
		To Explain Ability of creating and tracking index
		To Explain Ability to carry on technical analysis
		To apply capital market theories
		To Understanding and applying factor models and APT
		To Understanding and applying investment decision theory
		To Understanding and applying portfolio theory
7	International Business	To Explain Clarity and understanding of thebasic concepts in wealth management
		To apply the principles and concepts of wealth management
		To Understanding riskreturn trade off
		To Detailed and in depth understanding traditional asset classes
		To Detailed and in depth understanding of alternate asset class
		To Understanding the principles of portfolio modelling and its practical use
		To Understanding the importance of insurance,the various insurance policies and ability to calculate HLV
		To Understanding the concepts of retirement planning and tax implications
		Ability to prepare a will
8	: Corporate Valuation and Mergers & Acquisitions Course	To Understanding the basic concepts of valuation and the interplay of factors affecting valuation
		To Understand the role of leverage, working capital and ratios in valuation
		To calculate the elements of risk, return and cash flows
		To Expalin Overview of valuation using discounted cash flow methods and ability to calculate the same
		To Idntify of different alternative methods used in valuation
		To Understanding valuation of real options with help of binomial model and Black and Scholes model
		To Understanding the guidelines to be followed in valuation reports
		To Understand the different methods of financing, payment and tax considerations and other factors important for deal structuring
		To Understanding the alternative business restructuring methods for creation of shareholders wealth

YEAR: SY SEM: 3 HRM SCHEME:C-SCHEME

R.N	SUBJECT	COURSE OUTCOMES
1	Training & Development	To Explain Introduction to the philosophy of human resources
		To Understanding business context for reward strategies and preparing strategies
		To Understanding the elements of reward strategy and management
		To Define Exploring Compensation / Remuneration place in Reward Strategy
		To Understanding Elements of Compensation Structure
		To Explain Learning to Cost the CTC of each element of Compensation Structure
		To Understanding the concept of Inflation
		To Understanding Provident Fund, ESIC, Gratuity, Superannuation, Bonus under Payment of Bonus Act
		To Identify Learning various types of Variable Pay
		To Explain Learning the details of remuneration survey
		To Explain The elements of reward strategy and management.
		To Analyze Preparing the CTC of an employee
		To Exaplain Learning the intricacies of equity compensation plans
		To understanding income tax
2	Compensation and Benefits	To Identify the philosophy of human resources
		To Understanding business context for reward strategies and preparing strategies
		To Understanding Elements of Compensation Structure
		To Identify Compensation / Remuneration place in Reward Strategy
		To Explain Learning to Cost the CTC of each element of Compensation Structure
		To Understanding the concept of Inflation
		To Understanding Provident Fund, ESIC, Gratuity, Superannuation, Bonus under Payment of Bonus Act
		To Explain Learning various types of Variable Pay
		To Understanding Income Tax
		To Define Preparing the CTC of an employee
		To Identify Learning the details of remuneration survey
		To Enhanse Learning the intricacies of equity compensation plans
		To Explain Knowledge about running the assessment centre and Report writing and learning about how to give feedback
3	Competency Based HRM and Performance Management Course	To Understanding concept of Competency and its relevance to modern day Organization
		To Shoe Learning about the conceptual frame work of Performance Management System and its linkage with HR practices
		To Translate Gaining knowledge about the various methods of data collection in mapping process and knowledge of validating the Competency model.
		To Exaplain Learning about the Implementation of Performance Management System, issues and challenges
		To Identify Studying performance management as a tool for employee development
		To Understanding the process of conducting staff appraisal
		To Understanding performance consulting
		To Identify Overview of ethical practices in performance managemet
		To Study of rewards for performance

4	Labour Laws and Implications on Industrial	To give a snapshot of IR and the faculty to relate importance of IR to Labor Laws, changing dynamics of IPR
		To Understanding court jurisdictions and basics of labor laws
		To study history, provisions, case laws & amendments under each law
		To Define Just an overview needs to be taught
5	Human Resource Planning and Application of Technology in	To Explain Introduction to HR Planning and forecasting
		To Show Learning the concept of job analysis and selection
		To Understanding the nuances of workforce diversity
		To Understand Overview of application of technology in HR
		To Explain Introduction to HR Analytics
6	Employee Relation & Labour Law & Alternate Dispute Resolution	To Discuss the History of the IR Movement & Growth in India
		To Discuss variour Defination of IR & IR Approaches with their Advantages & Disadvantages
		To Define the genesis of conflict in IR & variour methods to prevent same
		To Understanding variour methods to solve the conflict. Drafting simple settlement agreements & discuss issues related to enforceability of agreement
		To Explain Preparing to create an employee brand
		To Explain Creation and Operationalization of Employee Brand
		To Identify high light the importance labour welfare & workers participation in managemet & how can it help for smooth industrial relation
		To Explain chaper is expected to be thought completely with practical exaple of companies, no paricular book required for the same

YEAR: SY **SEM: 3** **Marketing** **SCHEME:C-SCHEME**

R.N	SUBJECT	COURSE OUTCOMES
1	Sales Management	To Familiarising the student with the sales management function
		To understanding about sales organisations across sectors.
		To develop an appreciation of negotiations & sales of services and physical good
		To Identify right attitude and skills for sales force. Developing an understanding of Territory Management.
		To Explain Familiarising the students with techniques of sales process
		To Show Learn tools & techniques to set sales targets.
		how to motivated sales team and how compensation is linked to sales force performance and retention. To develop an understanding of the Art of positive evaluation
		To Developing skills to effectively manage sales force.
		To Explain Learning to calculate delivery schedules.
		To Understanding the relationships between the present sales & future plans of the organisation as well as an appreciation of costs.
2	Marketing Strategy	To Understanding the basics of Marketing strategy and tactics
		To Understand the strategic aspects of New Product Development & Commercialization
		To understand and apply various matrices to evaluate marketing programmes
		To Understanding issues in formulating product and brand policies
		To understand levers to manage prices.
		To Show Formulating a Marketing Plan.
		Understanding the issues in the design and management of channel
3	Consumer Behaviour	To understand 1. Concept of consumer behaviour, Role and importance of consumer behaviour to a marketers
		To Show How consumer behaviour has changed due to digital revolutionTo understand models of consumer behaviour
		To understand the psychological and physiological aspects of consumer behaviour
		To Explain Marketing applications of consumer perception theory
		To understand consumer learning processes and its impact on consumer behaviour
		To understand the various models pertaining to consumer attitudes and their impact on marketing
		To understand the development of personalities through different theories
		To understand the consumption behaviour of social classes
		To understand the influence of groups and families on the diffusion of innovation and adoption of new products
		To understand impact of cultures and values on Indian consumer.
		To understand issues in Post purchase decisions
		Understanding the B2B buying proces
4	Services Marketing	To understand Fundamentals of services
		To understand Consumer Behaviour in Service industry
		To understand Gaps in service delivery
		To Analyze how to forecast demand, Planning delivery and capacity by using service assets of an organization
		To Define Students will be able to understand how to use complaints as an opportunity for service recovery and enhance customer loyalty
		To understand how Companies align internal capabilities to deliver external promises for customer loyalty
		To understand use of CRM in customer satisfaction and retention
		To prepare for service sector by evaluating, giving feedback on their presentation for service sector organization
5	Retail Management	To Understand basics of Retailing
		To Understanding the Key elements in Retail planning process
		To Understanding Different Retail formats
		To Understanding issues in supply chain
		To Understanding the customer experience and engagement
		To Understanding market segmentation
		To Understanding Pricing strategy

		To Understanding Webbased retailing
6	Product and Brand Management	To Understanding the functions of Product Management
		To Understanding the portfolio analysis and tools
		ToUnderstanding the relationship between Product strategy and PLC
		To Understanding NPD process
		To Exaplain the Financial Implications across PLC
		To Explain the fundamentals of Brand Management
		To Understanding Brand development process
		To Define Branding Decisions
		To Understanding Brand Equity and its measure

YEAR: SY SEM: 3 Operations SCHEME:C-SCHEME

R.N	SUBJECT	COURSE OUTCOMES
1	Supply Chain Management	To Understanding of Supply chain
		To Understanding of Logistics concept
		To Understanding of Warehousing function and distribution channel
		To Understanding of Warehouse process and logistics information system
		To Understanding of customer service and performance measurement
		To Understanding of Transportation modes
		To Understanding various distribution network
		To Understanding importance of information in supply chain
		To Understanding of various outsourcing activities and RSP
		To Understanding procurement through Internet and impact.
		To Understanding various international issues and challenge
		To Understanding various performance measurements tools in supply chain
		To Understanding various ethics, Rules and regulations in supply chain
		To Understanding recent trends in supply chain.
2	Operation Analytics	To Understand Forecasting and predictions
		To Understand and use various techniques for demand forecasting
		To evaluate the appropriateness of the projective technique
		To understand service efficiency analysis
		To know management of service operations in Retail
		To identify the supply chain related measuremen
		To understand and list the risk and performance of supply chain
		To know the reporting of the analytics
		To understand performance metrics in various cases
3	Service Operations Management	To understanding of services
		To Understanding of workflow of Services
		To Understanding complexity of services
		To Developing quantitative ability for decision making
		To Define Developing quantitative ability for decision making
		To Identify Developing quantitative ability
		To Understanding Profitability in Service Industry
		To Understanding Inventory in Service Industry
		To Explain Outsourcing concept in services
		To Explain Inventory control in Service industry
		To Show Assessment of Performance of Services
		To Identify Inventory control in Service industry
4	Manufacturing Resource Planning and control	To Analyze Profitability in Service Industry.
		To Show Capacity Management: Introduction to capacity, capacity management, need capacity planning level visa visca, production planning.
5	Materials Management	To Explain Preparation for the course in respect Operations as well as Organization
		To Show Planning with financial perspective Understanding impact of MRP on financial statements
		To Explain Overview of Purchasing activities
		To Understand Detailed understanding of Purchase Process
		To Show Basic understanding of purchase of projects
		To Explain Basic introduction to imports
		To understand how industry give selective importance to specific materials
		To Understanding the controls over materials
		To Understanding the impact codification on computerization & decision making
		To Explain Importance of standardization
		To Understanding the processes & financial impacts
		To Identify Learning the industry process & its financial impact
		To Explain Importance of Ethics in Materials Management
		To Show Basic introduction to Materials handling
		To Understand concept of quality
		To know and appreciate the development of quality movemen
		To know and appreciate the development of quality movement

6	Total Quality Managemen	To understand the statistical techniques and tools for quality control
		To know the methodology of sampling
		To understand techniques and tools for quality control
		To understand role of employee and their involvement
		To understand role and functioning of quality circle
		To know how to measure the process capabilities
		To understand the relation of Cost and Quality
		To know Just In Time and Lean Manufacturing

YEAR: SY SEM: 3 Systems SCHEME:C-SCHEME

R.N	SUBJECT	COURSE OUTCOMES
1	Data Base Management System & Data Warehousing	To Explain Knowing about the Distributed Databases
		To Understanding the concepts of RDBMS and Normalization Process
		To Show Application of SQL in DBMS
		To Understand the OOD w.r.t RDBMS and its advantages
		To Explain Gaining an insight on Database Security and User Rights
		To Understand the Concept of Data Warehousing
		To Understand the Concept of Data Mining and processin
		To Understand the role of Enterprise Management Systems in Business
2	Enterprises management system	To Identify Gaining an insight on Applications of EMS in various industry verticals
		To Explain Gain an insight on role of content management, challenges w.r.t building cashless organizations
		To Understand the concept of Enterprise Portal and related Technologies
		To Identifying and solving the challenges in integrating various enterprise applications
		To Understanding the applications of ERP in SCM and logistics Management
3	Big Data & Business Analytics	To Show Gain an insight on analytical tools and methods
		To Understand the basic concepts of Big Data and Business Analytics
		To Understand the predictive analytics and forecasting method w.r.t business analytics
		To Show Gaining an insight on Business metrics and data science in statistical computing
		To Understand Statistical computing methods like NLP, regression and other BI tools
		To Explain Gain an insight on cost estimation techniques for software development
		To Understand the quality assurance and system testing w.r.t to software development. Learn to design the test case, apply test case and work on CASE tool
		To Understanding the software lifecycles and methodologies Gain an insight on analysis and designing of information systems Understand the use cases and e-r diagrams for process mapping
4	Soft ware Engineering	To Understand the SRSdesigning and various stages involved in software development
		To Understand the quality assurance and system testing w.r.t to software development. Learn to design the test case, apply test case and work on CASE tools
		To Understand the latest Opportunities in IT Audit
		To Show Framework Understand theneed for Control Gain an insight on Business Information and related assets
		To Understand the IS Audit Practices
5	Information System Security & Audit	To Explain InformationProtection and Application Systems can belearnt and applied
		To Identify Information Protection anApplication Infrastructure w.r.t networks can belearnt and applied
		To Define Business Continuityplanning andimplementation can be learnt
		To Understand Auditing Tools, Career Option as IS Auditor and related Certifications
		To Explain Clarity and understanding of thebasic concepts in wealth management
		To apply the principles and concepts of wealth management
		To Understanding riskreturn trade off
6	Knowledge Mangement	To Explain Km infrastructure, solutionsand various components related to KM foundation can also be well understood and applied
		To Understanding the KMStructure, Organization Culture and Role of IT in facilitating the KM implementation.
		To Show Gain an Insight on KM dimensions, barriers and Performance factors w.r.t KM

COURSE OUTCOMES

YEAR: SY SEM: 4 finance SCHEME:C-SCHEME

SR. NO	SUBJECT	COURSE OUTCOMES
	Perspective Management	To Understanding of private equity process
		To Understanding how corporates invest in a new private equity
		To Explain Awareness of the current investing patterns, problems and issues faced by industries and PE investor
		To Understand financial valuation methods and strategies and the impact of dilution
		To Show Integrating the valuation with term sheet
		To Understanding documents and critical pointers to due diligence
		To Understanding strategies made to negotiate and exit the fund
		To Understanding PE funds regulation

		To Explain Overview of taxation aspects while choosing PE as an investment alternat
		To Identify importance of ethics and value system
		To know the trends of the PE funding in the developing economies

YEAR: SY SEM: 4 HRM SCHEME:C-SCHEME

SR.NO	SUBJECT	COURSE OUTCOMES
1	od and change managemnt	To Understand the process of change in detail
		To Explain Impact of change on internal environment and management of the internal environment to make it conducive to change
		To Understanding the role oforganizational culture and its impact on change management
		To Explain Introduction to the concept of OD
		To Study of different approaches to OD
		To Understanding diagnosis, different diagnostic models and methods of data collection and analysis Study of different types of OD interventions
		To Identify Introduction to methods of monitoring change
		To Study of latest trends in OD and change management

YEAR: SY SEM: 4 MARKETING SCHEME:C-SCHEME

SR.NO	SUBJECT	COURSE OUTCOMES
1	business to business	To understand basics of B2B marketing
		To understand Industrial marketing environment
		To understand segmentation parameters in B2B marketing
		To understand the consequences of investment decisions in identifying markets.
		To understand dynamicsof B2B from specialty to commodity.
		To understand strategies for value added products and services.
		To understand different types of customer benefits.
		To understand various models of organisation buying behaviour
		To understand how to identify and manage key accounts
		To understand the importance of developing a competitive advantage in dominant designs
2	Project management	To Classify concepts of basics ofproject management, Evaluatenew project proposals, prepare detailed project report.
		To Understand network diagram, critical path, concepts of crashing network
		To Define risks in project management, make resource charts, find probability of completion of project
		To understand organization structure, flow of authority and responsibility
		To Understand concepts of earned value, prepare revised estimates of cost and time.
		To Evaluate project Financially, make projected statements of proposal
		To Explain introduce student to different softwares.
		To apply all above principles To cases, students Presentations.

YEAR: SY SEM: 4 OPERATIONS SCHEME:C-SCHEME

SR.NO	SUBJECT	COURSE OUTCOMES
1	Strategic sourcing in supply chan managemet	To undrstanding of purchasing
		To understanding of Purchasing
		To Explain Development of Basic purchasing strategies
		To Understanding about pattern of spending and costing
		To Understanding ofpurchase cycle from requisition to payment
		To Exaplin Basic introduction to imports
		To Understanding of types of purchase orders
		To Understanding aboutclassification about various types of items
		To Understanding of organization stricture and link between purchase and supply chain function
		To Understanding of Supplier evolution and selection
		To Understanding of Tools used inPurchasing.
		To Understanding of worldwide sourcing with currency impact
		To Understanding of costing and reduction of cost.

YEAR: SY SEM: 4 Systems SCHEME:C-SCHEME

SR. NO	SUBJECT	COURSE OUTCOMES
1	Strategic Information Technology Management	To Understand Role of Information Systems in Strategic Role of IT in gaining competitive advantage
		To Explain Basic Understanding of Enterprise systems
		To Understanding the importance of Decision Making using Data Mining & BI Tools
		To Understand the Web Based Research Tools
		To Show Grasping with the latest trends in Strategic IT Domain
		To Explain Learning the process ofdeveloping IT Strategy and creating new strategies for web andmobile development
2	oject manageme	To Identify concepts of basics ofproject management, Evaluatenew project proposals, prepare detailed project report.
		To Understand network diagram, critical path, concepts of crashing network