



SREE DATTHA INSTITUTE OF ENGINEERING & SCIENCE

Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist

Department of Civil Engineering

COURSE OUTCOMES

AY:- 2018-19

YEAR-SEM:- II-I

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Mathematics-IV	
C211.1	Analyze the complex functions with reference to their analyticity, integration using Cauchy's integral theorem
C211.2	Solve the Taylor's and Laurent's series expansion of complex functions
C211.3	Analyze the bilinear transformation
C211.4	Develop any periodic function in term of sines and cosines
C211.5	Examine a non- periodic function as integral representation
C211.6	Analyze one dimensional wave and heat equation
SPECIFIC LEARNING OUTCOMES – Strength of materials-I	
C212.1	Determine the stresses and strains in the members subjected to axial and bending loads.
C212.2	Analyze the Shear force and Bending moment in beams of different Support and Loading conditions.
C212.3	Understand and analyze the Flexural and Shear stresses in beams.
C212.4	Determine the slope and deflection of beams subjected to loads.
C212.5	Determine the principal stresses and strains in structural members.
C212.6	Understand and analyze the determinate and indeterminate aspects of engineering solid mechanics.
SPECIFIC LEARNING OUTCOMES – Fluid Mechanics-I	
C213.1	Fluid properties on a flow system and their uses. Measurements of pressure and instruments used.
C213.2	Understanding the concept of buoyancy and floatation.
C213.3	Understanding the fluid kinematics i.e, Analyzing the behavior of different fluid flows and continuity equation.
C213.4	Understanding the different equations for 3D flow and their applications. Understanding the discharge forces on flow tubes like orifice meter, venture meter etc.
C213.5	Analyze the closed conduit flows using Reynolds's experiment and the laws of fluid friction using Darcy's equation.
C213.6	Demonstrate boundary layer concepts .Explain the concept of prandtl contribution and Evaluate the Vonkarmen momentum integral equation.
SPECIFIC LEARNING OUTCOMES – Building Materials and Construction Planning	
C214.1	Demonstrate the ability to know about different materials such as stones, bricks, Tiles, wood, aluminum, glass & paints and their classification, manufacture and structural requirements.
C214.2	Ability to know about the materials used in making of concrete such as cement and admixtures.
C214.3	Ability to know about tests on cement such as field and lab tests and uses of cement and admixtures
C214.4	Graduates will demonstrate an understanding of various building components such as lintels, arches, types of roofs and joinery such as doors, windows and the materials used in making.
C214.5	Graduates will demonstrate various building services such as plumbing services, sanitary and ventilations.
C214.6	Graduates will demonstrate the various types of ventilations, air conditioning, types of air conditioning, fire protection and classification of fire hazards and fire resistant materials used in construction.

SPECIFIC LEARNING OUTCOMES – Surveying	
C215.1	To understand the usage of three basic surveying tools: the tape, the chain and the ranging rods and to measure distances and directions by using chain, tape and compass.
C215.2	To understand different methods of calculations of levelling and also to understand different characteristics and methods of contour surveying.
C215.3	To understand the different methods of calculation of areas and volumes of an irregular boundaries.
C215.4	To understand different methods of calculation of heights and distances using angular measurements.
C215.5	To understand the working principle of tachometric survey for the measurement of horizontal distances and differences in elevations and also to understand the necessity of different types of curves.
C215.6	To understand the different methods of calculation of vertical and horizontal angles and the slope distance using total station instrument
SPECIFIC LEARNING OUTCOMES – Strength of Material LAB	
C216.1	Conduct the site, specific field investigations including collection of soil samples for testing and observation of soil behavior/building damage.
C216.2	To identify and classify soils based on standard soil mechanics Engineering practice.
C216.3	To perform laboratory compaction and in- situ density Tests for fill quality control.
C216.4	To perform and interpret direct shear test, vane shear test and estimate shear strength parameters and conduct and estimate shear strength of soils in unconfined compression.
C216.5	To calculate and analyze constant head permeability tests.
C216.6	Be able to conduct one-dimensional compression tests and estimate settlement parameters
SPECIFIC LEARNING OUTCOMES – CAAD-I LAB	
C217.1	Create, annotate, edit and plot drawings using basic AutoCAD commands and features.
C217.2	To use command prompt area, scale and graphs in the software
C217.3	To understand various function keys and import and export of drawings
C217.4	To design and draw plans of single- storied and multi- storied building
C217.5	To develop sections and elevation for single- storied and multi- storied building
C217.6	To draw details of building components like doors, windows etc.
SPECIFIC LEARNING OUTCOMES – Surveying-I LAB	
C218.1	Measure the distances, areas and angles using conventional and modern instruments and methods
C218.2	Master the fundamental knowledge about distance measurement, leveling, angle measurement, surveying errors and adjustments.
C218.3	Apply the fundamental knowledge in the field of Civil Engineering to work on some small projects which need all the knowledge learned in this course
C218.4	Work closely in a team for finishing a project in the field.
C218.5	Complete laying out and setting out and do surveying calculation correctly based on the data collected in the field.
C218.6	Measure the distances, areas and angles using conventional and modern instruments and methods



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Department of Civil Engineering

COURSE OUTCOMES

A.Y:-2018-19

YEAR-SEM:- III-I

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Concrete Technology	
C311.1	Explain the different types of cement, grades of cement and hydration process.
C311.2	Classify different types of admixture and their usage.
C311.3	Understand aggregates and classification of aggregate depending upon shape, size, texture etc.
C311.4	Understand the concept of workability of concrete and factors affecting workability
C311.5	Understand the concept of segregation and bleeding in concrete.
C311.6	Explain the different tests involved in testing of hardened concrete.
SPECIFIC LEARNING OUTCOMES – Designing of Reinforced concrete structures	
C312.1	Understand the general behavior of the Reinforced concrete as per IS456-2000.
C312.2	Analyze and design reinforced concrete beams with detailing..
C312.3	Assess the stresses and design vertical and horizontal shear reinforcements in reinforced concrete members with detailing.
C312.4	Understand and design reinforced concrete compression members or columns.
C312.5	Analyze and design footings and understand the need for development length of reinforcement.
C312.6	Design of slabs and check for serviceability (crack and deflection) and ultimate limit state conditions. Design staircase with detailing of steel reinforcements.
SPECIFIC LEARNING OUTCOMES – Water resources engineering-I	
C313.1	Analyze the importance of hydrology, able to calculate the average rainfall over a basin, Understand the infiltration methods, evaporation and evapotranspiration.
C313.2	Apply hydrograph base flow concept, Understand hydrograph methods, the types of hydrograph and their applications.
C313.3	Understand the concept of ground water and its occurrence.
C313.4	Know about the complete concept of well development
C313.5	Know the importance of irrigation, types and methods, Analyze soil-water plant relationship, duty & delta and factors affecting them.
C313.6	Analyze the design of canals by using different methods.
SPECIFIC LEARNING OUTCOMES – Fundamentals of management	
C314.1	What are the circumstances that lead to management evolution and how it will affect future managers
C314.2	Analyze and evaluate the influence of historical forces on the current practice of management
C314.3	Identify and evaluate social responsibility and ethical issues involved in business situations and logically articulate own position on such issues.
C314.4	Explain how organizations adapt to an uncertain environment and identify techniques managers use to influence and control the internal environment.
C314.5	Develop the process of management's four functions: planning, organizing, leading, and controlling.
C314.6	Interpret and properly use vocabularies within the field of management to articulate one's own position on a specific management issue and communicate effectively with varied audiences.

SPECIFIC LEARNING OUTCOMES – Operating system	
C315.1	Apply optimization techniques for the improvement of system performance.
C315.2	Ability to design and solve synchronization problems.
C315.3	Understand about minimization of turnaround time, waiting time and response time and also maximization of throughput by keeping CPU as busy as possible.
C315.4	Ability to change access controls to protect files.
C315.5	Ability to compare the different operating systems.
C315.6	Ability to solve problems in operating systems.
SPECIFIC LEARNING OUTCOMES – Concrete Technology LAB	
C316.1	Determine and measure the engineering properties of the material i.e. aggregate crushing value, Impact value for coarse aggregate, specific gravity & water absorption and bulking of fine aggregate.
C316.2	Find resistance (wear and tear) aggregate by conducting attrition test & hardness of the coarse aggregate using the abrasion test and measuring elongation & flakiness.
C316.3	To conduct various test on bitumen i.e. consistency of the bitumen using penetration test and find adhesive & stretching value of bitumen with ductility test
C316.4	Find the tendency of the material to flow at elevated temperatures using ring & ball apparatus
C316.5	To determine the fineness, normal consistency initial & final setting time, specific gravity, soundness and compressive strength of cement
C316.6	Able to find the workability like slump cone, compaction factor, Young's modulus, compressive strength of concrete and find the strength of concrete.
SPECIFIC LEARNING OUTCOMES – Geographical Information System LAB	
C317.1	To develop Georeferencing of Toposheets.
C317.2	To understand Identification of ground control points and mosaicking.
C317.3	To develop Digitization and GIS coordination.
C317.4	To use GIS interface and features.
C317.5	To create case examples of mapping.
C317.6	To Understand and development of spatial technologies, mapping the field problems and solution convergence through GIS.
SPECIFIC LEARNING OUTCOMES – Hydraulics and Hydraulic Machinery LAB	
C318.1	To provide the students' knowledge in calculating performance analysis in turbines and pumps and can be used in power plants.
C318.2	To understand impact of jet of water and verification of hydraulic principle and understand the effect of hydraulic jump and its effect.
C318.3	To demonstrate characteristics curve and efficiency of pumps and demonstrate

	characteristics curve and efficiency of turbines.
C318.4	To provide the students with solid foundation in fluid flow principle.
C318.5	To conduct experiments in pipe flows and open channel flow and interpreting data from model studies to prototype cases, as well as documenting in the reports
C318.6	To determine the energy losses in conduits and understand and apply the basic law of hydraulics and to measure the discharge in a pipe flow, channel and orifice



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Department of Civil Engineering

COURSE OUTCOMES

A.Y:-2018-19

YEAR-SEM:- IV-I

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Remote sensing & Geographical Information System	
C411.1	To understand the concepts of Photogrammetry and compute the heights of the objects and also to understand the height measurement based on relief displacement, fiducial points and using parallax.
C411.2	To apply the knowledge of remote sensing and understand the integration of Remote Sensing.
C411.3	To understand and develop models for GIS spatial Analysis and also to understand the spatial and attribute data management, display, exploration and analysis.
C411.4	To understand the different types of map projections and coordinates systems used in GIS.
C411.5	To understand the application and Integration of Vector data and its importance in the Geographical Information System. And to demonstrate the importance of topology, and to learn different types of representation of features in GIS.
C411.6	To understand the application & Integration of Raster data and Vector data and its importance in the Geographical Information System. And also to understand the importance of source map and learning the on screen digitization
SPECIFIC LEARNING OUTCOMES – Transportation Engineering-II	
C412.1	Understand the importance of highway development of India and classification of roads and road patterns. Illustrate the factors affecting highway alignment and its design
C412.2	Design various geometric elements like curves, gradients, super elevation, etc.
C412.3	Compute traffic flow characteristics like speed, density and volume. Formulate methods of performing various traffic surveys.
C412.4	Analyze traffic signals intersections and road markings and their designs. Understand the factors affecting rotary design and intersections.
C412.5	Design of Flexible pavement; Understand the Empirical mechanistic theory of pavements and stresses in Rigid pavement.
C412.6	Understand highway networks planning and Design of highway geometrics, Intersections, flexible and rigid pavements.
SPECIFIC LEARNING OUTCOMES – Estimating & Costing	
C413.1	Understand the preparation of an approximate method of estimation & detailed estimation of building
C413.2	Estimate the quantity of earth work for roads and canals
C413.3	Evaluate the rates for various items of work
C413.4	Prepare quantity of steel reinforcement works and understand conditions of contracts
C413.5	Evaluate the valuation of building

C413.6	Determine the estimation of buildings, roads and canals
SPECIFIC LEARNING OUTCOMES – Water Resources Engineering-II	
C414.1	Understanding the reservoir, storage works, dams and their types and also their applications in daily civil engineering works
C414.2	Use of gravity dams, forces acting on a gravity dam & stability analysis for foundations of these types of dams are to be learned.
C414.3	Study of earthen dams & spill ways and their applications in current civil engineering construction practices.
C414.4	Study of Diversion head works, layout and the components, failures of weirs and silt ejectors and silt excluders.
C414.5	Study of various theories like blights, lanes and koalas for determining the creep in permeable foundations and the design principles of weirs on permeable foundations using above theories.
C414.6	Understand the design principles of canal falls, canal regulation works, cross drainage works.
SPECIFIC LEARNING OUTCOMES – Watershed Management	
C415.1	Develop different concepts for watershed behaviour
C415.2	Analyse interpret runoff data and quantify erosion
C415.3	Compare the different methods quantify erosion by using various methods
C415.4	Analyse land use classification and impact of land use
C415.5	Apply concepts of soil erosion changes on hydrological cycle parameters
C415.6	Evaluate and compare soil erosion problems in watershed management
SPECIFIC LEARNING OUTCOMES – Industrial Waste Water treatment	
C416.1	Identify industrial waste stream characteristics from several major industrial categories.
C416.2	Understand various Pre and Primary treatment stages of industrial waste water.
C416.3	Able to understand the different waste water treatment methods and their practice.
C416.4	Able to know the characteristics and composition of waste water from industries like Sugar, Food Processing, Steel and Petroleum Refineries and their manufacturing processes.
C416.5	Able to know the characteristics and composition of waste water from industries like Textiles, Tanneries, Atomic Energy Plants and other Mineral Processing Industries and understand Joint Treatment of Raw Industrial Waste Water and Domestic Sewage. Common Effluent Treatment Plants (CETP).
C416.6	Conversant about the polluting potential of major industries in the country and the methods for their treatment to control waste water pollution.
SPECIFIC LEARNING OUTCOMES – Concrete and Highway Material LAB	
C417.1	Determine and measure the engineering properties of the material i.e. aggregate crushing value, Impact value for coarse aggregate, specific gravity & water absorption and bulking of fine aggregate.
C417.2	Find resistance (wear and tear) aggregate by conducting attrition test & hardness of the coarse aggregate using the abrasion test and measuring elongation & flakiness.
C417.3	To conduct various test on bitumen i.e. consistency of the bitumen using penetration test and find adhesive & stretching value of bitumen with ductility test

C417.4	Find the tendency of the material to flow at elevated temperatures using ring & ball apparatus
C417.5	To determine the fineness, normal consistency initial & final setting time, specific gravity, soundness and compressive strength of cement
C417.6	Able to find the workability like slump cone, compaction factor, Young's modulus, compressive strength of concrete and find the strength of concrete.
SPECIFIC LEARNING OUTCOMES – Concrete and Highway Material LAB	
C418.1	Student's will be able to plan & execute experiments that demonstrate the use and understanding of instruments, appropriate recording skills, safe practices and use of environment engineering applications.
C418.2	Students will be able to develop a sense of community, responsibility by becoming aware of scientific issues in the large social context.
C418.3	Student's will become well-grounded in laws & theories of chemistry by applying the scientific methods and develop strategy towards effective use of chemical literature.
C418.4	Students will be able to demonstrate interpretative skills including the ability to analyze data statically, assess reliability, interpret results and draw responsible conclusions.
C418.5	Students will develop standards of professional behavior that includes rules of ethics and etiquettes.
C418.6	Student's will develop an appreciation for importance of environmental engineering as a major factor in preserving & protecting human health & environment and its role in civil engineering



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COURSE OUTCOMES

AY:- 2018-19

YEAR-SEM:- II-II

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Strength of material-II	
C221.1	To calculate the stresses developed in the shafts subjected to torque, bending moment and thrust and understand the design considerations to prevent the failure. And to be able to apply the formulae for the design of springs.
C221.2	To understand the failure phenomenon of columns and struts and finding the stresses developed in them. And to be able to calculate the stresses induced in beam columns.
C221.3	To apply the design principles for the design of dam, chimneys, retaining walls which are subjected to both direct and bending stresses.
C221.4	To calculate the stresses induced in thin cylinders and thick cylinders and obtain safe dimensions.
C221.5	To calculate the stresses developed in a beam subjected to unsymmetrical bending and also find shear center.
C221.6	To understand the correlation of engineering knowledge to the social causes, impact of engineering solutions on the society.
SPECIFIC LEARNING OUTCOMES – Fluid Mechanics-II	
C222.1	Compare the types of open channel flows and most economical sections and Compute drag and lift coefficients.
C222.2	Interpret about dimensional analysis, similitude, hydraulic models and numbers, Design channels.
C222.3	Compute flow profiles in channel transitions and analyze hydraulic transients, Distinguish between different types of hydrodynamic forces on jets.
C222.4	Summarize the different types of turbines and their working properties. Design the working proportions of hydraulic machines.
C222.5	Analyze compressible flows of liquids and gases; demonstrate about centrifugal pumps and hydropower plant.
C222.6	Predict the knowledge on dynamic equation for gradually varied flow.
SPECIFIC LEARNING OUTCOMES – Structural Analysis	
C223.1	Analyze perfect, Imperfect and Redundant Frames
C223.2	Formulate Equilibrium and Compatibility Equations For Structural members
C223.3	Analyze one Dimensional and two Dimensional Problems Using Classical methods
C223.4	Analyze indeterminate Structures
C223.5	Analyze Structures For gravity loads, Moving loads and Lateral loads.
C223.6	Examine the various structures to calculate critical stresses and deformations
SPECIFIC LEARNING OUTCOMES – Engineering Geology	
C224.1	Knowing the importance of geology in civil engineering. Distinguish weathered rocks from fresh rocks.
C224.2	Identify the Minerals & Rocks based on their physical properties. Understand the geological classification of rocks into Igneous, Sedimentary and metamorphic rocks, their identification based on structure and texture.
C224.3	Understand the importance of various associated geological structures like folds, faults, joints and unconformities present at site for foundations.
C224.4	Understanding the effects and causes of earthquakes and the precautions to be taken to prevent

	them. Methods and importance of geographical studies. Fundamental aspects of Rock mechanics and Environmental Geology.
C224.5	Understanding the importance of Site selection, geological Considerations in the selection of a dam site. Analysis of dam failures.
C224.6	Analyze the geological factors influencing water Lightness and life of reservoirs. Purposes of tunneling, Effects of Tunneling on the ground Role of Geology.
SPECIFIC LEARNING OUTCOMES – Business Economic and Financial Analysis	
C225.1	The students will understand the various Forms of Business and the impact of economic variables on the Business
C225.2	The students will explain The Demand, Supply
C225.3	The students will Classify Production, Cost, Market Structures & Pricing
C225.4	The students will understand and Evaluate Financial Accounting
C225.5	The students will Analyze and interpret the financial statements through ratio analysis
C225.6	The students will discuss Fund Flow and Cash Flow Analysis
SPECIFIC LEARNING OUTCOMES – Fluid mechanics LAB	
C226.1	Learned basic properties and characteristics of incompressible fluid.
C226.2	Learned the measurement of different fluid properties using various types of equipment's like measurement of flow, pressure, and velocity and head loss.
C226.3	Learned the analysis of flow phenomenon through pipes and other systems
C226.4	Understood basic fundamental theorems governing fluid flows i.e., continuity, energy and momentum.
C226.5	To provide Students with solid foundation in fluid flow principle
C226.6	Students will be able to utilize the knowledge in the design of water supply pipe networks and
SPECIFIC LEARNING OUTCOMES – Surveying-II LAB	
C227.1	To be able to understand the application of theodolite surveying and using of theodolite for measuring of horizontal and vertical angles.
C227.2	Student will be able to find the heights and distances by using trigonometric leveling.
C227.3	Student will be able to use tacheometer and find the heights and distances
C227.4	To be able to work on setting of curves by various methods.
C227.5	Will acquire knowledge on the application of Total Station in surveying and handling the instrument to find the area, height, plotting, traversing and contouring.
C227.6	Ability to find out distance, gradient and remote heights by using total station
SPECIFIC LEARNING OUTCOMES – Engineering Geology LAB	
C228.1	Knowing the importance of geology in civil engineering. Distinguish weathered rocks from fresh rocks.
C228.2	Identify the Minerals& Rocks based on their physical properties. Understand the geological classification of rocks into Igneous, Sedimentary and metamorphic rocks, their identification based on structure and texture.
C228.3	Understand the importance of various associated geological structures like folds, faults, joints and unconformities present at site for foundations.
C228.4	Understanding the effects and causes of earthquakes and the precautions to be taken to prevent them. Methods and importance of geographical studies. Fundamental aspects of Rock mechanics and Environmental Geology.
C228.5	Understanding the importance of Site selection, geological Considerations in the selection of a dam site. Analysis of dam failures.
C228.6	Analyze the geological factors influencing water Lightness and life of reservoirs. Purposes of tunneling, Effects of Tunneling on the ground Role of Geology.



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COURSE OUTCOMES

A.Y.2018-19

YEAR-SEM:- III-II

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Design of Steel Structure	
C321.1	Analysis and design of steel members and connections.
C321.2	Understand the concept of buckling, shear, bending of members subjected to combined forces
C321.3	Understand the design of structural steel components (members and connections in two - dimensional (2D) truss and frame structures).
C321.4	Ability to perform analysis and design of steel members and connections and design steel structural systems as per the latest IS code
C321.5	Assess the effective use of the latest industry standard formulas, tables, design aids and computer software in the design of steel members
C321.6	Analyse the concepts on designing of beams and plate girders with solid webs
SPECIFIC LEARNING OUTCOMES – Environmental Engineering	
C322.1	Design intakes, infiltration galleries, distribution system for future population and identify the quality of water by analyzing with permissible limits.
C322.2	Determinate the optimum coagulant dose in water treatment and design sedimentation tanks, clarifiers, rapid and slow sand filters.
C322.3	Analyze water distribution system
C322.4	Analyze, examine the different physical, chemical and biological properties of water and use properly various appurtenances in distribution system.
C322.5	Design skimming tanks, grit chambers, sedimentation tanks, septic tank and sludge digestion tank
C322.6	Identifying the sources, their treatment and distribution, also waste water characteristics and their treatment
SPECIFIC LEARNING OUTCOMES – Soil Mechanics	
C323.1	Understand the origin of the soil and geological cycle. Apply principles of phase diagram for soil properties and perform basic weight-volume calculations.
C323.2	Understand basics principles of flow and soil permeability through porous media including Bernoulli's equation, Darcy's Law, and Hydraulic conductivity.
C323.3	Construct flow nets for water flow calculations.
C323.4	Understand how stresses are transferred through soils and be able to compute both geostatic and induced stresses due to point, line, and area loads. Understand the mechanism of compaction.
C323.5	Estimate the amount of consolidation and settlement and time required for settlement under a given load.
C323.6	Basic knowledge of shear strength principles including the Mohr-Coulomb failure criterion.
SPECIFIC LEARNING OUTCOMES – Air Pollution and Control	
C324.1	Identify sampling and analysis techniques for air quality assessment

C324.2	Describe the plume behaviour for atmospheric stability conditions
C324.3	Able to control air pollution by removal of gasses and control of products
C324.4	Able to control air pollution by using Settling Chambers, Centrifugal separators, filters Dry and Wet scrubbers
C324.5	Identify the methods to control NOx and Sox Emission standards
C324.6	Conversant about air polluting factors and their treatment methods for controlling air pollution
SPECIFIC LEARNING OUTCOMES – Non Conventional Energy Sources	
C325.1	Explain renewable energy sources & systems.
C325.2	Apply engineering techniques to build solar, wind, tidal, geothermal, biofuel, fuel cell, Hydrogen and sterling engine.
C325.3	Analyze and evaluate the implication of renewable energy.
C325.4	Demonstrate self -learning capability to design & establish renewable energy systems.
C325.5	Conduct experiments to assess the performance of solar PV, solar thermal and biodiesel systems
C325.6	Analyze concepts in solving numerical problems pertaining to solar radiation geometry and wind energy systems.
SPECIFIC LEARNING OUTCOMES – Soil Mechanical LAB	
C326.1	Conduct the site, specific field investigations including collection of soil samples for testing and observation of soil behavior/building damage.
C326.2	To identify and classify soils based on standard soil mechanics Engineering practice.
C326.3	To perform laboratory compaction and in- situ density Tests for fill quality control.
C326.4	To perform and interpret direct shear test, vane shear test and estimate shear strength parameters and conduct and estimate shear strength of soils in unconfined compression.
C326.5	To calculate and analyze constant head permeability tests.
C326.6	Be able to conduct one-dimensional compression tests and estimate settlement parameters
SPECIFIC LEARNING OUTCOMES – CAAD-II LAB	
C327.1	To create and annotate, edit and plot drawings using AUTOCAD Commands and features.
C327.2	To understand and draw different reinforcement detailing in beams and columns.
C327.3	To develop skills in reinforcement Detailing of footings and slabs.
C327.4	To draw and draft detailing in structural steel like connections, members
C327.5	To understand and draw different reinforcement detailing in a Structure
C327.6	To draw and draft detailing in structural steel like buildup sections and plate girders.



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COURSE OUTCOMES

A.Y.2018-19

YEAR-SEM:- IV-II

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Rehabilitation and retrofitting of Structures	
C421.1	Recognize the mechanisms of degradation of concrete structures and conduct Preliminary forensic assessment of deteriorated concrete structures
C421.2	Assess the causes of distress in concrete structures and suggest suitable measures for prevention
C421.3	Analyze the mechanisms of damage in steel structures and their types, Categorize the causes and prevention mechanisms of corrosion in steel reinforcement and fire induced damages
C421.4	Able to Examine to inspect and assess the structures using techniques of visual inspection and NDT
C421.5	Compare different types of repairs and choose the best appropriate method, Identify the various repairing methods and categorize them depending upon the type of structure
C421.6	Classify the various Components of a Structural Health Monitoring System, Methodology of health monitoring of structures and smart materials
SPECIFIC LEARNING OUTCOMES – Prestressed Concrete Structures	
C422.1	Understand the concept of pre-stressing and the behavior of concrete structures. Recognize the general principles, methods of pre-stressing, and pre-stressing devices for pre- tensioning and post-tensioning.
C422.2	Determine losses of pre-stress in pre-stressed concrete structures. Apply the provisions of IS-1343(1980) code to the design of pre-stressed concrete structures for flexure and shear.
C422.3	Analyze the sections for flexure and shear. Analyze the stresses in anchorage zones and design end anchorages for prestressed concrete beams. Design the shear reinforcements for pre-stressed concrete beams.
C422.4	Determine the stresses at end block and deflection of pre-stressed concrete members.
C422.5	Explain stress distribution methods. Analyze the distribution methods like Guyon, Mangle, Zielinski and Rowe's.
C422.6	Categorize propped and unpropped composite beams. Evaluate the Importance of control of deflections.
SPECIFIC LEARNING OUTCOMES – Construction Management	
C423.1	Apply knowledge of mathematics, science, and engineering principles in construction projects.
C423.2	Describe the basic concepts and skills required for construction project management
C423.3	Explain the key issues for building contract procedures, management and administration.
C423.4	Apply the techniques of project planning and management in construction projects.
C423.5	Develop plan and Schedule of civil engineering project by using techniques like CPM, PERT.
C423.6	Analyze the different quality and safety issues involved in construction projects.
SPECIFIC LEARNING OUTCOMES – Seminar	
C424.1	Perform a literature survey to review current knowledge and developments in chosen technical area
C424.2	Undertake detailed technical work in theoretical studies, computer simulation, hardware construction
C424.3	Interpret the results of the study for the application purpose

C424.4	Deliver a seminar on general areas of work being undertaken and specific contribution to that field
C424.5	Demonstrate knowledge, skills and attitude of a professional engineer
C424.6	Effectively communicate by making an oral presentation to present the project completed
SPECIFIC LEARNING OUTCOMES – Project	
C425.1	To study research papers for understanding of a new field, in the absence of a text book, to summaries and review them.
C425.2	To identify promising new directions of various Construction technologies
C425.3	To impart skills in preparing detailed report describing the project and results
C425.4	To effectively communicate by making an oral presentation before an evaluation committee
C425.5	Ability to work in actual working environment
C425.6	Ability to utilize technical resources and demonstrate professional & ethical Responsibilities
SPECIFIC LEARNING OUTCOMES – Comprehensive viva	
C426.1	Prepare comprehensively to answer questions from all the courses
C426.2	Attain Oral Presentation skills by answering questions in precise and concise manner
C426.3	Gain self confidence
C426.4	Inculcate Inter personal skills
C426.5	Understand and apply all the Electrical subjects theoretically
C426.6	Demonstrate knowledge, skills and attitude of a professional engineer



SREE DATTA INSTITUTE OF ENGINEERING & SCIENCE

Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING COURSE OUTCOMES

Academic Year 2018-19

Year-Sem:II-I

CO	Statement
C211	Mathematics-IV
C211.1	Analyze the complex functions with reference to their analyticity & harmonic functions
C211.2	Acquire knowledge to solve differential equations using power series & cauchy's integral theorem
C211.3	Acquire the knowledge to complete residue and integrals using residue theorem
C211.4	Apply bilateral transformation for the evaluation of integrals
C211.5	Express any periodic function in terms of sine and cosine
C211.6	Able to solve problems using Partial Differential Equations
C212	Electromagnetic Fields
C212.1	Apply vector calculus to static electric – magnetic fields.
C212.2	Understand the basic laws of electromagnetism
C212.3	Obtain the electric fields for simple configurations under static conditions
C212.4	Obtain the magnetic fields for simple configurations under static conditions
C212.5	Analyze time varying electric and magnetic fields.
C212.6	Understand Maxwell's equation in different forms and different media
C213	Electrical Machines-I
C213.1	Understand the construction details & principle of operation of DC machines
C213.2	Analyze working of DC machine as Generator or motor
C213.3	Identify suitable tests for the performance characteristics of DC machine
C213.4	Understand the application of various DC machine
C213.5	Acquire knowledge about constructional details, principle of operation, testing & application of transformers
C213.6	Apply voltage & speed control techniques for DC machine
C214	Network Theory
C214.1	Analyze the Electrical Circuits with the concept of Network topology
C214.2	Apply the concepts of Magnetic circuit & Analyze Magnetic circuits
C214.3	Understand the importance of three phase circuits and Analyze the three phase circuits with Star & Delta connected balanced and unbalanced loads
C214.4	Analyze the transient behavior of electrical networks for various excitations
C214.5	Understand the features of two port networks and to design their equivalent circuits
C214.6	Design low pass, high pass, band pass and band elimination filter networks
C215	Electronic Circuits
C215.1	Apply the knowledge of BJT to design practical amplifier circuits.
C215.2	Design electronic sub systems such as feedback amplifiers, oscillators and power amplifiers to meet the required specifications.
C215.3	To understand operation and design of transformer coupled various types of power amplifier circuits

C215.4	Design linear and non linear wave shaping circuits with different inputs.
C215.5	To determine the switching characteristics of diode and transistor
C215.6	Analyze multi vibrators using transistors.
C216	Electrical Machines Lab - I
C216.1	Start and control the Different DC Machines.
C216.2	Assess the performance of different machines using different testing methods
C216.3	Determine the Characteristics of different machines using Load test
C216.4	Identify different conditions required to be satisfied for self - excitation of DC Generators.
C216.5	Separate iron losses of DC machines into different components
C216.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C217	Electronic Devices & Circuits Lab
C217.1	Analyze the diodes & Transistor characteristics
C217.2	Understand the principles of rectifier circuit using diodes & implement them using Hardware
C217.3	Design the biasing circuits
C217.4	Design various amplifiers CE, CC, common source FET amplifiers and observe their frequency response
C217.5	Understand the Concept of SCR and observe its characteristics
C217.6	Understand the concept of UJT and observe the characteristics
C218	Networks Lab
C218.1	Analyze complex DC and AC linear circuits
C218.2	Apply concepts of electrical circuits across engineering
C218.3	Evaluate response in a given network by using theorems
C218.4	Measure three phase Active and Reactive power
C218.5	Draw the locus diagrams of RL & RC circuits
C218.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C219	Environmental Science and Technology
C219.1	Get the information about ecosystem and also about its functions like Food chain, Ecological pyramids etc.,
C219.2	Get the knowledge about the different types of resources like land, water, mineral and energy and also about the effects of environment by the usage of these resources
C219.3	Gain the knowledge about the ecosystem diversity, its values and also about the importance of the endemic species.
C219.4	Gain the knowledge about the different types of pollutions and their control technologies.
C219.5	Get the complete information about EIA- Environmental Impact Assessment in which the student will get the knowledge about the projects and the process involved in getting the projects.
C219.6	Gain the knowledge about the present resources and different techniques involved in its conservation.



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING COURSE OUTCOMES

Academic Year 2018-19

Year-Sem:III-I

CO	Statement
C311	Electrical Measurements & Instrumentation
C311.1	Understand different types of measuring instruments, their construction, operation and characteristics
C311.2	Measure the voltage and current through potentiometers and instrument transformers
C311.3	Identify suitable method for measurement of active, reactive powers and energy
C311.4	Apply the suitable method for the measurement of resistance, inductance and capacitance
C311.5	Apply the knowledge of different transducers for conversion of various energy to electrical energy
C311.6	Identify the instruments suitable for typical measurements
C312	Power Systems - II
C312.1	Derive inductance and capacitance for different configurations of transmission lines.
C312.2	Analyze the performance of transmission lines
C312.3	Understand transient's phenomenon of transmission lines
C312.4	Calculate sag and tension calculations
C312.5	Understand overhead line insulators and underground cables
C312.6	Study the types of underground cables for transmission systems
C313	Microprocessors and Microcontrollers
C313.1	Understand the internal architecture and organization of 8086
C313.2	Analyze the Assembly language programs of 8086
C313.3	Analyze the internal architecture and real time control of 8051
C313.4	Discuss the input /output ,memory interface, Serial Communication and Bus Interface devices
C313.5	Analyze the internal architecture of ARM Processors
C313.6	Classify the internal architecture of CORTEX ARM Processor and MAP ARM Processor
C314	Fundamentals of Management
C314.1	Understand the significance of Management in their Profession
C314.2	Enhance Management Functions like Planning, Organizing, Staffing, Leading, Motivation and Control aspects
C314.3	Explore the Management Practices in their domain area
C314.4	Understand functional areas of management-marketing, finance, HRM and operations management
C314.5	Solve decision making and project management problems
C314.6	Practice the management functions in the real world
C315	Principles of Electronic Communications
C315.1	Work on various types of modulations & Demodulation.
C315.2	Design analog and digital modulation schemes
C315.3	Should be able to use these communication modules in implementation.

C315.4	Understand the concept of LAN hardware
C315.5	Broad understanding of satellite, optical, cellular, mobile, wireless and telecom concepts.
C315.6	Basic understanding of various wireless and cellular, mobile and telephone communication systems.
C316	Electrical Measurements & Instrumentation Lab
C316.1	Caliberate and test single phase energy meter, PMMC voltmeter and LPF wattmeter
C316.2	Measure resistance, Inductance and Capacitance
C316.3	Measure Three phase active & Reactive power
C316.4	Test current transformer and Dielectric strength of oil
C316.5	Caliberate LVDT & Resistance Strain Gauge
C316.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C317	Basic Electrical simulation Lab
C317.1	Apply signal generation in different systems.
C317.2	Analyze networks by various techniques
C317.3	Analyze circuit responses
C317.4	Analyze bridge rectifiers
C317.5	Develop the simulation skills.
C317.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C318	Microprocessors and Microcontrollers Lab
C318.1	Understand and apply the fundamentals of assembly level programming of microprocessors and microcontroller
C318.2	Work with standard microprocessor real time interfaces including GPIO, serial ports, digital-to-analog converters and analog-to-digital converters
C318.3	Troubleshoot interactions between software and hardware
C318.4	Analyze abstract problems and apply a combination of hardware and software to address the problem
C318.5	To learn configuring and using different peripherals in a digital system
C318.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C319	Professional Ethics
C319.1	Imbibe and internalize the Values and Ethical Behaviour in the personal and Professional lives
C319.2	Understand the importance of Values and Ethics in their personal lives and professional careers
C319.3	Learn the rights and responsibilities as an employee, team member and a global citizen
C319.4	Understand the core values that shapes the ethical behaviour of an engineer
C319.5	Eposed awareness on professional ethics & human values
C319.6	Know their role in technological Development



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING COURSE OUTCOMES

Academic Year 2018-19

Year-Sem:IV-I

CO	Statement
C411	Switch Gear and Protection
C411.1	Identify various circuit breakers and design different circuit breakers for various applications
C411.2	Choose the appropriate relay for basic operation of power system equipment
C411.3	Analyze different types of protection schemes against over voltages
C411.4	Understand the importance of neutral grounding methods and practices
C411.5	Ability to identify rotor, stator faults and inter turn faults and their protection schemes
C411.6	Apply different protection schemes in real time applications
C412	Utilization of Electrical Energy
C412.1	Understand the operating principles and characteristics of traction motors with respect to speed, temperature and loading condition
C412.2	Acquaint with different types of heating & welding techniques
C412.3	Design of interior and exterior lighting systems- illumination levels for various purposes light fittings- factory lighting- flood lighting-street lighting
C412.4	Understand basic principle of electric traction including speed, speed -time curves of different traction services
C412.5	understand the method of calculation of various traction systems for braking, acceleration and other related parameters including demand side management
C412.6	analyze and solve the varieties of problems and issues in electric power utilization
C413	Digital Signal Processing
C413.1	Acquire knowledge about the time representation and classification of domain discrete time signals and systems
C413.2	Acquire knowledge about the time domain analysis of linear time invariant discrete time systems and representation of total response in various formats.
C413.3	Apply discrete time Fourier transform, Discrete Fourier series and z-transform for discrete time signal representation and analysis of linear time invariant systems discrete time systems.
C413.4	Apply discrete Fourier transform in signal representation and system analysis and DFT computation using FFT algorithms
C413.5	design methods for IIR and FIR filters and their realisation structures
C413.6	Apply finite wordlength effects in the implementation of digital filters
C414	Power System Operation and Control
C414.1	An understanding of operational constraints, control objectives and their implementation, under normal and abnormal states of a power system
C414.2	Analyze Economic dispatch of thermal units and methods of solution, Unit commitment- Solution methods
C414.3	To impart the knowledge of automatic generation control

C414.4	To impart the knowledge of automatic voltage regulation
C414.5	Interchange power and energy- Economy interchange between interconnected utilities
C414.6	Create awareness of Power system security -factors affecting power system security - contingency analysis
C415	VLSI Design
C415.1	Acquire qualitative knowledge about the fabrication process of integrated circuit using MOS transistors.
C415.2	Choose an appropriate inverter depending on specifications required for a circuit
C415.3	Design different types of logic gates using CMOS inverter and analyse their transfer characteristics
C415.4	Provide design concepts required to design building blocks of date, path using gates.
C415.5	Design simple memories using MOS transistors and can understand Design of large memories.
C415.6	design simple logic circuit using PLA, PAL, FPGA and CPLD.
C416	Electrical Distribution Systems
C416.1	Differentiate the types of loads and their characteristics
C416.2	Design a radial and loop type distribution feeders.
C416.3	Calculate the voltage drop and power loss in a distribution system
C416.4	Identify and design protection system.
C416.5	Identify the best methods for pf improvement
C416.6	Identify the best methods for voltage control
C417	Microprocessors and Interfacing Devices Lab
C417.1	Understand and apply the fundamentals of assembly level programming of microprocessors and microcontroller
C417.2	Work with standard microprocessor real time interfaces including GPIO, serial ports, digital-to-analog converters and analog-to-digital converters
C417.3	Troubleshoot interactions between software and hardware
C417.4	Analyze abstract problems and apply a combination of hardware and software to address the problem
C417.5	To learn configuring and using different peripherals in a digital system
C417.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C418	Electrical Measurements Lab
C418.1	Caliberate and test single phase energy meter, PMMC voltmeter and LPF wattmeter
C418.2	Measure resistance, Inductance and Capacitance
C418.3	Measure Three phase active & Reactive power
C418.4	Test current transformer and Dielectric strength of oil
C418.5	Caliberate LVDT & Resistance Strain Gauge
C418.6	Attain Oral Presentation skills by answering questions in precise and concise manner



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**DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
COURSE OUTCOMES**

Academic Year 2018-19

Year-Sem:II-II

CO	Statement
C221	Switching Theory & Logic Design
C221.1	Aware of theory of Boolean algebra & underlying features of Various number systems.
C221.2	Apply minimization techniques using the analysis of boolean Algebra
C221.3	Analyse and design various combinational logic circuit.
C221.4	Design sequential logic circuits both in Synchronous & Asynchronous mode
C221.5	To impart to student the concepts of sequential circuits, enabling them to analyze sequential systems interms of state machines.
C221.6	To implement synchronous state machines using flip flops.
C222	Power Systems-I
C222.1	Awareness of general structure of power systems
C222.2	Impart the knowledge of generation of electricity based on conventional energy sources
C222.3	Analyze the mechanical construction of different hydraulic turbines
C222.4	Design & Analyse different types of distribution systems
C222.5	Impart Knowledge to design the layout of various substations.
C222.6	Analyse the Economic Aspects of power generation & Evaluate the Tariff methods
C223	Electrical Machines – II
C223.1	Understand the construction and operation of polyphase induction motor
C223.2	Determine the characteristics of Induction Machine
C223.3	Assess the performance of induction machine using different speed control methods
C223.4	Understand the construction, working principle and operation of synchronous machine
C223.5	Analyze parallel operation of Synchronous generators
C223.6	Acquire knowledge about different special motors
C224	Control Systems
C224.1	Deduce the transfer function for Translational & Rotational Systems
C224.2	Derive the transfer function of control system using different types of reduction
C224.3	Analyze the system response of both time-domain and frequency domain
C224.4	Determine the Stability in both time-domain and frequency domain for assessing the system performance
C224.5	Learn the features of different types of compensators and to design compensators using time-domain and frequency domain specifications
C224.6	Analyze the system response and stability of systems represented in state space form
C225	Business Economics and Financial Analysis
C225.1	Understand the microeconomic factors in related to demand analysis and its forecasting
C225.2	Apply the theory of production function and Cost concepts to determine the Break Even Analysis.
C225.3	Remember different market structures, pricing strategies and different forms business organization
C225.4	Determine the investment decisions of organizations by applying capital budgeting methods and Strategies.
C225.5	Interpret the financial statement by using Fundamental accounting concepts and Ratio analysis.
C225.6	To analyze the Business from the Financial Perspective
C226	Control Systems Lab

C226.1	Develop the transfer function of the given DC Generator & DC Motor for Armature controlled and Field controlled cases
C226.2	Analyze the effects of P, PI, PD & PID controllers on a control system
C226.3	Analyze torque speed characteristics of DC, AC servomotor
C226.4	Design Lag, Lead, lead-Lag compensator and verify experimental result using Software
C226.5	Analyze and interpret Stability of the system through Root locus, Bode plot and Nyquist plot, Time response in Software
C226.6	Improve the system performance by selecting a suitable controller and/or a compensator for a specific application
C227	Electrical Machines Lab - II
C227.1	Assess the performance of different machines using different testing methods
C227.2	To convert the Phase from three phase to two phase and vice versa
C227.3	Compensate the changes in terminal voltages of synchronous generator after estimating the change by different methods
C227.4	Control the active and reactive power flows in synchronous machines
C227.5	Start different machines and control the speed and the power factor
C227.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C228	Electronic Circuits Lab
C228.1	Apply the concepts of amplifiers in the design of Public Addressing System
C228.2	Generate Sinusoidal wave forms
C228.3	Design stable system using feedback concepts.
C228.4	Design multi vibrator using transistors
C228.5	Design various BJT Oscillators
C228.6	Design linear and non linear wave shaping circuits
C229	Gender Sensitization Lab
C229.1	Develop a better understanding of important issues related to gender in contemporary India
C229.2	Be sensitive to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
C229.3	Attain a finer grasp of how gender discrimination works in our society and how to counter it
C229.4	Acquire insight into the gendered division of labour and its relation to politics and economics
C229.5	Equipped to work and live together as equals.
C229.6	Develop a sense of appreciation of women in all walks of life.



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING COURSE OUTCOMES

Academic Year 2018-19

Year-Sem:III-II

CO	Statement
C321	Power Systems Analysis
C321.1	Analyze the power system network with concept of graph theory
C321.2	Develop Y-bus & Z-bus matrices
C321.3	Analyze load flow for various requirements of power systems
C321.4	Analyze short circuit studies for protection of power system
C321.5	Estimate steady state stability & instability in power system
C321.6	Analyze the transient stability of a single machine/ infinite bus system.
C322	Power Electronics
C322.1	Relate the semiconductor physics to properties of power devices, and combine circuit mathematics and characteristics of linear and non-linear devices
C322.2	Describe basic operation and compare performance of various power semi conductor devices, RC components and switching circuits
C322.3	Design & analyze power converters circuits and learn to select suitable power electronic devices by assessing the requirement of application field
C322.4	Formulate & Analyze a power electronic design at the system level & assess the performance
C322.5	Identify critical areas in application levels and derive typical alternative solutions
C322.6	Recognise role of power electronics play in improvement of energy usage efficiency & applications of PE in emerging areas
C323	Switch Gear and Protection
C323.1	Identify various circuit breakers and design different circuit breakers for various applications
C323.2	Choose the appropriate relay for basic operation of power system equipment
C323.3	Analyze different types of protection schemes against over voltages
C323.4	Understand the importance of neutral grounding methods and practices
C323.5	Ability to identify rotor, stator faults and inter turn faults and their protection schemes
C323.6	Apply different protection schemes in real time applications
C324	Data Structures
C324.1	Ability to analyze the time and space complexities of algorithms
C324.2	Ability to design programs using a variety of data structures such as stacks, queues, hash tables, search trees, and B-trees.
C324.3	Able to execute programs using variety of data structures such as binary trees , heaps, graphs.
C324.4	Able to analyze and implement various kinds of searching and sorting techniques.
C324.5	Ability to solve problems independently and think critically
C324.6	Ability to classify appropriate data structures to represent data items in real world Problems.

C325	Linear and Digital IC Applications
C325.1	Understand the internal operation of OP-AMP & its specifications
C325.2	Operate 555 Timer in different modes like bistable, monostable and astable operations & study their applications
C325.3	Understand the conversion process of ADC & DAC in digital electronics
C325.4	Design TTL/CMOS combinational & sequential circuits
C325.5	Understand and Design different types of memories
C325.6	Classify different active filter configurations based on frequency response
C326	Power Systems Lab
C326.1	Identify different types of over current relay & their characteristics
C326.2	Analyze the working of percentage differential delay used for protection of various power apparatus
C326.3	Calculate the sequence impedance of Three phase alternators and Transformers
C326.4	Develop the algorithm and coding in MATLAB/ SCILAB to solve the problem based on power flow studies using Gauss-Seidel Method, NR Method and Fast Decoupled method
C326.5	Analyze the experimental data and draw the conclusions
C326.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C327	Power Electronics Lab
C327.1	Understand the operating principles of various power electronic converters.
C327.2	Use power electronic simulation packages & hardware to develop the power converters.
C327.3	Analyze and choose the appropriate converters for various applications
C327.4	Apply the concepts of power electronic converters for efficient conversion/control of power from source to load
C327.5	Design the power converter with suitable switches meeting a specific load requirement.
C327.6	Attain Oral Presentation skills by answering questions in precise and concise manner
C328	Advanced English Communication Skills Lab
C328.1	Acquire vocabulary and use it contextually
C328.2	Listen and speak effectively
C328.3	Develop proficiency in academic reading and writing
C328.4	Increase possibilities of job prospects
C328.5	Communicate confidently in formal and informal contexts
C328.6	Respond appropriately in different socio-cultural and professional contexts



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING COURSE OUTCOMES

Academic Year 2018-19

Year-Sem:IV-II

CO	Statement
C421	Fundamentals of HVDC and FACTS Devices
C421.1	List the advantages of HVDC transmission system and Analyze the Six and twelve pulse converters in the HVDC system
C421.2	Examine the effects of Source Inductance, delay angle on output voltage of converters
C421.3	Summarize effects of harmonics on HVDC transmission system and Design of filters to reduce the harmonic effects
C421.4	Categorize FACTS devices and identify their importance
C421.5	Design Shunt Controllers
C421.6	Design Series Controllers
C422	Renewable Energy Sources
C422.1	Describe the environmental aspects of non-conventional energy resources. In Comparison with various conventional energy systems, their prospects and limitations.
C422.2	Analyze the use of solar energy and the various components used in the energy production with respect to applications like - heating, cooling, desalination, power generation, drying, cooking etc.
C422.3	Appreciate the need of Wind & Biomass Energy and the various components used in energy generation and know the classifications.
C422.4	Compare Solar, Wind and bio energy systems, their prospects, Advantages and limitations
C422.5	Acquire the knowledge of fuel cells, wave power, tidal power and geothermal principles and applications.
C422.6	Understand and apply the principles of DEC
C423	EHV AC Transmission
C423.1	Know the necessity, merits and demerits of EHVAC transmission and mechanical aspects
C423.2	Evaluate Inductance & capacitance of two conductor & multi conductor lines
C423.3	Analyze the surface gradient on two conductors and bundle with more than three sub conductors
C423.4	Analyze the effects of corona, Electrostatic fields of EHVAC lines
C423.5	calculate electrostatic field of EHV AC lines and analyze travelling waves
C423.6	Design SVC schemes & voltage controlling Devices
C424	Industry Oriented Mini Project
C424.1	Perform a literature survey to review current knowledge and developments in choosen technical area
C424.2	Undertake detailed technical work in theoretical studies, computer simulation, hardware construction
C424.3	Interpret the results of the study for the application purpose
C424.4	Deliver a seminar on general areas of work being undertaken and specific contribution to that field
C424.5	Demonstrate knowledge, skills and attitude of a professional engineer
C424.6	Effectively communicate by making an oral presentation to present the project completed
C425	Seminar
C425.1	To study research papers for understanding of a new field, in the absence of a textbook , to summarise and review them.
C425.2	To identify promising new directions of various cutting edge technologies

C425.3	To impart skills in preparing detailed report describing the project and results
C425.4	To effectively communicate by making an oral presentation before an evaluation committee
C425.5	Ability to work in actual working environment
C425.6	Ability to utilise technical resources and demonstrate professional & ethical Responsibilities
C427	Comprehensive Viva-Voce
C427.1	Prepare comprehensively to answer questions from all the courses
C427.2	Attain Oral Presentation skills by answering questions in precise and concise manner
C427.3	Gain self confidence
C427.4	Inculcate Inter personal skills
C427.5	Understand and apply all the Electrical subjects theoretically
C427.6	Demonstrate knowledge, skills and attitude of a professional engineer



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Department of Mechanical Engineering
COURSE OUTCOMES

AY:- 2018-19

YEAR-SEM:- II-II

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Kinematics of Machines	
C222.1	To familiarize students with basic types of mechanisms, joints and degrees of freedom
C222.2	Synthesize planar four bar and slider crank mechanisms for specified kinematic conditions.
C222.3	Evaluate gear tooth geometry and select appropriate gears for the required applications.
C222.4	To teach students the kinematic analysis of cam-follower motion and gear train configurations.
C222.5	To teach students the kinematic analysis of gear train configurations
C222.6	To perform position, velocity and acceleration analysis using graphical and analytical methods.
SPECIFIC LEARNING OUTCOMES – Thermal engineering-1	
C223.1	Understand the working principles of Four & Two Stroke Engines using thermodynamic air standard cycles performance of IC engines.
C223.2	Analyze the stages of combustion, fuel requirements and ratings in SI & CI engines.
C223.3	Evaluating the performance parameters of IC engines and express the working principles of reciprocating
C223.4	Analyze the working principles of rotary, dynamic and axial flow compressors CO5Evaluate the performance of simple gas turbine plant
C223.5	Differentiate between gas power cycles and vapour power cycles
C223.6	Understand the working principles of Four & Two Stroke Engines using thermodynamic air standard cycles performance of IC engines.
SPECIFIC LEARNING OUTCOMES – Fluid Mechanics and Hydraulic Machinery	
C224.1	Apply conservation laws to fluid flow problems in engineering applications
C224.2	Design experimental procedure for physical model studies
C224.3	Design the working proportions of hydraulic machines
C224.4	Compute drag and lift coefficients using the theory of boundary layer flows
C224.5	Analyze and design free surface and pipe flows
C224.6	Able to demonstrate boundary layer concepts.
SPECIFIC LEARNING OUTCOMES – Instrumentation and Control System	
C225.1	Explain basic concepts of actual cycles with analysis and to describe the fundamental concepts of IC engines along with its working principles
C225.2	Describe the combustion phenomenon in SI and CI engines
C225.3	To impart the principle and operation of different types of sensors, transducers and instrumentations used in engineering practices.

C225.4	Identify sensors for measurement of vibration, thermo-physical properties and radiation properties of surfaces.
C225.5	Interpret International Standards of measurements (ITS-90) and identify Internationally accepted measuring standards for measured.
C225.6	Illustrate the working principle of different types of jet propulsive engines and rockets
SPECIFIC LEARNING OUTCOMES – FLUID MECHANICS AND HYDRAULIC MACHINES LAB	
C227.1	Determine performance of peloton wheel ,Francis turbine, Kaplan turbine
C227.2	Identify performance of reciprocating pumps.
C227.3	Determine performance of centrifugal pump.
C227.4	Identify the coefficient of discharge of venture meter and orifice meter.
C227.5	Determine loss of head, friction factor in a pipeline
C227.6	Able to demonstrate boundary layer concepts
SPECIFIC LEARNING OUTCOMES --- INSTRUMENTION AND CONTROL SYSTEM LAB	
C228.1	Determine temperature by using starin gauge, thermo couple, and transducer.
C228.2	calculate pressure from McLeod gauge, pressure gauge
C228.3	examine control of level in tank, pressure of process, temperature of process by using SCADA system
C228.4	explain use of seismic pickup for the measurement of vibration
C228.5	Determine displacement, speed by using transducer, magnetic pickup,rotameter.
C228.6	Explain calibration of a LVDT transducer, capacitive transducer, magnetic speed pickups, rotameter for displacement, speed and flow measurements



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Department of Mechanical Engineering

COURSE OUTCOMES

A.Y:-2018-19

YEAR-SEM:-III-II

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Thermal engineering-II	
C321.1	Describe the methods to improve the performance of Rankine cycle and to explain function of boilers.
C321.2	Understand the function of Seam nozzles, its Application and examine of thermodynamic analysis.
C321.3	To Able to sketch velocity triangles of impulse and reaction turbine and to calculate efficiency of turbines
C321.4	To Differentiate between gas power cycles and vapour power cycles and to identify the function of condensers.
C321.5	Illustrate principle of operation and performance of Jet propulsion CO6:Elaborate application, working principle of Rockets from Jet propulsion and solve problems
C321.6	Describe the methods to improve the performance of Rankine cycle and to explain function of boilers.
SPECIFIC LEARNING OUTCOMES – Design of Machine Members-II	
C322.1	To enable students to understand the concepts of principal stresses, theories of failure, stress concentration and fatigue loading.
C322.2	To design shafts, couplings and gears.
C322.3	To analyze the pressure distribution and design journal bearings.
C322.4	To design belts, springs, brakes, clutches and engine parts.
C322.5	Able to Acquaintance with design of the components as per the standard, recommended procedures
C322.6	Design and development of machinery in industry
SPECIFIC LEARNING OUTCOMES – Heat Transfer	
C323.1	Compute temperature distribution in steady-state and unsteady-state heat conduction.
C323.2	To comprehend and evaluate various modes of heat and mass transfer.
C323.3	To help the students to design fin enhanced systems, evaporators, condensers.
C323.4	To expose students to heat exchangers
C323.5	To expose students to heat pipes
C323.6	Design of heat exchangers using LMTD and NTU methods
SPECIFIC LEARNING OUTCOMES – Refrigeration and Air Conditioning	
C325.1	To enable the students to understand the principles of refrigeration and air conditioning
C325.2	Understand vapour compression refrigeration system and identify methods for performance improvement.
C3245.3	Study the working principles of air, vapour absorption, thermoelectric and steam-jet

	refrigeration systems.
C324.4	Study the working principles of thermoelectric and steam-jet refrigeration systems
C324.5	Analyze air-conditioning processes using the principles of psychrometry
C324.6	Thermodynamically analyse refrigeration and air conditioning systems and evaluate performance parameters.
SPECIFIC LEARNING OUTCOMES – HEAT TRANSFER LAB	
C325.1	Determine thermal conductivity and heat transfer coefficient of composite wall, lagged pipe, concentric sphere, and metal rod.
C325.2	Distinguish Natural and forced convection, Film and Drop wise condensation, steady state conduction and non steady state conduction
C325.3	Explain concept of radiation mode heat transfer
C325.4	analyze the working of heat exchanger and fins
C325.5	determine critical heat flux of coil or wire
C325.6	Understand concept of heat pipe
SPECIFIC LEARNING OUTCOMES – CADD and MATLAB	
C326.1	Understand capabilities of software for drafting, modeling and problem solving.
C326.2	Draw simple and complex figures
C326.3	Model engineering components using solid modeling techniques
C326.4	Create engineering assemblies using appropriate assembly constraints
C326.5	Analyze commands of vector operations, magic matrix's, arithmetic, logical and Boolean operations
C326.6	Develop mathematical program to solve engineering problems



**SREE DATTHA INSTITUTE OF ENGINEERING
& SCIENCE**

Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist

Department of Mechanical Engineering

COURSE OUTCOMES

A.Y:-2018-19

YEAR-SEM:- IV-II

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Production Planning and Control	
C422.1	To get clear idea about various types of production like job, batch and continuous.
C422.2	To find out the sales forecasting, various types of demands and different methods.
C422.3	To acquire knowledge in product planning and process planning, value analysis and value engineering and bread even analysis.
C422.4	To learn about various types of controls toward inventory planning.
C422.5	To be familiar in operation scheduling, i.e., loading, scheduling and routing etc.
C422.6	Understand theory of constraints for effective management of production systems.
SPECIFIC LEARNING OUTCOMES – Unconventional Machining Process	
C423.1	To understand need and importance of Non-traditional machining methods
C423.2	To understand principles of operations, Types of electrodes and process parameters and machine tool selection in EDM and EDG and wire cut process.
C423.3	To know the basics of EBM and comparison of thermal and no thermal processes.
C423.4	To know the basic principle, equipment process variables and mechanics of metal removal in AJM and WJM.
C423.5	To study the various process parameters and applications of plasma in manufacturing industries
C423.6	Understand the thermal aspects of orthogonal cutting mechanics



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Department of Mechanical Engineering
COURSE OUTCOMES

AY:- 2018-19

YEAR-SEM:- II-I

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Mechanics of solids	
C212.1	Fundamental understanding of the concepts of stress and strain in mechanics of solids and structures and material properties
C212.2	Understand statically determinate and indeterminate problems.
C212.3	Determine the resistance and deformation in member's subjected to axial, flexural and torsional loads.
C212.4	Evaluate principal stresses, strains and apply the concept of failure theories for design.
C212.5	Analyze and design thin, thick cylinders and springs.
C212.6	The ability to design structural members given the dimensions, material properties such as force-displacement relationships, boundary conditions, loading, allowable stresses, and factor of safety
SPECIFIC LEARNING OUTCOMES – Material Science & Metallurgy	
C213.1	Understand the crystal structure and classification of materials.
C213.2	Understand methods of determining mechanical properties and their suitability for applications.
C213.3	Classify cast irons and study their applications.
C213.4	Interpret the phase diagrams of materials.
C213.5	Select suitable heat-treatment process to achieve desired properties of metals.
C213.6	Select suitable heat-treatment process to achieve desired properties of alloys.
SPECIFIC LEARNING OUTCOMES – Production Technology	
C214.1	To help students acquire knowledge about the behavior and manufacturing properties of all engineering materials and basic concepts of foundry and casting processes.
C214.2	Design core, core print and gating system in metal casting processes.
C214.3	To teach students various methods of welding, cold and hot working and forming.
C214.4	Identify the effect of process variables to manufacture defect free products
C214.5	To teach students how to perform simple welding operations using Spot TIG and Plasma welding machines.
C214.6	Understand the idea for selecting materials for patterns

SPECIFIC LEARNING OUTCOMES – Thermodynamics	
C215.1	To teach students the basic principles of classical thermodynamics and prepare them to apply basic conversion principles of mass and energy to closed and open systems.
C215.2	Apply the laws of thermodynamics to analyze boilers, heat pumps, refrigerators, heat engines, compressors and nozzles.
C215.3	Evaluate the performance of steam power cycles.
C215.4	Evaluate the available energy and irreversibility.
C215.5	Evaluate properties of pure substances and gas mixtures.
C215.6	Analyze air standard cycles applied in prime movers
SPECIFIC LEARNING OUTCOMES – Production Technology LAB	
C216.1	Perform moulding, melting, casting operations
C216.2	perform operations such as arc welding, spot welding, TIG welding, Plasma welding and brazing
C216.3	identify the various press working operations and various parts of hydraulic press
C216.4	perform operations such as drawing, extrusion, bending operations on presses
C216.5	recognize the various types of plastics and perform operations such as injection and blow molding
C216.6	Determine properties of sand
SPECIFIC LEARNING OUTCOMES – Machine Drawing Pracice	
C217.1	To introduce students to the basics and standards of engineering drawing related to machines and components.
C217.2	Study different categories of drawings
C217.3	Understand the representation of materials used in machine drawing.
C217.4	Draw the machine elements including keys, couplings, cottered, riveted, bolted and welded joints.
C217.5	Construct an assembly drawing using part drawings of machine components.
C217.6	Analyze the working drawings for machine parts.
SPECIFIC LEARNING OUTCOMES --- Material Science & Mechanics of solids LAB	
C218.1	Determine harden ability of material by Jominy and quench test
C218.2	Conduct experiments on stiffness of springs
C218.3	Understand microstructure of iron, Cu, Al, Mild steel, low carbon steel and non ferrous alloys.
C218.4	Understand the basic concept of stress, strain, hardness and material behavior under different forces
C218.5	Conduct bending test on cantilever beam, simple supported beam.
C218.6	Understand the crystals models for models for simple cubic, body centered cubic, face centered cubic



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Department of Mechanical Engineering
COURSE OUTCOMES

A.Y:-2018-19

YEAR-SEM:-III-I

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – Design of Machine Members - I	
C311.1	To understand the various standards and methods of standardization.
C311.2	Understand component behavior subjected to loads and identify the failure criteria.
C311.3	Design a machine component using theories of failure.
C311.4	Design keys, couplings and joints including riveted, bolted and welded joints.
C311.5	Design cutters, couplings and joints including riveted, bolted and welded joints.
C311.6	Understands the concepts of principal stresses, stress concentration in machine members and fatigue loading
SPECIFIC LEARNING OUTCOMES – Thermal engineering-1	
C312.1	Understand the working principles of Four & Two Stroke Engines using thermodynamic air standard cycles performance of IC engines.
C312.2	Analyze the stages of combustion, fuel requirements and ratings in SI & CI engines.
C312.3	Evaluating the performance parameters of IC engines and express the working principles of reciprocating
C312.4	Analyze the working principles of rotary, dynamic and axial flow compressors
C312.5	Evaluate the performance of simple gas turbine plant
C312.6	Differentiate between gas power cycles and vapour power cycles.
SPECIFIC LEARNING OUTCOMES – Metrology and Machine Tools	
C313.1	To help students acquire knowledge about the theory of metal cutting, mechanism of machining and the parameters that influence the machining processes.
C313.2	Estimate machining times for machining operations on machine tools
C313.3	Understand working of lathe, shaper, planer, drilling, milling and grinding machines.
C313.4	To identify techniques to minimize the errors in measurement
C313.5	Design the limit gauges.
C313.6	Comprehend speed and feed mechanisms of machine tools.

SPECIFIC LEARNING OUTCOMES – Fundamentals of management	
C314.1	What are the circumstances that lead to management evolution and how it will affect future managers
C314.2	Analyze and evaluate the influence of historical forces on the current practice of management
C314.3	Identify and evaluate social responsibility and ethical issues involved in business situations and logically articulate own position on such issues.
C314.4	Explain how organizations adapt to an uncertain environment and identify techniques managers use to influence and control the internal environment.
C314.5	Develop the process of management's four functions: planning, organizing, leading, and controlling.
C314.6	Interpret and properly use vocabularies within the field of management to articulate one's own position on a specific management issue and communicate effectively with varied audiences.
SPECIFIC LEARNING OUTCOMES – THERMAL ENGINEERING LAB	
C315.1	Analyze the performance of the 4stroke SI and CI engine, 2 stroke SI and CI engine, VCR engine.
C315.2	Perform Disassembly and assembly of I.C engine and able to recognizes the internal components and their functionality.
C315.3	Analyze the working of different types of boilers and air compressor unit
C315.4	Perform Morse test, Motoring test, economical speed of test on IC engine
C315.5	Understand valve diagram and heat balance sheet of IC engine
C315.6	Test effects of A/F ratio on engine performance in SI engine
SPECIFIC LEARNING OUTCOMES – MACHINE TOOLS LAB	
C316.1	Explain working principle and purpose of lathe machine, Drilling machine, Milling machine, Shaper machine, Slotting machine, Planer machine, Grinder.
C316.2	Perform different operations on lathe machine.
C316.3	Perform operations on Drilling machine, Milling machine.
C316.4	Understand working of Cylindrical Surface Grinding
C316.5	Analyze grinding tool angles
C316.6	Perform operations on Shaper machine, Slotting machine, Planer machine, Grinder.
SPECIFIC LEARNING OUTCOMES – ENGINEERING METROLOGY LAB	
C317.1	Determine chordal addendum and chordal height of the spur gear by using Vernier calipers.
C317.2	Analyze machine tool alignment
C317.3	Determine angle, taper and flatness of surface plate
C317.4	Explain application of machine tools
C317.5	determine the thread measurement by 2 and 3 wire methods
C317.6	Understand the Tool makers microscope and its application



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Department of Mechanical Engineering

COURSE OUTCOMES

A.Y:-2018-19

YEAR-SEM:- IV-I

CO STATEMENT	
SPECIFIC LEARNING OUTCOMES – CAD/CAM	
C411.1	To understand the basics of CAD/CAM.
C411.2	Model engineering components using solid modeling techniques.
C411.3	Model engineering components using wire framemodeling techniques
C411.4	Develop CNC programs to manufacture industrial components.
C411.5	To understand the latest advances in the manufacturing perspectives.
C411.6	Design, Proper planning, Manufacturing cost, Layout & Material Handling
SPECIFIC LEARNING OUTCOMES – Instrumentation and Control System	
C412.1	Explain basic concepts of actual cycles with analysis and to describe the fundamental concepts of IC engines along with its working principles
C412.2	Describe the combustion phenomenon in SI and CI engines
C412.3	To impart the principle and operation of different types of sensors, transducers and instrumentations used in engineering practices.
C412.4	Identify sensors for measurement of vibration, thermo-physical properties and radiation properties of surfaces.
C412.5	Interpret International Standards of measurements (ITS-90) and identify Internationally accepted measuring standards for measurands.
C412.6	Illustrate the working principle of different types of jet propulsive engines and rockets
SPECIFIC LEARNING OUTCOMES – Operations Research	
C413.1	Apply operations research techniques like L.P.P, scheduling and sequencing in industrial optimization problems.
C413.2	Determine optimum solution to transportation problem.
C413.3	Determine average queue length of queueing models.
C413.4	Determine average queue waiting times of queueing models.
C413.5	Determine optimum inventory and cost in inventory models.
C413.6	Understanding the problem, identifying variables & constants, formulas of optimization model and applying appropriate optimization Tech
SPECIFIC LEARNING OUTCOMES – Robotics	
C414.1	understand the basic components of robots
C414.2	Differentiate types of robots and robot grippers.

C414.3	Model forward and inverse kinematics of robot manipulators.
C414.4	Analyze forces in links and joints of a robot.
C414.5	Programme a robot to perform tasks in industrial applications.
C414.6	understand the basic components of robots CO6:Design intelligent robots using sensors
SPECIFIC LEARNING OUTCOMES – MECHANICAL VIBRATIONS	
C415.1	Understand the causes and effects of vibration in mechanical systems.
C415.2	Develop schematic models for physical systems
C415.3	Formulate governing equations of motion
C415.4	Understand the role of damping, stiffness and inertia in mechanical systems
C415.5	Analyze rotating and reciprocating systems and compute critical speeds.
C415.6	Analyze and design machine supporting structures, vibration isolators and absorbers.
SPECIFIC LEARNING OUTCOMES – CADD and MATLAB	
C416.1	Understand capabilities of software for drafting, modeling and problem solving.
C416.2	Draw simple and complex figures
C416.3	Model engineering components using solid modeling techniques
C416.4	Create engineering assemblies using appropriate assembly constraints
C416.5	Analyze commands of vector operations, magic matrix's, arithmetic, logical and Boolean operations
C416.6	Develop mathematical program to solve engineering problems
SPECIFIC LEARNING OUTCOMES – INSTRUMENTATION AND CONTROL SYSTEM LAB	
C417.1	Determine temperature by using starin gauge, thermo couple, and transducer.
C417.2	calculate pressure from McLeod gauge, pressure gauge
C417.3	examine control of level in tank, pressure of process, temperature of process by using SCADA system
C417.4	Explain use of seismic pickup for the measurement of vibration
C417.5	Determine displacement, speed by using transducer, magnetic pickup,rotameter.
C417.6	Explain calibration of a LVDT transducer, capacitive transducer, magnetic speed pickups, rota meter for displacement, speed and flow measurements



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES

AY-2018-19 CLASS-IIYR/ISEM

SUBJECT NAME	COURSE OUTCOME
1. Mathematics - IV	<p>C211.1 Analyze the complex functions with reference to their analyticity, integration using Cauchy's integral theorem.</p> <p>C211.2 Find the Taylor's and Laurent's series expansion of complex functions.</p> <p>C211.3 Understand the bilinear transformation.</p> <p>C211.4 Express any periodic function in terms of sine's and cosines.</p> <p>C211.5 Express a non-periodic function as integral representation.</p> <p>C211.6 Analyze one dimensional wave and heat equation.</p>
2. Analog Electronics	<p>C212.1 Understand the concept of transistors like BJT and FET.</p> <p>C212.2 Analyze and designing of small signal low frequency BJT amplifiers.</p> <p>C212.3 To understand the characteristics of transistor at high frequency.</p> <p>C212.4 Analyze the characteristics of FET amplifiers in different configurations.</p> <p>C212.5 Able to know the characteristics of feedback amplifiers and to calculate the bandwidth for Oscillators.</p> <p>C212.6 Able to understand the principle of operations of large signal amplifiers and tuned amplifiers, to calculate Q-factor and frequency response.</p>
3. Electrical Technology	<p>C213.1 To analyze the performance of DC generators</p> <p>C213.2 To analyze the performance of DC Motors</p> <p>C213.3 To analyze the performance of transformers.</p> <p>C213.4 To learn in depth knowledge on three phase induction motors.</p> <p>C213.5 To understand the principle of operation of alternators.</p> <p>C213.6 To analyze the performance of special motors and electrical instruments in real time application.</p>
4. Signals and Stochastic Process	<p>C214.1 Represent any arbitrary analog or digital time domain signal in frequency domain.</p> <p>C214.2 Understand the importance of sampling, sampling theorem and its effects.</p> <p>C214.3 Understand the characteristics of linear time invariant systems</p> <p>C214.4 Determine the conditions for distortion less transmission through a system.</p> <p>C214.5 Understand the concepts of Random process and its characteristics.</p>

	<p>C214.6 Understand the response of linear time invariant system for a random process.</p>
5. Network Analysis	<p>C215.1 Gains the knowledge on basic network elements. C215.2 To understand the concepts of self, mutual inductances, dot convention, impedance, reactance. C215.3 Learn and analyze the RLC circuits behavior in detail. C215.4 Analyze the performance of periodic waveforms. C215.5 Learn and gain the knowledge in characteristics of 2 port network parameters. C215.6 To analyze the filter design concepts in real world applications.</p>
6. Electronic Devices and Circuits Lab	<p>C216.1 After Completion of the course the student is able to Apply various devices to real time problems. C216.2 Analyze the diode and transistor characteristics. C216.3 Understand the Principles of rectifiers circuits using diodes and implement them using hardware. C216.4 Design various amplifiers like CE,CC, Common source & Common Drain FET amplifiers and implement them using hardware and also observe their frequency responses. C216.5 Design the biasing circuits like self biasing. C216.6 Understand the concepts of unipolar junction transistor and observe its characteristics.</p>
7. Basic Simulation Lab	<p>C217.1 Analyze the generation of various signals and sequences in SCILAB. C217.2 Determine the Convolution and Correlation between signals and Sequences. C217.3 Verification of linearity and time invariance properties of a given Continuous/Discrete system C217.4 Analyze the Fourier Transform and Laplace Transform of a given signal and plotting its magnitude and phase spectrum. C217.5 Remember for Locating the zeros and poles and plotting the Pole-Zero maps in S-plane and Z-plane for the given transfer function. C217.6 Verification of Weiner-Khinchine Relations and Sampling Theorem.</p>
8. Basic Electrical Engineering Lab	<p>C218.1 Get an exposure to basic electrical laws C218.2 Understand the response of different types of electrical circuits to different excitations C218.3 Understand the measurements calculation and relation between the basic electrical parameters C218.4 Understand the basic characteristics of transformers and electrical machines. C218.5 To analyze the performance characteristics of dc and ac electrical machines C218.6 To know the response of electrical circuits for different excitations</p>
9. Environmental Science and Technology	<p>C219.1 Based on this course the engineering graduates will understand/evaluate/develop technologies on the basis of ecological principles and environmental regulations. C219.2 Understanding the importance of ecological balance for</p>

	<p>sustainable development.</p> <p>C219.3 Understanding the impacts of developmental activities and mitigation measures.</p> <p>C219.4 Understanding the environmental policies and regulations.</p> <p>C219.5 Understanding the Environmental problems and global efforts.</p> <p>C219.6 They can understand about sustainable future.</p>
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES

AY-2018-19 CLASS-IIIYR/ISEM

SUBJECT NAME	COURSE OUTCOME
1. Electromagnetic Theory and Transmission Lines	<p>C311.1 Distinguish between the static and time-varying fields, establish the corresponding sets of Maxwell's Equations and Boundary Conditions, and use them for solving engineering problems.</p> <p>C311.2 Analyze the Wave Equations for good conductors and good dielectrics, and evaluate the UPW Characteristics for several practical media of interest.</p> <p>C311.3 Establish the proof and estimate the polarization features, reflection and transmission coefficients for UPW propagation, distinguish between Brewster and Critical Angles, and acquire knowledge of their applications.</p> <p>C311.4 Determine the Transmission Line parameters for different lines, characterize the distortions and estimate the characteristics for different lines.</p> <p>C311.5 Analyze the RF Line features and configure them as SC, OC Lines, QWTs and HWTs, and design the same for effective impedance transformation.</p> <p>C311.6 Study the Smith Chart profile and stub matching features, and gain ability to practically use the same for solving practical problems.</p>
2. Linear and Digital IC Applications	<p>C312.1 Understand the op-amp with Linear Integrated circuits.</p> <p>C312.2 Design circuits using op- amp for various applications.</p> <p>C312.3 Draw and operate the IC 555 timer for different modes like a stable mono stable and bi-stable modes.</p> <p>C312.4 Explain the operation of Analog to Digital and Digital to Analog conversion.</p> <p>C312.5 Understand the different families of digital integrated circuits and their characteristics.</p> <p>C312.6 Design basic digital circuits like combinational and sequential circuits using IC's.</p>
3. Digital Communications	<p>C313.1 Understand basic components of Digital Communication system and Design Optimum Receiver for digital modulation techniques.</p> <p>C313.2 Identify the importance of conversion of analog to digital signal.</p> <p>C313.3 Understand the concept of Information Theory.</p> <p>C313.4 Understand the Redundancy present in DC by using source coding techniques.</p> <p>C313.5 Analyze different digital carrier modulation schemes.</p>

	<p>C313.6 Analyze the performance of spread spectrum modulation</p>
4. Fundamentals of Management	<p>C314.1 What are the circumstances that lead to management evolution and how it will affect future managers.</p> <p>C314.2 Analyze and Evaluate the influence of historical forces on current practice of management.</p> <p>C314.3 Identify and Evaluate social responsibility and ethical issues involved in business situations and logically articulate own position on such issues.</p> <p>C314.4 Explain how organizations adapt to an uncertain environment and identify techniques managers use to influence and control the internal environment.</p> <p>C314.5 Develop the process of management's four functions: Planning, Organizing, Leading and Controlling.</p> <p>C314.6 Interpret and properly use vocabularies within the field of management to articulate one's own position on a specific management issue and communicate effectively with varied audiences</p>
5. Introduction to Mechatronics	<p>C315.1 The student will able to model, analyze, and control engineering systems.</p> <p>C315.2 Identify sensors, transducers, actuators to monitor and control the behavior of a process or product.</p> <p>C315.3 Develop PLC program for a given task.</p> <p>C315.4 Evaluate the performance of Mechatronic system.</p> <p>C315.5 Analyze the basic structures of Programmable Logic Controllers.</p> <p>C315.6 Understand the concept of Laplace Transform.</p>
6.Linear IC Applications Lab	<p>C316.1 Design and analyze the various Linear and Nonlinear applications of Op-Amp.</p> <p>C316.2 Design and analyze the filter circuits and its applications.</p> <p>C316.3 Design and analyze the Multivibrators using Op-Amp.</p> <p>C316.4 Design and analyze various applications of 555 timer and various IC's.</p> <p>C316.5 Design PLL using IC 565.</p> <p>C316.6 Design and analyze the voltage regulator</p>
7.Digital IC Applications Lab	<p>C317.1 Analyze and design various applications using basic digital IC's.</p> <p>C317.2 Design and construct wave form generation circuits.</p> <p>C317.3 Design digital arithmetic circuits using logic gates.</p> <p>C317.4 Design combinational and sequential logic circuit using digital IC'S.</p> <p>C317.5 Design comparator ,encoder and multiplexer</p> <p>C317.6 Understand working of logic families and logic gates.</p>
8.Digital Communications Lab	<p>C318.1 Understand the concepts of conversion of analog to digital signal</p> <p>C318.2 Analyze the characteristics of digital pulse modulation techniques.</p> <p>C318.3 Design TDM for two baseband signals.</p> <p>C318.4 Design various digital modulation techniques like ASK ,FSK and to know the real time applications.</p> <p>C318.5 Study the spectral characteristics of PAM,PWM,QAM</p>

	<p>C318.6 Design various types of phase shift keying modulation and demodulation</p>
<p>9. Professional Ethics</p>	<p>C319.1 The students will understand the importance of values and Ethics in their life.</p> <p>C319.2 The students will be able to learn the moral values and respect to elders in the society.</p> <p>C319.3 The student will be able to understand the culture and heritage of the country.</p> <p>C319.4 The student can understand the value of team work.</p> <p>C319.5 The students will have the knowledge of moral values between the genders and equality among them.</p> <p>C319.6 The students will be able to understand the values regarding the religion.</p>



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES

AY-2018-19 CLASS-IVYR/ISEM

<p>1.Management Science</p>	<p>C411.1 Plan an organizational structure for a given context in the organization. C411.2 Carry out production operations through work study. C411.3 Understand the markets, customers and competition better and price the given products appropriately. C411.4 Ensure quality for a given product or service. C411.5 Plan and control HR function better and control projects through PERT and CPM. C411.6 Evolve a strategy for a business or service organization.</p>
<p>2. Micro Wave Engineering</p>	<p>C412.1 To analyze completely the rectangular waveguides, their mode characteristics, and design waveguides for solving practical microwave transmission line problems. C412.2 To distinguish between the different types of waveguide and ferrite components, explain their functioning and select proper components for engineering applications. C412.3 To distinguish between the methods of power generation at microwave frequencies, derive the performance characteristics of 2-Cavity and Reflex Klystrons, Magnetrons, TWTs and estimate their efficiency levels, and solve related numerical problems. C412.4 To realize the need for solid state microwave sources, understand the concepts of TEDs, RWH Theory and explain the salient features of Gunn Diodes and ATT Devices. C412.5 To establish the properties of Scattering Matrix, formulate the S-Matrix for various microwave junctions, and understand the utility of S-parameters in microwave component design. C412.6 To set up a microwave bench, establish the measurement procedure and conduct the experiments in microwave lab for measurement of various microwave parameters.</p>
<p>3. Computer Networks</p>	<p>C413.1 Student should understand and explore the basics of computer Networks and various protocols. C413.2 To understand the terminology and concepts of the OSI reference model and TCP/IP reference model. Identify and understand various techniques and modes of transmission. C413.3 Describe the link protocols, multi-channel access protocol and IEEE standards for LAN. C413.4 To understand the concepts of network layer, routing protocols,</p>

	<p>bridges, hubs, logical addressing.</p> <p>C413.5 Implement routing and congestion control and develop application layer protocols such as FTP, HTTP, DNS.</p> <p>C413.6 Can become familiar and analyze the concepts of Network security such as Bluetooth, Zigbee, VPN.</p>
4.Cellular and Mobile Communication	<p>C414.1 The student will be able to analyze and design wireless and mobile cellular systems.</p> <p>C414.2 The student will be able to understand impairments due to multipath fading channel.</p> <p>C414.3 The student will be able understand the fundamental techniques to overcome the different fading effects.</p> <p>C414.4 The student will be able to understand Co-channel and Non Co-channel interferences.</p> <p>C414.5 The student will be able to familiar with cell coverage for signal and traffic, diversity techniques and mobile antennas.</p> <p>C414.6 The student will have an understanding of frequency management, Channel assignment, and types of handoff.</p>
5.Digital Image Processing	<p>C415.1 Have an appreciation of the fundamentals of Digital Image Processing including the topics of filtering, transforms and morphology, and image analysis and compression.</p> <p>C415.2 Be able to implement basic image processing algorithms in MATLAB.</p> <p>C415.3 Have a skill base necessary to further explore advanced topics of Digital Image Processing.</p> <p>C415.4 Be in a position to make a positive professional contribution in the field of Digital Image Processing.</p> <p>C415.5 At the end of the course the student should have a clear impression of the breadth and practical scope of digital image processing and have arrived at a level of understanding that is the foundation for most of the work currently underway in this field.</p> <p>C415.6 Able to apply the different image processing techniques in real time applications</p>
6.Embedded System Design	<p>C416.1 Understand the selection procedure of Processors in the embedded domain.</p> <p>C416.2 Become familiar with Design Procedure for Embedded Firmware.</p> <p>C416.3 Understand and visualize the role of Real time Operating Systems in Embedded Systems and understand the future aspects</p> <p>C416.4 Describe and analyze the Correlation between task synchronization and latency issues.</p> <p>C416.5 Design real time embedded systems using concepts of RTOS.</p> <p>C416.6 Understand proposing alternative solutions in embedded systems.</p>

<p>7.Advanced English Communication Skills Lab</p>	<p>C417.1 Accomplishment of sound vocabulary and its proper use contextually. C417.2 Flair in writing facility in written expression. C417.3 Enhanced job prospects. C417.4 Effective listening speaking abilities. C417.5 Develop proficiency in academic reading and writing. C417.6 Communicate confidently in formal and informal context</p>
<p>8.Micro Wave Engineering Lab</p>	<p>C418.1 Illustrate the characteristics of various microwave sources such as reflex klystron and Gun diode characteristics through experiment on microwave bench. C418.2 Measure Scattering parameters of various microwave components using microwave bench. C418.3 Measure electrical parameters of various microwave components using microwave bench C418.4 Demonstrate various digital modulation schemes C418.5 Analyze how a continuous signal is converted to digital signal C418.6 Study of the spectral characteristics of different modulations</p>



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES

AY-2018-19 CLASS- IIYR/IISEM

SUBJECT NAME	COURSE OUTCOME
1.Switching Theory and Logic Design	<p>C221.1 Be able to manipulate numeric information in different forms, e.g. different bases, signed integers, various codes such as ASCII, Gray and BCD.</p> <p>C221.2 Be able to manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra and to minimize combinational functions.</p> <p>C221.3 Be able to design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits</p> <p>C221.4 Be able to design and analyze small sequential circuits and devices and to use Standard sequential functions/building blocks to build larger more complex circuits.</p> <p>C221.5 Be able to understand the melay and moore diagrams</p> <p>C221.6 Be able to differentiate state table, functional table and truth table</p>
2. Pulse and Digital Circuits	<p>C222.1 Understand application of diode as integrator, differentiators, clipper and clampers circuits.</p> <p>C222.2 Learn various switching devices as diode, transistor, SCR, difference between logic gates and sampling gates.</p> <p>C222.3 Design multivibrators for various application, synchronization techniques and sweep circuits.</p> <p>C222.4 Realizing logic gates using diodes and transistors.</p> <p>C222.5 Understanding of time and frequency domain aspects.</p> <p>C222.6 Importance of clock pulse and its generating techniques, equations</p>
3. Control Systems	<p>C223.1 Improve the system performance by selecting a suitable controller and/or a compensator for a specific application.</p> <p>C223.2 Apply various time domain and frequency domain techniques to assess the system performance.</p> <p>C223.3 Analyze various control strategies to different applications.</p> <p>C223.4 Test the system controllability using state space representation and applications of state space representation to various systems.</p> <p>C223.5 Able to draw the nyquist plots for the given specification</p> <p>C223.6 Able to design the bode plots</p>
4. Analog Communications	<p>C224.1 Able to analyze and design various modulation and demodulation analog systems.</p>

	<p>C224.2 Understand the characteristics of noise present in analog systems.</p> <p>C224.3 Study of signal to noise ratio(SNR) performance of various analog communication systems.</p> <p>C224.4 Analyze and design of various pulse modulation systems.</p> <p>C224.5 Understand the concepts of multiplexing –Time Division Multiplexing(TDM), Frequency Division Multiplexing (FDM)</p> <p>C224.6 Able to understand the characteristics of receiver.</p>
5. Business Economics and Financial Analysis	<p>C225.1 The students will understand the various Forms of Business and the impact of economic variables on the Business.</p> <p>C225.2 The students will explain The Demand, Supply.</p> <p>C225.3 The students will classify the production, cost, market structures and pricing.</p> <p>C225.4 The students will understand and evaluate financial accounting.</p> <p>C225.5 The students will analyze and interpret the financial statements through ratio analysis.</p> <p>C225.6 The students will discuss Fund Flow Analysis.</p>
6. Analog Communications Lab	<p>C226.1 Design and analyze various Modulation and demodulation techniques.</p> <p>C226.2 Analyze the characteristics of TDM and De-multiplexing.</p> <p>C226.3 Verify the Sampling Theorem.</p> <p>C226.4 Analyze the characteristics of various pulse Modulators and Demodulators.</p> <p>C226.5 Design the circuit for Pre-emphasis and De-emphasis.</p> <p>C226.6 Understand the characteristics of AGC, Frequency Synthesizer, Spectrum Analyzer.</p>
7. Pulse and Digital Circuits Lab	<p>C227.1 Analyze the characteristics of linear wave shaping circuits like integrator and differentiator circuits.</p> <p>C227.2 Analyze the functioning of non linear wave shaping circuits like clippers and clampers.</p> <p>C227.3 Design the Multivibrators like Bistable, Astable, Monostable and Schmitt trigger circuits.</p> <p>C227.4 Demonstrate the operation of sweep circuits like Bootstrap, Miller sweep and UJT relaxation Oscillator.</p> <p>C227.5 Demonstrate the operation of Sampling gates.</p> <p>C227.6 Demonstrate the operation of Logic gates</p>
8. Analog Electronics Lab	<p>C228.1 Know the characteristics, utilization of various components.</p> <p>C228.2 Understand the biasing techniques.</p> <p>C228.3 Design and analyze various rectifiers, small signal amplifiers.</p> <p>C228.4 Design sinusoidal and non-sinusoidal oscillators.</p> <p>C228.5 A thorough understanding, functioning of Op-Amp, designs Op-Amp based circuits with linear integrated circuits.</p> <p>C228.6 Design and analyze different types of power amplifiers.</p>
9. Gender Sensitization Lab	<p>C229.1 Students will have developed a better understanding of important issues related to gender to in contemporary India.</p> <p>C229.2 Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be</p>

achieved through discussion of materials derived from research, facts, everyday life, literature and film.

C229.3 Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.

C229.4 Students will acquire insight into the gendered division of labour and its relation to politics and economics.

C229.5 Men and women students and professionals will be better equipped to work and live together as equals.

C229.6 Students will develop a sense of appreciation of women in all walks of life.

C229.7 Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women the textbook will empower the students to understand and respond to gender violence



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES

AY-2018-19 CLASS- IIIYR/IISEM

SUBJECT NAME	COURSE OUTCOME
1.National Conventional Energy Sources	<p>C321.1 Introduction to Renewable Energy sources, principles of solar Radiation Different Methods of Solar Energy Storage and its Applications, Concepts of Solar Ponds, Solar Distillation and Photo Voltaic Energy Conversion.</p> <p>C321.2 Introduction to Flat Plate and Concentrating Collectors, Classification of Concentrating Collectors.</p> <p>C321.3 Introduction to Wind Energy, Horizontal and Vertical Access Wind Mills, Bio-Conversion.</p> <p>C321.4 Types of Bio-Gas Digesters and Utilization for Cooking Geo thermal Energy Resources.</p> <p>C321.5 Types of Wells and Methods of Harnessing the Energy, Ocean Energy and Setting of OTEC Plants.</p> <p>C321.6 Tidal and Wave Energy and Mini Hydel Power Plant, Need and Principles of Direct Energy Conversion.</p>
2. Digital System Design	<p>C322.1 To understand the minimization of finite state machine.</p> <p>C322.2 Express the design approaches using ROM's, PLA's and PAL's.</p> <p>C322.3 To provide in depth understanding of fault models.</p> <p>C322.4 To understand test pattern generation techniques for fault detection.</p> <p>C322.5 To design fault diagnosis in sequential circuits.</p> <p>C322.6 To design state machine charts in digital system.</p>
3. Antennas and Wave Propagation	<p>C323.1 Explain the mechanism of radiation, distinguish between different antenna characteristic parameters, establish their mathematical relations, estimate them for different practical cases.</p> <p>C323.2 Distinguish between short dipoles, half wave dipoles, quarter wave monopoles and small loops, configure their current distributions, derive their far fields and relation characteristics and sketch their patterns.</p> <p>C323.3 Characterize the antennas based on frequency configure the geometry and establish the radiation patterns of folded dipole Yagi-Uda antenna, Helical antennas, Horn antennas, and to acquire the knowledge of their analysis, design and development.</p> <p>C323.4 Analyze a micro strip rectangular patch antenna and aparabolic reflector antenna, identify the requirements and relavant feed structure, carry out the design and establish their patterns.</p> <p>C323.5 Carry out the Linear Array Analysis, estimate the array factor and characteristics and sketch the pattern for 2- element array, N- element</p>

	<p>array BSA, EFA, modified EFA, Binomial Arrays.</p> <p>C323.6 Classify the different wave propagation mechanisms, identify their frequency ranges, determine the characteristic features of ground wave, ionospheric wave, space wave, duct and tropospheric propagations, and estimate the parameters involved.</p>
4. Microprocessors & Microcontrollers	<p>C324.1 Basic binary math operations using the microprocessor and explain the microprocessors, microcontrollers internal architecture and its operation with in the area of manufacturing and performance.</p> <p>C324.2 Knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller.</p> <p>C324.3 Accepted standards and guidelines to select appropriate microprocessor and microcontroller to meet specified performance requirements.</p> <p>C324.4 Assembly language programs, select appropriate assemble into machine a cross assembler utility of a microprocessors and microcontroller.</p> <p>C324.5 Electrical circuitry to the microprocessor I/O ports in order to interface the processor to external devices.</p> <p>C324.6 Assembly language programs and download the machine code that will provide solutions real-world control problems.</p>
5. Digital Signal Processing	<p>C325.1 Perform time, frequency and Z- transform analysis on signals and systems.</p> <p>C325.2 Understand the inter relationship between DFT and various transforms.</p> <p>C325.3 Understand the significance of various filter structures and effects of round off errors.</p> <p>C325.4 Design a digital filter for a given specifications.</p> <p>C325.5 Understand the fast computation of DFT and appreciate the FFT processing.</p> <p>C325.6 Understand the tradeoffs between normal and multi rate DSP techniques and finite length word effects.</p>
6. Digital Signal Processing Lab	<p>C326.1 Analyze and process signals in the discrete domain.</p> <p>C326.2 Develop and experiment coding from basic mathematical operations to complex operations like DFT and FFT.</p> <p>C326.3 Visualize the amplitude and phase spectrum of the signal in the frequency domain.</p> <p>C326.4 Apply the principle of signal analysis to filtering.</p> <p>C326.5 Design IIR and FIR filters for band pass, band stop, low pass and high pass.</p> <p>C326.6 Analyze the spectral parameters of window functions.</p>
7. Microprocessors & Microcontrollers Lab	<p>C327.1 Understand and apply the fundamentals of assembly level programming of microprocessor and microcontroller.</p> <p>C327.2 Explain the implementation of 8051 instruction Set</p> <p>C327.3 Demonstrate standard microprocessor real time interfaces including serial ports, digital-to-analog converters and analog-to-digital converters.</p>

	<p>C327.4 Analyze abstract problems and apply a combination of hardware and software to address the problem.</p> <p>C327.5 Identify troubleshoot interactions between software and hardware</p> <p>C327.6 Make use of standard test and measurement equipment to evaluate digital interfaces</p>
<p>8.Advanced English Communication Skills Lab</p>	<p>C328.1 Acquire vocabulary and use it contextually</p> <p>C328.2 Listen and speak effectively</p> <p>C328.3 Develop proficiency in academic reading and writing</p> <p>C328.4 Increase possibilities of job prospects</p> <p>C328.5 Communicate confidently in formal and informal context</p> <p>C328.6 Overall development of verbal and written skills</p>



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES

AY-2018-19 CLASS- IVYR/ISEM

SUBJECT NAME	COURSE OUTCOME
Satellite Communications	<p>C421.1 Understand basic concepts and frequency allocations for satellite Communication System</p> <p>C421.2 Student demonstrates orbital mechanics, launch vehicles and launchers.</p> <p>C421.3 Student will demonstrate the design of links for specified C/N.</p> <p>C421.4 Students will be able to visualize satellite subsystem like telemetry, tracking, commanding and monitoring power systems</p> <p>C421.5 Understanding of various multiple access systems.</p> <p>C421.6 Apply the different concepts in real time applications</p>
Network Security	<p>C422.1 Understand the security issues involved with different Network operating systems.</p> <p>C422.2 Develop a secure computer network plan.</p> <p>C422.3 Evaluate and Recognize a problem as being a possible network security threat.</p> <p>C422.4 Formulate a complete and adequate counter measure plan and prepare against it.</p> <p>C422.5 Understand the concepts of Computer network logs.</p> <p>C422.6 Understand the concepts of security fundamentals and policies.</p>
Wireless Communication Networks	<p>C423.1 Understand the basic concepts and frequency allocations for Satellite Communication System</p> <p>C423.2 student demonstrate orbital mechanics, launch vehicles and launchers.</p> <p>C423.3 student will demonstrate the design of links for specified C/N.</p> <p>C423.4 Students will be able to visualize satellite subsystems like telemetry, tracking, commanding and monitoring power systems</p> <p>C423.5 Understanding of various multiple access system</p> <p>C423.6 Analyze the one dimensional wave and heat equation</p>



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING COURSE OUTCOMES

II Year B.Tech. CSE-I Sem

A.Y.2018-19

SPECIFIC LEARNING OUTCOMES – Mathematics – IV	
C211.1:	Analyze the complex functions with reference to their analyticity, integration using Cauchy's integral theorem
C211.2:	Solve the Taylor's and Laurent's series expansion of complex functions
C211.3:	Analyze the bilinear transformation
C211.4:	Develop any periodic function in term of sins and cosines
C211.5:	Examine a non- periodic function as integral representation.
C211.6:	Analyze one dimensional wave and heat equation.
SPECIFIC LEARNING OUTCOMES – Data structures through c++	
C212.1:	Ability to classify appropriate data structures to represent data items in real world Problems.
C212.2:	Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
C212.3:	Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
C212.4:	Ability to analyze the time and space complexities of algorithms.
C212.5:	Ability to design programs using a variety of data structures such as stacks, queues, hash tables, search trees, and B-trees.
C212.6:	Able to analyze and implement various kinds of searching and sorting techniques.
SPECIFIC LEARNING OUTCOMES – Mathematical foundations of computer science	
C213.1:	Ability to apply Mathematical logic to solve problems.
C213.2:	Solve sets, relations, functions and Discrete structures.

C213.3:	Able to use logical notation to define and reason about fundamental mathematical concepts such as sets, relations.
C213.4:	Able to formulate Problems and solve recurrence relations.
C213.5:	Able to Solve real-world using graphs and trees.
C213.6:	Able to use logical notation to define and reason about fundamental mathematical concepts such functions
SPECIFIC LEARNING OUTCOMES – Digital logic design	
C214.1:	Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions
C214.2:	Classify various logic gates and logic families and analyze basic circuits of these families.
C214.3:	Able to solve Boolean expressions using minimization methods.
C214.4:	Able to design the sequential and combinational circuits.
C214.5:	Able to apply state reduction methods to solve sequential circuits.
C214.6:	Able to compare various types of memories
SPECIFIC LEARNING OUTCOMES – Object oriented programming through java	
C215.1:	Able to solve real world problems using OOP technique.
C215.2:	Able to design the abstract classes.
C215.3:	Able to solve problems using java collection framework and I/O classes.
C215.4:	Able to develop multithreaded applications with synchronization.
C215.5:	Able to develop applets for web applications.
C215.6:	Able to design GUI based applications.
SPECIFIC LEARNING OUTCOMES – It workshop	
C217.1:	Apply knowledge for computer assembling.
C217.2:	Ability how to solve the trouble shooting problems.
C217.3:	Apply the tools for preparation of Documentation and budget sheet.

C217.4:	Apply knowledge for software installation.
C217.5:	Apply the tools for preparation of PPT etc.
C217.6:	Ability to develop home pages using HTML.
SPECIFIC LEARNING OUTCOMES – DATA STRUCTURES THROUGH C++ LAB	
C216.1:	Able to identify the appropriate data structures and algorithms for solving real world Problems.
C216.2:	Able to implement various kinds of searching.
C216.3:	Able to Write programs using data structures such as stacks, queues, Search trees.
C216.4:	Able to implement data structures such as hash tables to solve various computing problems
C216.5:	Ability to design linked lists.
C216.6:	Able to Evaluate various kinds of sorting techniques.
SPECIFIC LEARNING OUTCOMES – Object oriented programming through java lab	
C218.1:	Able to write programs for solving real world problems using java collection frame work.
C218.2:	Able to write programs using abstract classes.
C218.3:	Able to write multithreaded programs.
C218.4:	Able to write GUI programs using swing controls in java.
C218.5:	Able to develop applets for web applications
C218.6:	Able to design java programs using data structures.



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING COURSE OUTCOMES

II Year B.Tech. CSE-II Sem

A.Y. 2018-19

SPECIFIC LEARNING OUTCOMES – COMPUTER ORGANIZATION	
C221.1:	Able to Discuss the basic components and the design of CPU, ALU and Control.
C221.2:	Ability to Describe memory hierarchy and its impact on computer cost/performance.
C221.3:	Ability to Analyze the advantage of instruction level parallelism and pipelining for high performance Processor design.
C221.4:	Ability to Analyze the instruction set, instruction formats and addressing modes of 8086.
C221.5:	Ability to write assembly language programs to solve problems.
C221.6:	Explain how interrupts are used to implement I/O control and data transfers.
SPECIFIC LEARNING OUTCOMES – DATABASE MANAGEMENT SYSTEMS	
C222.1:	Demonstrate the basic elements of a relational database management system.
C222.2:	Ability to distinguish the data models for relevant problems.
C222.3:	Ability to design entity relationship model and convert entity relationship diagrams in to RDBMS and formulate SQL queries on the data.
C222.4:	Apply normalization for the development of application software.
C222.5:	Develop and evaluate a real database application using a database management system.
C222.6:	Ability to design the database using functional dependencies.
SPECIFIC LEARNING OUTCOMES – OPERATING SYSTEMS	
C223.1:	Apply optimization techniques for the improvement of system performance.
C223.2:	Ability to design and solve synchronization problems.
C223.3:	Evaluate minimization of turnaround time, waiting time and response time and also maximization of throughput by keeping CPU as busy as possible.
C223.4:	Ability to change access controls to protect files.
C223.5:	Ability to compare the different operating systems.

C223.6:	Apply various concept related with Deadlock to solve problems related with Resources allocation, after checking system in Safe state or not.
SPECIFIC LEARNING OUTCOMES – FORMAL LANGUAGES AND AUTOMATA THEORY	
C224.1:	Able to understand the concept of abstract machines and their power to recognize the languages.
C224.2:	The student will be able to explain the application of machine models and descriptors to compiler theory and parsing.
C224.3:	Able to design context free grammars for formal languages.
C224.4:	Able to distinguish between decidability and undesirability.
C224.5:	Able to gain proficiency with mathematical methods and formal methods
C224.6:	The student will be able to demonstrate abstract models of computing, including deterministic (DFA), non-deterministic (NFA), Push Down Automata(PDA) and Turing (TM) machine models and their power to recognize the languages.
SPECIFIC LEARNING OUTCOMES –: BUSINESS ECONOMICS AND FINANCIAL ANALYSIS	
C225.1:	The students will understand the various Forms of Business and the impact of economic variables on the Business.
C225.2:	The Demand, Supply, Production, Cost, Market Structure, Pricing aspects are learnt.
C225.3:	The Students can study the firm's financial position by analyzing the Financial Statements of a Company.
C225.4:	Enumerate the concept of capital budgeting and allocations of the resources through capital budgeting methods and compute simple problems for project management.
C225.5:	Evaluate different types of financial ratios for knowing liquidity and profitability positions of business concern.
C225.6:	Illustrate the features, merits and demerits of different forms of business organizations existing in the modern business.
SPECIFIC LEARNING OUTCOMES – COMPUTER ORGANIZATION LAB	
C226.1:	Able to Analyze the basic components and the design of CPU, ALU and Control.
C226.2:	Ability to Illustrate the instruction set, instruction formats and addressing modes of 8086.
C226.3:	Ability to write assembly language programs to solve problems.
C226.4:	Design a Full adder using gates ,Implement a 3 to 8 decoder using gates
C226.5:	Design and implement the 4:1 MUX, 8:1 MUX using gates /ICs.
C226.6:	Write an ALP of 8086 to take a number ,a string are as input (in 'C' format) and do the different Operation.

SPECIFIC LEARNING OUTCOMES – DATABASE MANAGEMENT SYSTEMS LAB	
C227.1:	Ability to design and implement a database schema for given problem.
C227.2:	Apply the normalization techniques for development of application software to realistic problems.
C227.3:	Ability to formulate queries using SQL DML.
C227.4:	Formulate SQL queries using constraints and set comparison operators.
C227.5:	Ability to provide security to a database. Develop PL/SQL programs using triggers.
C227.6:	Ability to provide security to a database. Develop PL/SQL programs using procedures, cursors.
SPECIFIC LEARNING OUTCOMES – OPERATING SYSTEMS LAB	
C228.1:	Ability to develop application programs using system calls in Unix.
C228.2:	Ability to implement inter process communication between two processes.
C228.3:	Ability to design and solve synchronization problems.
C228.4:	Ability to simulate and implement operating system concepts such as deadlock management, file management .
C228.5:	Analyze and simulate CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority.
C228.6:	Evaluate memory management schemes and page replacement schemes.
SPECIFIC LEARNING OUTCOMES – GENDER SENSITIZATION LAB	
C220.1:	Students will have developed a better understanding of important issues related to gender in contemporary India.
C220.2:	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature, and film
C220.3:	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
C220.4:	Students will acquire insight into the gendered division of labour and its relation to politics and economics.
C220.5:	Men and women students and professionals will be better equipped to work and live together as equals.
C220.6:	Students will develop a sense of appreciation of women in all walks of life.
C220.7:	Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.



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III Year B.Tech. CSE-I Sem

A.Y.2018-19

SPECIFIC LEARNING OUTCOMES – Design and analysis of algorithms	
C311.1:	Student are able to analyze the performance of algorithms
C311.2:	Student are able to choose appropriate algorithms
C311.3	Student are able to design techniques for solving problems.
C311.4:	Student are able to discuss how the choice of data structures and the algorithm design methods impact the performance of programs
C311.5	Student are able to illustrate 0/1 knapsack problem
C311.6	Student are able to describe & solve travelling sales person
SPECIFIC LEARNING OUTCOMES – Data communications and computer networks	
C312.1	Students should be understand and explore the basics of Computer Networks and Various Protocols
C312.2	Students should be in a position to discuss the World Wide Web concepts.
C312.3	Students will be in a position to administrate a network and flow of information further.
C312.4	Students can explain the UDP TCP protocol
C312.5	Students can classify easily the concepts of network security, Mobile and adhoc.
C312.6	Students can design SMTP, FTP, WWW, HTTP, SNMP
SPECIFIC LEARNING OUTCOMES – Software engineering	
C313.1:	Ability to identify the minimum requirements for the development of application.
C313.2	Ability to develop, maintain, efficient, reliable and cost effective software solutions.
C313.3	Ability to critically thinking and evaluate assumptions and arguments
C313.4	Able to the design model, pattern based software design.
C313.5	Able to apply different type of testing
C313.6	Able to Distinguish Risk management, Quality Management:

SPECIFIC LEARNING OUTCOMES – Fundamentals of management	
C314.1:	The students understand the significance of Management in their Profession.
C314.2:	The students understand The various Management Functions like Planning, Organizing, Staffing, Leading, Motivation and Control aspects are learnt in this course
C314.3:	The students can explore the Management Practices in their domain area.
C314.4:	The students can explore Budgetary and Non- Budgetary Controls. Establishing control systems, Control frequency and Methods.
C314.5:	The students can understand human resource management system and business strategy
C314.6:	The students can Analysis the Leadership and motivation
SPECIFIC LEARNING OUTCOMES – Design and analysis of algorithm lab	
C315.1:	Ability to write programs in java to solve problems using algorithm design techniques such as quick sort merge sort □
C315.2:	Ability to write programs in java to solve problems using algorithm design techniques such as DFS BFS
C315.3:	Ability to write programs in java to solve problems using back tracking algorithm such as N queen, sum of subsets Hamiltonian
C315.4:	Ability to write programs in java to solve problems, greedy method ,shortest path , Kruskal's
C315.5:	Ability to write programs in java to solve problems, Dynamic 0/1 Knapsack problem.
C315.6:	Ability to write programs in java to solve problems problem, Optimal Binary Search Tree
SPECIFIC LEARNING OUTCOMES – Computer networks lab	
C316.1:	Ability to understand the encryption and decryption concepts in Linux environment
C316.2:	Ability to the encryption and decryption concepts in64 bit playing text.
C316.3:	Ability to apply appropriate algorithm for the finding of shortest route
C316.4:	Ability to apply Dijkstra algorithm for the finding of shortest route
C316.5:	Ability to configure the routing table.
C316.6:	Ability to configure RSA algorithm
SPECIFIC LEARNING OUTCOMES – Software engineering lab	
C317.1:	Problem Analysis and Project Planning - Thorough study of the problem – Identify Project scope, Objectives and infrastructure.
C317.2:	Software Requirement Analysis – Describe the individual Phases/modules of the project and Identify deliverables.
C317.3:	Data Modeling – Use work products – data dictionary.
C317.4:	Software Designing- Develop use case diagrams and activity diagrams, build and test class diagrams, sequence diagrams and add interface to class diagrams.

C317.5:	Prototype model- develop the prototype of the product.
SPECIFIC LEARNING OUTCOMES – Professional ethics	
C310.1:	The students will understand the importance of Values and Ethics in their personal lives and professional careers
C310.2:	The students will understand the importance of Basic Ethical Principles, Moral Developments, Moral Absolution, Moral Rationalism, Moral Pluralism, Ethical Egoism, Feminist Consequentialism, Moral Issues, Moral Dilemmas, Moral Autonomy.
C310.3:	The students will understand the importance of Professional Practices in Engineering, Central Responsibilities of Engineers
C310.4:	The students will learn the rights and responsibilities as an employee, team member and a global citizen
C310.5:	The students will understand the importance of Business Ethics and Corporate Governance, Sustainable Development Ecosystem, Energy Concerns, Ozone Deflection, Pollution, Ethics in Manufacturing and Marketing, Media Ethics



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES

III Year B.Tech. CSE-II Sem

A.Y.2018-19

SPECIFIC LEARNING OUTCOMES – COMPILER DESIGN	
C321.1:	Ability to design, develop, and implement a compiler for any language
C321.2:	Able to use lex and yacc tools for developing a scanner and a parser.
C321.3:	Able to design and implement LL and LR parsers.
C321.4:	Able to design algorithms to perform code optimization in order to improve the Performance of a program in terms of space and time complexity.
C321.5:	Ability to design algorithms to generate machine code.
C321.6:	Ability to design Data-Flow Analysis, Foundations of Data-Flow Analysis
SPECIFIC LEARNING OUTCOMES – WEB TECHNOLOGIES	
C322.1:	Student will be able to gain knowledge of client side scripting, validation of forms and AJAX programming
C322.2:	Student will be able to understanding of server side scripting with php programming
C322.3:	Student will be able to demonstrate file handling in PHP ,such as opening closing etc
C322.4:	Student will be able to understanding of what is XML
C322.5:	Student will be able to understanding how to parse and use XML data with java.
C322.6:	Student will be able to introduce Server side programming with java servlets and JSP.
SPECIFIC LEARNING OUTCOMES – CRYPTOGRAPHY AND NETWORK SECURITY	
C323.1:	Student will be able to understand basic cryptographic algorithms, message and web authentication and security issues.
C323.2:	Student will be able to discuss Symmetric key Ciphers and Asymmetric key Ciphers
C323.3:	Student will be able to compare Message authentication codes and Key Management and Distribution:
C323.4:	Ability to identify information system requirements for both of them such as client and server.
C323.5:	Ability to understand the current legal issues towards information security.

C323.6:	Ability to apply the security to wireless network and E-mail
SPECIFIC LEARNING OUTCOMES – MOBILE COMPUTING	
C3211.1:	Able to think and develop new mobile application.
C3211.2:	Able to take any new technical issue related to this new paradigm and come up with a Solution (s).
C3211.3:	Able to take any new technical issue related to Mobile Network Layer
C3211.4:	Able to classify Data Dissemination and Synchronization:
C3211.5:	Able to develop new ad hoc network applications and/or algorithms/protocols
C3211.6:	Able to understand & develop any existing or new protocol related to mobile Environment.
SPECIFIC LEARNING OUTCOMES – WEB TECHNOLOGY LAB	
C325.1	Use LAMP Stack for web applications.
C325.2	Use Tomcat Server for Servlets and JSPs
C325.3	Use Tomcat Server for Servlets and JSPs
C325.4	Connect to Database and get results.
C325.5	Parse XML files using Java (DOM and SAX parsers).
SPECIFIC LEARNING OUTCOMES – CRYPTOGRAPHY AND NETWORK SECURITY LAB	
C324.1	Student will be able to understand basic cryptographic algorithms, message and web authentication and security issues.
C324.2	Student will be able to discuss Symmetric key Ciphers and Asymmetric key Ciphers
C324.3	Student will be able to compare Message authentication codes and Key Management and Distribution:
C324.4	Ability to identify information system requirements for both of them such as client and server.
C324.5	Ability to understand the current legal issues towards information Security.



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
COURSE OUTCOMES

IV YEAR B.Tech CSE-I Sem

A.Y. 2018-19

SPECIFIC LEARNING OUTCOMES – LINUX PROGRAMMING	
C411.1:	Identify and use Linux utilities to create and manage simple file processing operations
C411.2:	Illustrate file processing operations such as standard I/O and formatted I/O
C411.3:	Illustrate multithreading concepts to reduce the wastage of CPU time.
C411.4:	Demonstrate various concurrent technologies using System V Shared Memory and Semaphores
C411.5:	Design and implement IPCs using unnamed and named Pipes.
C411.6:	Demonstrate various client server applications using TCP or UDP protocols.
A70530:DESIGN PATTERNS	
C412.1	Demonstration of patterns related to object oriented design.
C412.2	Describe the design patterns that are common in software applications
C412.3	Analyze a software development problem and express it.
C412.4	Design a module structure to solve a problem, and evaluate alternatives.
C412.5	Implement a module so that it executes efficiently and correctly
C412.6	Analyze the architecture and build the system from the components.
SPECIFIC LEARNING OUTCOMES – DATAWARE HOUSING DATA MINING	
C413.1:	Understand various data preprocessing procedures and their application scenarios.
C413.2:	Discuss the data-mining tasks like classification, regression, clustering, association mining.
C413.3:	Understand the impact of machine learning solutions on the society and also the contemporary issues.
C413.4:	Explore a suitable data mining task to the problem.
C413.5:	Visualize and interpret the results produced by data mining.
C413.6:	Build statistical predictive models using various techniques such as neural networks, decision trees and logistic regression.

C413.7:	Analyze and compare various data mining techniques based on different parameters.
C413.8:	Ability to classify web pages, extracting knowledge from the web
SPECIFIC LEARNING OUTCOMES – CLOUD COMPUTING	
C414.1:	Define cloud computing and related concepts of Cloud Computing
C414.2:	Understand the assessment of the economics , financial, and technological implications for selecting cloud computing for an organization
C414.3:	Understand how cloud components fit together
C414.4:	Determine the suitability of in-house v/s hosted solutions
C414.5:	Understand the systems, protocols and mechanisms to support cloud computing
SPECIFIC LEARNING OUTCOMES – MOBILE COMPUTING	
C415.1	Able to think and Develop new mobile application
C415.2	Able to Apply any new technical issue related to new paradigm and come up with a solution(s).
C415.3	Able to Develop new ad hoc network applications and/or/ algorithms/ protocols.
C415.4	Able to understand & develop any existing or new protocol related to mobile environment
C415.5	Differentiate the different operating Systems like Palm OS, Windows CE,Symbian OS ,Linux for Mobile devices
C415.6	List out the Advanced technologies for developing the mobile networks
SPECIFIC LEARNING OUTCOMES – INFORMATION RETREIVAL SYSTEM	
C416.1	Demonstrate genesis and diversity of information retrieval situations for text and hyper media
C416.2	Describe hands-on experience store, and retrieve information from www using semantic approaches
C416.3	Demonstrate the usage of different data/file structures in building computational search engines
C416.4	Analyze the performance of information retrieval using advanced techniques such as classification, clustering, and filtering over multimedia
C416.5	Analyze ranked retrieval of a very large number of documents with Hyperlinks between them.
C416.6	Demonstrate Information visualization technologies like Cognition and Perception in the Internet or Web search engine.
SPECIFIC LEARNING OUTCOMES – LINUX PROGRAMMING LAB	
C417.1	Understand the Linux environment
C417.2	Ability to Write shell scripts to solve problems
C417.3	Implement some standard Linux utilities such as ls,cp etc using

	system calls.
C417.4	Develop network –based applications using C
C417.5	Ability to write client server programs in C for connection oriented communication between server and client processes using Unix
C417.6	Ability to Design the file management and multiple tasks using shell scripts in linux environment
SPECIFIC LEARNING OUTCOMES – DATAWARE HOUSING AND DATA MINING LAB	
C418.1	Understand the various kinds of tools
C418.2	Demonstrate performing association rule mining on data sets
C418.3	Demonstrate performing classification on data sets
C418.4	Demonstrate performing clustering on data sets
C418.5	Demonstrate performing Regression on data sets
C418.6	Ability to Apply mining techniques for realistic data



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	CO STATEMENT
SPECIFIC LEARNING OUTCOMES – MANAGEMENT SCIENCE	
C421.1:	Understand the fundamental principles of management and organization.
C421.2:	Understand the concepts of scientific management theories and organizational structures.
C421.3:	Analyze different types of plant layouts viz. job, batch and mass production.
C421.4:	Analyzing markets, supply chain management
C421.5 :	Illustrate the concepts of SQL, EOQ, ABC Analysis, PERT, CPM.
C421.6:	Analyze the difference between transfer, promotion, absenteeism and demotion in companies.
SPECIFIC LEARNING OUTCOMES - WEB SERVICES	
C422.1:	Describe the purpose of Distributed computing.
C422.2:	Understand the ways that how web services are came into existence are documented and classified and different technologies and standards.
C422.3:	Use of Web service architecture on a J2EE implementation model and web service based applications
C422.4:	Understands the SOAP Structure and the role of SOAP in Web Services.
C422.5:	Understand the WSDL definition, role of WSDL in web services and limitations.
C422.6:	Use the UDDI in web services and with some programming examples
SPECIFIC LEARNING OUTCOMES – ADHOC SENSOR NETWORKS	
C423.1	Understand the concept of mobile computing & Analyze the GSM architecture, protocols and their new data services
C423.2	Estimate the MAC protocols for GSM and wireless LANs.
C423.3	Identify the collision avoidance for protocols
C423.4	Explain about the mobile IP Network layer.
C423.5	Develop new ad hoc network applications and algorithms or protocols
C423.6	Understand and develop any existing or new protocol related to mobile environment.

SPECIFIC LEARNING OUTCOMES – Seminar	
C424.1	Perform a literature survey to review current knowledge and developments in chosen technical area
C424.2	Undertake detailed technical work in theoretical studies, computer simulation, hardware construction
C424.3	Interpret the results of the study for the application purpose
C424.4	Deliver a seminar on general areas of work being undertaken and specific contribution to that field
C424.5	Demonstrate knowledge, skills and attitude of a professional engineer
C424.6	Effectively communicate by making an oral presentation to present the project completed
SPECIFIC LEARNING OUTCOMES – Project	
C427.1	Student are able to learn programs
C427.2	Student are able to develop the application by using some tool
C427.3	Student are able to write the literature review
C427.4	Student are able to analysis the testing of an application
C427.5	Student are able to Represent the document and there review
C427.6	Student are able to apply the uses of application on social areas
SPECIFIC LEARNING OUTCOMES – Comprehensive viva	
C426.1	Prepare comprehensively to answer questions from all the courses
C426.2	Attain Oral Presentation skills by answering questions in precise and concise manner
C426.3	Gain self confidence
C426.4	Inculcate Inter personal skills
C426.5	Understand and apply all the Electrical subjects theoretically
C426.6	Demonstrate knowledge, skills and attitude of a professional engineer