SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY
(Approved by AICTE, New Delhi & Permanently Affiliated to JNTU Kakinada)
Accredited by NAAC &NBA(CSE,ECE&ME). (An ISO 9001:2015Certified Institute)
Nandamuru , Pedana Mandal, Krishna Dist – 521 369
Department of Science and Humanities

A:Y-2022-2023 **SEM-I** **Branch:ECE**

Course outcomes

English

CO#	Course Outcome	BTL
C111.1	Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information.	Understand
C111.2	Ask and answer general questions on familiar topics and introduce oneself/others.	Remember
C111.3	Employ suitable strategies for skimming and scanning to get the general idea of a text and locate specific information.	Apply
C111.4	Recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs.	Understand
C111.5	Form sentences using proper grammatical structures and correct word forms.	Analyze

Mathematics-I

CO#	Course Outcome	BTL
C112.1	Use mean value theorems to real life problems.	Apply
C112.2	Apply differential equations to solve electrical circuits, chemical reactions, Newton's Law of cooling, natural growth and decay	Apply
C112.3	Apply the second order differential equations for problems of electrical circuits.	Apply
C112.4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
C112.5	Determine the area and volume of a given curve using double and triple integral	Understand

Applied Chemistry

CO#	Course Outcome	BTL
C113.1	Explain the preparation, properties and applications of some plastic materials	Understand
C113.2	Explain the theory and construction of battery and fuel cells.	Understand
C113.3	Understand the importance of materials like nonmaterial's and fullerenes (Understand)	Understand
C113.4	Understand importance molecular machines	Understand
C113.5	Explain the different applications of analytical instruments	Understand

Programming for Problem Solving Using C

CO#	Course Outcome	BTL
C114.1	Explain the basic fundamental concepts, like computer system, computing environment and structure of c program	Understand
C114.2	Use the different operators and decision making statement based on problem.	Apply
C114.3	Develop the programs by using derived data types like arrays, strings, structures and unions	Apply
C114.4	Explain about pointers, dynamic memory allocation and pre processor commands.	Understand
C114.5	Classify the different categories of functions and file I/O.	Apply
C114.6	Develop the programs by using I/O files and use new tools	Apply

Engineering Drawing

CO#	Course Outcome	BTL
C115.1	Use drawing instruments and to draw polygons, Engg. Curves and Scales	Apply
C115.2	Draw and understand orthographic projections, projections of points & lines	Apply
C115.3	Draw the projections of the plane inclined to both the planes.	Apply
C115.4	Draw the projections of the various types of solids in different positions inclined to one of the planes.	Apply
C115.5	Visualize and convert the isometric view to orthographic view and vice versa.	Apply

English Language Commununication Skills Lab

CO#	Course Outcome	BTL
C116.1	Grasp all the features of phonetics and learn to pronounce words	Remember
C116.2	Learn various nuances of stress rules of words	Apply
C116.3	Students able to Speak effectively according to mood, tone and rhythm	Analyze
C116.4	Write accurately, coherently and lucidly making appropriate use of words depending on context and present data clearly.	Apply
C116.5	Comprehend written discourse	Apply

Applied Chemistry Lab

CO#	Course outcome	BTL
C117.1	Diffentiate good fuels from low quality fuels.	Understand
C117.2	The student is exposed to different methods of chemical analysis In water and use of some commonly employed instruments.	Understand
C117.3	Design economically and new methods of synthesis of vitamin-C.	Understand
C117.4	Develop innovative methods to produce soft water for industrial use and portable water at cheaper cost.	Create
C117.5	Design a titrimetic analysis for HCl.	Evaluate

Programming for Problem Solving Using C Lab

CO#	Course outcome	BTL
C118.1	Gains Knowledge on various concepts of a C language.	Remember
C118.2	Able to draw flowcharts and write algorithms.	Apply
C118.3	Able design and development of C problem solving skills.	Apply
C118.4	Able to design and develop modular programming skills.	Apply
C118.5	Able to trace and debug a program	Analyze

CO-ORDINATOR

HOD

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Nandamuru , Pedana Mandal, Krishna Dist – 521 369
Department of Science and Humanities

A: Y-2022-2023 **SEM-I** **Branch: CSE**

Course outcomes

ENGLISH

CO#	Course outcome	BTL
C111.1	understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information	Understand
C111.2	ask and answer general questions on familiar topics and introduce oneself/others. (Remember)	Remember
C111.3	employ suitable strategies for skimming and scanning to get the general idea of a text and locate specific information	Apply
C111.4	recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs.	Understand
C111.5	form sentences using proper grammatical structures and correct word forms.	Analyze

Mathematics-I

CO#	Course outcome	BTL
C112.1	Use mean value theorems to real life problems	Apply
C112.2	Apply differential equations to solve electrical circuits, chemical reactions, Newton's Law of cooling, natural growth and decay	Apply
C112.3	Apply the second order differential equations for problems of electrical circuits.	Apply
C112.4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
C112.5	Determine the area and volume of a given curve using double and triple integral	Understand

Applied Physics

CO#	Course outcome	BTL
C113.1	Analyze the difference between interference and diffraction.Analyze ordinary and Extraordinary polarized light.	Analyze
C113.2	Understand the basic concepts of LASER. Explain working principle of optical fibers.	Understand
C113.3	Explain the concept of dual nature of matter and concepts of classical and Quantum free electron theories.	Understand
C113.4	Explain concept of polarization in dielectric materials and Magnetization in Magnetic materials.	Understand
C113.5	Explain semiconductors and superconductivity property Materials.	Understand

Programming for Problem Solving Using C

CO#	Course outcome	BTL
C114.1	**Explain** the basic fundamental concepts, like computer system, computing environment and structure of c program	Understand
C114.2	**Use** the different operators and decision making statement based on problem.	Apply
C114.3	Develop the programs by using derived data types like arrays, strings, structures and unions	Apply
C114.4	Explain about pointers, dynamic memory allocation and pre processor commands.	Understand
C114.5	Classify the different categories of functions and file I/O.	Apply
C114.6	Develop the programs by using I/O files and use new tools	Apply

Computer Engineering Workshop Lab

CO#	Course outcome	BTL
C115.1	Assemble and disassemble components of a PC	Create
C115.2	Construct a fully functional virtual machine, Summarize various Linux operating system commands,	Apply
C115.3	Recognize characters & extract text from scanned images, Create audio files and podcasts	Create

English Language Commununication Skills Lab

CO#	Course outcome	BTL
C116.1	Grasp all the features of phonetics and learn to pronounce words	Remember
C116.2	Learn various nuances of stress rules of words	Apply
C116.3	Students able to Speak effectively according to mood, tone and rhythm	Analyze
C116.4	Write accurately, coherently and lucidly making appropriate use of words depending on context and present data clearly.	Apply
C116.5	Comprehend written discourse	Apply

Applied Physics Lab

CO#	Course outcome	BTL
C117.1	Determination of the physical values like wavelength of light , radius of curvature of lens, thickness of thin object , dispersive power of prism, wavelength of laser using principles of optical phenomenon.	Apply
C117.2	Study the variation of B Vs H by magnetizing magnetic material.	Apply
C117.3	Measurement of Hall coefficient of given semiconductor.	Apply
C117.4	Explain the characteristics values of simple electrical and electronic components like Thermistor and dielectric constant.	Apply
C117.5	Demonstrate the magnetic field effects involved in Stewart and Gee's Experiment.	Apply

Programming for Problem Solving Using C Lab

CO#	Course outcome	BTL
C118.1	Gains Knowledge on various concepts of a C language.	Remember
C118.2	Able to draw flowcharts and write algorithms.	Apply
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Department of Science and Humanities

A: Y-2022-23 **SEM-I** **Branch: AIML**

Course outcomes

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Programming for Problem Solving Using C

CO#	Course outcome	BTL
C114.1	Explain the basic fundamental concepts, like computer system, computing environment and structure of c program	Understand
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Applied Chemistry Lab

CO#	Course outcome	BTL
C117.1	Diffentiate good fuels from low quality fuels.	Understand
C117.2	The student is exposed to different methods of chemical analysis In water and use of some commonly employed instruments.	Understand
C117.3	Design economically and new methods of synthesis of vitamin-C.	Understand
C117.4	Develop innovative methods to produce soft water for industrial use and portable water at cheaper cost.	Create
C117.5	Design a titrimetic analysis for HCl.	Evaluate

Programming for Problem Solving Using C Lab

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C118.1	Gains Knowledge on various concepts of a C language.	Remember
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Department of Science and Humanities

A:Y-2022-2023 **SEM: II** **Branch: ECE**

Course outcomes

Mathematics-II

CO#	Course Outcome	BTL
C121.1	Demonstrate knowledge of matrix calculation as an elegant and powerful mathematical language in connection with rank of a matrix using Echelon and normal forms.	Remember
C121.2	Apply the concept of Eigen values in problems of mechanical systems where Eigen values are natural frequency and mode shape.	Apply
C121.3	Finding the roots of algebraic transcendental equations by bisection, false , Iteration and Newton Raphson methods.	Understand
C121.4	Apply the Newton's interpolation technique to estimate the population in a particular year.	Apply
C121.5	Solving initial value problems by using Euler's and Runge-Kutta methods.	Apply

Applied Physics

CO#	Course Outcome	BTL
C122.1	Analyze the difference between interference and diffraction. Analyze ordinary and Extraordinary polarized light.	Analyze
C122.2	Understand the basic concepts of LASER. Explain working principle of optical fibers.	Understand
C122.3	Explain the concept of dual nature of matter and concepts of classical and Quantum free electron theories.	Understand
C122.4	Explain concept of polarization in dielectric materials and Magnetization in Magnetic materials.	Understand
C122.5	Explain semiconductors and superconductivity property Materials.	Understand

OOPS-Object Oriented Programming through Java

CO#	Course Outcome	BTL
C123.1	Evaluate use of the Java programming language in the development of small to medium- sized application programs	Understand
C123.2	Demonstrate professionally acceptable coding and performance standard.	Apply
C123.3	Explain the basic principles of the object-oriented programming.	Understand
C123.4	Demonstrate an introductory understanding of graphical user interfaces.	Apply
C123.5	Evaluate Multithreaded programming, and event-driven programming	Understand

Network Analysis

CO#	Course Outcome	BTL
C124.1	Gain the knowledge on basic network elements.	Apply
C124.2	Analyze the RLC circuits behavior in detail	Analyze
C124.3	Analyze the performance of periodic waveforms	Analyze
C124.4	Understand the concept of series and parallel resonance	Understand
C124.5	Apply network theorems to solve the circuits	Analyze
C124.6	Gain the knowledge in characteristics of two port network parameters (Z,Y, ABCD,h&g).	Apply

Basic Electrical Engineering

CO#	Course Outcome	BTL
C125.1	Analyze the performance of DC generator and motor.	Analyze
C125.2	Analyze the performance of transformer	Analyze
C125.3	Analyze the performance of synchronous generator	Analyze
C125.4	Analyze the performance of synchronous motor.	Understand
C125.5	Analyze the performance of induction motor.	Analyze
C125.6	Explain the operation of special machines	Understand

Electronic workshop Lab

C127.1	Understand the codings of passive components & Identification of terminals of active and passive components.	Understand
C127.2	Understand Measuring procedures of various parameters with different meters.	Understand
C127.3	Analyze the designing procedure & rules of Soldering & De-Soldering.	Create
C127.4	Analyze the designing procedure & rules of fabrication of PCB.	Create
C127.5	Understand the testing procedures of various active & passive components.	Analyze
C127.6	Understand the functionality of various parts of CRO & measurement procedures on CRO	Analyze

Basic Electrical Engineering Lab

C128.1	Compute the efficiency of DC shunt machine without actual loading of the machine	Apply
C128.2	Estimate the efficiency and regulation at different load conditions and power factors for singlephase transformer with OC and SC tests	Apply
C128.3	Analyse the performance characteristics and to determine efficiency of DC shunt motor &3- Phaseinduction motor	Apply
C128.4	Pre-determine the regulation of an alternator by synchronous impedance method.	Apply
C128.5	Control the speed of dc shunt motor using Armature voltage and Field flux control methods.	Apply
C128.6	Draw the characteristics of PN junction diode & transistor	Apply
C128.7	Determine the ripple factor of half wave & full wave rectifiers	Apply

Applied Physics lab

C129.1	Determination of the physical values like wavelength of light , radius of curvature of lens, thickness of thin object , dispersive power of prism, wavelength of laser using principles of optical phenomenon.	Apply
C129.2	Study the variation of B Vs H by magnetizing magnetic material.	Apply
C129.3	Measurement of Hall coefficient of given semiconductor.	Apply
C129.4	Explain the characteristics values of simple electrical and electronic components like Thermistor and dielectric constant.	Apply
C129.5	Demonstrate the magnetic field effects involved in Stewart and Gee's Experiment.	Apply

CO-ORDINATOR

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Department of Science and Humanities

A:Y-2022-2023 **SEM-II** **Branch: CSE**

Course outcomes

Mathematics-II

CO#	Course outcome	BTL
C121.1	Demonstrate knowledge of matrix calculation as an elegant and powerful mathematical language in connection with rank of a matrix using Echelon and normal forms	Remember
C121.2	Apply the concept of Eigen values in problems of mechanical systems where Eigen values are natural frequency and mode shape.	Apply
C121.3	Finding the roots of algebraic transcendental equations by bisection, false , Iteration and Newton Raphson methods	Understand
C121.4	Apply the Newton's interpolation technique to estimate the population in a particular year.	Apply
C121.5	Solving initial value problems by using Euler's and Runge-Kutta methods.	Apply

Applied Chemistry

CO#	Course outcome	BTL
C122.1	Explain the preparation, properties and applications of some plastic materials	Understand
C122.2	Explain the theory and construction of battery and fuel cells.	Understand
C122.3	Understand the importance of materials like nonmaterial's and fullerenes (Understand)	Understand
C122.4	Understand importance molecular machines	Understand
C122.5	Explain the different applications of analytical instruments	Understand

Computer Organisation

CO#	Course outcome	BTL
C123.1	Studentscanunderstandthedesignofthefunctionalunitsofadigitalcomputersystem,PostulatesofBooleanalgebraandminimizingcombinationalfunctions,Recognizeandmanipulaterepresentationsofnumbersstored indigitalcomputers,Buildthelogicfamiliesand Realizationoflogicgates.	Remember, Understand &Apply
C123.2	Theycanunderstandthedesignandanalyzecombinationalandsequentialcircuits	Remember, Understand & Apply
C123.3	Understandtheconceptsofcomputerarithmeticoperations, arithmetic and logic microoperations,andinternalorganizationof Computers.	Understand , Apply

C123.4	Understandtheconceptsof.Microprogrammingandmicroinstructionsand CPU.	Understand
C123.5	UnderstandtheconceptsofMemorysystemsandI/Organization	Understand , Apply

Python Programming

CO#	Course outcome	BTL
C124.1	Develop essential programming skills in computer programming concepts like data types, containers	Remember
C124.2	Apply the basics of programming in the Python language	Apply
C124.3	Solve coding tasks related conditional execution, loops	Apply
C124.4	Solve coding tasks related to the fundamental notions and techniques used in objectoriented programming	Understand

Data structures

CO#	Course outcome	BTL
C125.1	Define the Concepts of Data Structures and Compare the performance of various sorting and search techniques	Analyze
C125.2	Solve the problems using Linked List	Apply
C125.3	Discuss Stack and Queue operations and their applications	Understand
C125.4	Explain different types of Trees and its operations	Understand
C125.5	Solve problems involving graphs	Apply

Applied Chemistry Lab

CO#	Course outcome	BTL
C127.1	Diffentiate good fuels from low quality fuels.	Understand
C127.2	The student is exposed to different methods of chemical analysis In water and use of some commonly employed instruments.	Understand
C127.3	Design economically and new methods of synthesis of vitamin-C.	Understand
C127.4	Develop innovative methods to produce soft water for industrial use and portable water at cheaper cost.	Create
C127.5	Design a titrimetic analysis for HCl.	Evaluate

Python programming lab

CO#	Course outcome	BTL
C128.1	Develop essential programming skills in computer programming concepts like data types, containers	Understand
C128.2	Apply the basics of programming in the Python language	Apply
C128.3	Solve coding tasks related conditional execution, loops	Understand
C128.4	Solve coding tasks related to the fundamental notions and techniques used in object-oriented programming	Analyze

Data Structures Lab

CO#	Course outcome	BTL
C129.1	Contrast various searching algorithms.	Analyze
C129.2	Implement various sorting algorithms.	Create
C129.3	Classify Stacks and Queues	Understand
C129.4	Use basic data structures such as arrays and linked list.	Create
C129.5	Solve Fundamental algorithmic problems including Tree Traversals	Apply

CO-ORDINATOR

HOD

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A:Y-2022-2023 **Branch: AIML** **SEM:II**

Course outcomes

Mathematics-II

CO#	Course outcome	BTL
C121.1	Demonstrate knowledge of matrix calculation as an elegant and powerful mathematical language in connection with rank of a matrix using Echelon and normal forms	Remember
C121.2	Apply the concept of Eigen values in problems of mechanical systems where Eigen values are natural frequency and mode shape.	Apply
C121.3	Finding the roots of algebraic transcendental equations by bisection, false , Iteration and Newton Raphson methods	Understand
C121.4	Apply the Newton's interpolation technique to estimate the population in a particular year.	Apply
C121.5	Solving initial value problems by using Euler's and Runge-Kutta methods.	Apply

Applied Physics

CO#	Course outcome	BTL
C122.1	Analyze the difference between interference and diffraction.Analyze ordinary and Extraordinary polarized light.	Analyze
C122.2	Understand the basic concepts of LASER. Explain working principle of optical fibers.	Understand
C122.3	Explain the concept of dual nature of matter and concepts of classical and Quantum free electron theories.	Understand
C122.4	Explain concept of polarization in dielectric materials and Magnetization in Magnetic materials.	Understand
C122.5	Explain semiconductors and superconductivity property Materials.	Understand

Digital Logic Design

CO#	Course outcome	BTL
C123.1	Describe the structure of number systems binary addition and subtraction, 2's complement representation and operations with this representation.	Understand
C123.2	Describe the different switching algebra theorems and apply them for logic functions & Define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.	Apply
C123.3	Analyze and design combinational logic circuits	Create
C123.4	Analyze sequential logic circuits-I	Analyze
C123.5	Analyze and design sequential logic circuits-II	Create

Python Programming

CO#	Course outcome	BTL
C124.1	Develop essential programming skills in computer programming concepts like data types, containers	Remember
C124.2	Apply the basics of programming in the Python language	Apply
C124.3	Solve coding tasks related conditional execution, loops	Apply
C124.4	Solve coding tasks related to the fundamental notions and techniques used in objectoriented programming	Understand

Data Structures

CO#	Course outcome	BTL
C125.1	Define the Concepts of Data Structures and Compare the performance of various sorting and search techniques	Analyze
C125.2	Solve the problems using Linked List	Apply
C125.3	Discuss Stack and Queue operations and their applications	Understand
C125.4	Explain different types of Trees and its operations	Understand
C125.5	Solve problems involving graphs	Apply

Applied Physics Lab

CO#	Course outcome	BTL
C127.1	Determination of the physical values like wavelength of light , radius of curvature of lens, thickness of thin object , dispersive power of prism, wavelength of laser using principles of optical phenomenon.	Apply
C127.2	Study the variation of B Vs H by magnetizing magnetic material.	Apply
C127.3	Measurement of Hall coefficient of given semiconductor.	Apply
C127.4	Explain the characteristics values of simple electrical and electronic components like Thermistor and dielectric constant.	Apply
C127.5	Demonstrate the magnetic field effects involved in Stewart and Gee's Experiment.	Apply

Python programming lab

CO#	Course outcome	BTL
C128.1	Develop essential programming skills in computer programming concepts like data types, containers	Understand
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CO-ORDINATOR

H.O.D

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Nandamuru, Pedana Mandal, Krishna Dist. – 521369

DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- II-I

CO.NO	Course outcome(co) statement- at the end of the course, the students will be able to	Blooms taxonomy
	MATHEMATICS -III (VECTOR CALCULUS, TRANSFORMS AND PDE)	
	(C211)	
C211.1	Apply scalar ,vector fields ,scalar potential function and compute the gradient, divergence and curl, use vector integral theorems to facilitate vector integration	Evaluate
C211.2	Evaluate the general solutions to linear ordinary differential equations by using laplace transform.	Evaluate
C211.3	Find the Fourier series of continuous, finite discontinuities and periodic functions. find the Fourier transforms of certain functions and integral transforms.	Apply
C211.4	To solve first order linear and non-linear partial differential equations in different standard forms.	Remember
C211.5	Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution.	Apply
	STRENGTH OF MATERIALS - I	
	(C212)	
C212.1	Explain the basic materials behavior under the influence of different external loading conditions and the support conditions.	Understand
C212.2	Develop the diagrams indicating the variation of the key performance features like bending moment and shear forces.	Create
C212.3	Calculate the section modulus and for determination of stresses developed in the beams.	Apply
C212.4	Calculate the shear stress distribution across various beam sections.	Apply
C212.5	Analyze the slope and deflection of different beams by using different methods.	Analyze
	FLUID MECHANICS	
	(C213)	
C213.1	Explain the various properties of fluids and their influence on fluid motion.	Understand
C213.2	Calculate the forces that act on submerged planes and curves.	Apply
C213.3	Identify and analyze various types of fluid flows.	Analyze
C213.4	Apply the integral forms of the three fundamental laws of fluid mechanics	Apply
C213.5	Calculate the quantities of fluid flowing in pipes, tanks and channels.	Apply

	SURVEYING AND GEOMETRICS (C214)	
C214.1	Describe the basic surveying skills.	Understand
C214.2	Calculate linear and angular measurements by using chain and compass.	Apply
C214.3	Calculate levels of different points by using leveling instruments.	Apply
C214.4	Calculate linear and angular measurements by using theodolite and tachometry.	Apply
C214.5	Design and setting out various types of curves.	Create

	HIGHWAY ENGINEERING (C215)	
C215.1	Explain different types of components and functions of railway track with diagrams.	Understand
C215.2	Design geometrics in a railway track	Create
C215.3	Explain good transportation network	Understand
C215.4	Design of airport geometrics and airfield pavements.	Create
C215.5	Schedule for attending inspections and maintenance of docks and harbors.	Apply

	CONCRETE TECHNOLOGY LAB (C216)	
C216.1	Differentiate the properties of cement	Analyze
C216.2	Perform the workability test on concrete	Evaluate
C216.3	Understand the properties of fine and coarse aggregates	Understand
C216.4	Apprise the performance on elongation and flakiness index	Evaluate
C216.5	Understand the non destructive tests of concrete	Understand

	HIGHWAY ENGINEERING LAB (C217)	
C217.1	Test aggregates and judge the suitability of materials for the road construction	Evaluate
C217.2	Test the given bitumen samples and judge their suitability for the road construction	Evaluate
C217.3	Obtain the optimum bitumen content for bituminous concrete	Apply
C217.4	Determine the traffic volume, speed and parking characteristics.	Apply
C217.5	Draw highway cross sections and intersections.	Remember

	SURVEYING FIELD WORK – 1 (LAB) (C218)	
C218.1	Understand the method of chain surveying	Understand
C218.2	Determination of distance between two inaccessible points by using compass.	Apply
C218.3	Apprise the performance of findind the area by plane table survey	Evaluate
C218.4	Understand the difference between the height of instrument and rise and fall method	Understand
C218.5	Obtain the difference between closed and open circuit	Apply

SKILL ORIENTED COURSE*
(C219)

219.1	The student should be able to identify different building materials and their importance in buildingconstruction.	Understand
219.2	The student is expected to differentiate brick masonry, stone masonry construction and use of lime and cement in variousconstructions.	Analyze
219.3	The student should have learnt the importance of building components and finishings	Remember
219.4	Imparting the knowledge of course pattern in masonry construction and flat roofs and techniques of forming foundation, columns, beams, walls, sloped and flatroofs.	Understand
219.5	Differentiation of english and flemish bonds	Apnalyze

CONSTITUTION OF INDIA
(C210)

220.1	Understand the concept of indian constitution	Understand
220.2	Apply the knowledge on directive principle of state policy	Apply
220.3	Analyze the history, features of indian constitution	Analyze
220.4	Evaluate preamble fundamental rights	Evaluate
220.5	Evaluate preamble fundamental duties	Evaluate

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DEPARTMENT OF CIVIL ENGINEERING
COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- II-II**

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Complex Variables and Statistical Methods (C221)	
C221.1	Apply Cauchy-Riemann equations to complex functions	Apply
C221.2	Evaluate the differentiation and integration of complex functions	Evaluate
C221.3	Evaluate certain integrals	Evaluate
C221.4	Apply discrete and continuous probability distributions	Apply
C221.5	Design the components of a classical hypothesis test	Create
	Strength of Materials -II (C222)	
C222.1	Analyze the compound stresses and failure theories	Analyze
C222.2	Analyze the torsion stresses in shafts & springs	Analyze
C222.3	Analyze and evaluate the stresses in columns	Analyze
C222.4	Analyze deflections in beams due to different loading conditions three moment equation method	Analyze
C222.5	Compute stress in unsymmetrical bending and shear centre for a different sections	Apply
	Hydraulics and Hydraulic Machinery (C223)	
C223.1	Solve uniform open channel flow problems.	Apply
C223.2	Solve non uniform open channel flow problems.	Apply
C223.3	Apply the principals of dimensional analysis and similitude in hydraulic model testing.	Apply
C223.4	Apply the principles of hydrodynamic forces of jets on different planes	Apply
C223.5	Apply the working principles of various hydraulic machineries & hydraulic design of turbines	Create

	Environmental Engineering (C224)	
C224.1	calculate the water demand and Specify design period of hydraulic structure	Apply
C224.2	Identify the water source and select proper intake structure	Analyze
C224.3	Characterization of water properties & its standards with reference to IS	Analyze
C224.4	Design the appropriate treatment methods for water to be treated	Create
C224.5	Selection of suitable disinfection treatment method for miscellaneous treatment	Analyze
	Managerial Economics & Financial Analysis (C225)	
C225.1	Explain the concept and importance of management and managerial problems	Understand
C225.2	Describe an idea of production methods and technical relationship between input and output	Understand
C225.3	Determine the types of market and pricing methods and strategies. Describe the types of industrial organization	Evaluate
C225.4	Analyze the financial statements.	Analyze
C225.5	Evaluate the investment proposal in projects	Evaluate
	Environmental Engineering Lab (C226)	
C226.1	Estimate some important characteristics of water, wastewater and soil in the laboratory	Apply
C226.2	Draw some conclusion and decide whether the water is suitable for Drinking/Construction	Apply
C226.3	Estimate Chloride, EC and Salinity of Soil and suggest their suitability for•	Evluaate
C226.4	Estimation of the strength of the sewage in terms of BOD and COD and Decide whether the water body is polluted or not with reference to the stated parameters in the list of experiments	Evaluate
C226.5	Demonstration of various instruments used in testing of water and soil and study of Drinking water standards, WHO guidelines, Effluent standards and standards for Construction/ Agriculture/ Industry	Apply
	Strength of Material Lab (C227)	
C227.1	Perform the tension test on Mild steel bar, Bending test on (Steel / Wood) Cantilever beam and simply supported beam.	Apply
C227.2	Perform Verification of Maxwell's Reciprocal theorem on beams.	Analyze
C227.3	perform Compression test on wood or concrete	Analyze
C227.4	understand the Use of Electrical resistance strain gauges	Understand
C227.5	utilize the varioous materials to dertmine shear test	Apply

	Fluid Mechanics & Hydraulics Machinery Lab (C228)	
C228.1	Explain properties of fluids and measure pressure of the flowing fluid	Evaluate
C228.2	Use Euler's equation, Bernoulli's equation, Energy momentum equations and solve various fluid flow problems	Apply
C228.3	Perform dimensional analysis and explain boundary layer theory	Analyze
C228.4	Calculate hydrodynamic forces and efficiencies. Appraise the performance of turbines under varying load conditions	Evaluate
C228.5	Appraise the performance of pumps under varying load conditions. Explain hydraulic systems like lifts which are suitable for industrial requirements	Evaluate

	Skill oriented course* (C229)	
C229.1	Understand fundamental of traffic engineering & some of the statistics methods to analysis the traffic safety.	Understand
C229.2	collection of accident interrogations & risk involved with measures to identify the causes are dealt.	Analyse
C229.3	understand the role of road safety in planning the urban infrastructures design is discussed.	Understand
C229.4	remember the various traffic management systems for safety & safety improvement strategies are dealt.	Remember
C229.5	investigate & determine the collective factors & remedies of accident involved	Analyze

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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- III-I

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Structural Analysis (C311)	
C311.1	Distinguish between the determinate and indeterminate structures.	Analyze
C311.2	Identify the behavior of structures due to the expected loads, including the moving loads, acting on the structure.	Remember
C311.3	Estimate the bending moment and shear forces in beams for different fixity conditions.	Evaluate
C311.4	Analyze the continuous beams using various methods -, three moment method, slope deflection method, energy theorems. and Draw the influence line diagrams for various types of moving loads on beams/bridges.	Analyze
C311.5	Analyze the loads in Pratt and Warren trusses when loads of different types and spans are passing over the truss.	Analyze
	Design and Drawing of Reinforced Concrete Structures (C312)	
C312.1	Analyze and design of beams by using WSM	Create
C312.2	Analyze and design of flexural members	Create
C312.3	Analyze and design of shear, bond, torsion for different structural elements	Create
C312.4	Analyze and design of slabs	Create
C312.5	Analyze and design of compression members	Create
	Geotechnical Engineering-I (C313)	
C313.1	Explain the concept and importance of management and managerial problems	Understand
C313.2	Describe an idea of production methods and technical relationship between input and output	Understand
C313.3	Determine the types of market and pricing methods and strategies. Describe the types of industrial organization	Understand
C313.4	Analyze the financial statements.	Analyze
C313.5	Evaluate the investment proposal in projects	Evaluate

Open Elective Course/Job Oriented Elective (OE-I) Road Safety Engineering (C314)		
C314.1	To understand fundamental of Traffic Engineering	Understand
C314.2	To investigate & determine the collective factors & remedies of accident involved.	Analyze
C314.3	To design & planning various road geometrics.	Create
C314.4	To massage the traffic system from road safety point of view.	Apply
C314.5	The various traffic management systems for safety & safety improvement strategies are dealt.	Understand
Professional Elective course - I Construction Technology and Management (C315)		
C315.1	Explain the importance of construction planning, networking and monitoring in construction projects.	Understand
C315.2	Analyze the cost of a construction project and identify the optimum and crash cost of the project	Analyze
C315.3	Describe the functioning of various earth-moving equipment.	Understand
C315.4	Explain the methods of production of aggregate products, mixing and placing of concrete.	Understand
C315.5	Apply the gained knowledge to project management and construction techniques.	Apply
Professional Core courses Lab Survey Camp (Field work) (C316)		
C316.1	**Determining the Horizontal and Vertical Angles by the method of repetition method.**	Evaluate
C316.2	unduerstand the theodolite Survey; Finding the distance between two inaccessible points, height of far object	Unserstand
C316.3	practicing setting up, leveling up and elimination of parallax error.	Remember
C316.4	Determination of area using total station, Traversing, Contouring	Analyze
C316.5	Determination of Remote height by Total Station and distance between two inaccessible point	Analyze
Geotechnical Engineering Lab (C317)		
C317.1	Determine index properties of soil and classify them.	Analyze
C317.2	Determine permeability of soils.	Analyze
C317.3	Determine Compaction, Consolidation and shear strength characteristics	Analyze

Skill advanced course: Design of Special Structure, Chimney, Hinge Tanks, spill ways etc., (C318)		
C318.1	Equipping students with the professional knowledge in the design and construction of Industrial chimneys and Water tanks	Analyze
C318.2	To get the professional knowledge in the design of service reservoir and Estimation of drains for village	Understand
C318.3	To understand the design of spillway for low and medium height dams	Understand
C318.4	To estimate the concrete roads	Analyze
C318.5	To estimate the rain water harvesting ponds	Analyze
Essence of Indian Traditional Knowledge (C319)		
C319.1	Explain the concept of Traditional knowledge and its importance	Understand
C319.2	Know the need and importance of protecting traditional knowledge	Understand
C319.3	Explain the various enactments related to the protection of traditional knowledge	Understand
C319.4	Explain the concepts of Intellectual property to protect the traditional knowledge	Understand
C319.5	Explain the concepts of traditional knowledge in different sector	Understand
Summer Internship 2Months (Mandatory) after second year (to be evaluated during V semester) (C310)		
C310.1	Describe the abstract and information of the project	Understand
C310.2	Identify the time duration and cost required to develop the project	Understand
C310.3	Implement and test the project which is useful to the society	Evaluate
C310.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C310.5	Demonstrate the project individual and in a group	Apply

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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- III-II

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Design and Drawing of Steel Structures (C321)	
C321.1	Understand the different types of connections & their design as per IS codes	Understand
C321.2	Analysis & Design of flexural members like beams and detailing	Create
C321.3	Design tension members like roof trusses with connection detailing	Create
C321.4	Design of columns with connection detailing	Create
C321.5	Design of column bases with connection detailing	Create
	Water Resource Engineering (C322)	
C322.1	Have a thorough understanding of the theories and principles governing the hydrologic processes.	Understand
C322.2	Be able to quantify hydrologic components and apply concepts in hydrologic design of water resources projects.	Analyze
C322.3	Develop Intensity-Duration-Frequency and Depth-Area Duration curves to design hydraulic structures. d. Develop design storms and carry out frequency analysis.	Create
C322.4	Develop flow mass curve and flow duration curve, apply hydrograph analysis in the design of water resources projects.	Create
C322.5	Develop unit hydrograph and synthetic hydrograph.	Create
	Geotechnical Engineering-2 (C323)	
C323.1	Analyze the stability infinite and finite soil slopes for different conditions	Analyze
C323.2	Calculate the magnitude of earth pressures acting on the earth retaining structures	Analyze
C323.3	Understand various types of foundations, foundation settlements and the bearing capacity of soils	Understand
C323.4	Calculate the load carrying capacity of piles and pile groups	Analyze
C323.5	Understand the forces acting on well foundations and their design criteria	Understand

	Professional Elective course -II Traffic Engineering(C324)	
C324.1	Determine traffic speed, volume, travel time and density.	Analyze
C324.2	Design traffic signals	Create
C324.3	Determine highway capacity and LOS	Analyze
C324.4	To determine various components and characteristics of traffic.	Analyze
C324.5	To apply various traffic control devices and principles of highway safety.	Apply
	Open Elective Course/Job oriented Elective (OE-2) Remote Sensing and Graphical Interphase System (C325)	
C325.1	Identify the Air & Ground based sensor platforms	Understand
C325.2	Analyze the Aerial Photographs & Satellite Imageries	Analyze
C325.3	Create Input spatial data for GIS applications	Understand
C325.4	Analyze & Design the Raster & Vector data	Understand
C325.5	Apply Remote Sensing concepts in Water Resources Engineering	Apply
	Professional Core courses Lab (Estimation, Costing and Contracts) (C326)	
C326.1	determine the quantities of different components of buildings	Analyze
C326.2	find the cost of various building components.	Apply
C326.3	finalizing the value of structures.	Apply
	Professional Core courses Lab (Remote Sensing & GIS Lab) (C327)	
C327.1	Work comfortably on GIS software	Understand
C327.2	Digitize and create thematic map and extract important features	Create
C327.3	Develop digital elevation model	Create
C327.4	Interpretation and Estimation of features from satellite imagery.	Analyze
C327.5	Analyze and Modelling using GIS software	Analyze
	Professional Core courses Lab Civil Engineering Practice (C328)	
C328.1	understand practical aspects of Civil Engineering profession to the students	Understand
C328.2	Equipping students with the professional knowledge in the design and construction procedures of various Civil Engineering projects	Understand
C328.3	Introducing the important codes and by-laws that will benefit young professionals	Remember

	Skill advanced course/ soft skill course: Computational Tools (C329)	
C329.1	Model the geometry of real-world structure Represent the physical model of structural element/structure	Apply
C329.2	Perform analysis	Understand
C329.3	Interpret from the Post processing results	Analyze
C329.4	Design the structural elements and a system as per IS Codes	Create

	Employability Skills (C320)	
C320.1	understand the skills of aptitude to think logically	Understand
C320.2	understand about sott skills required to communication	Understand
C320.3	understand the Skills required for campus placement interview	Understand
C320.4	understand the skills related to employment	Understand
C320.5	understand about how to communicate in hiring department	Understand

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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- IV-I**

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Design & Drawing of Steel Structures (C411)	
C411.1	Understand the different types of connections & their design as per IS codes	Understand
C411.2	Analysis & Design of flexural members like beams and detailing	Create
C411.3	Design tension members like roof trusses with connection detailing	Create
C411.4	Design of columns with connection detailing	Create
C411.5	Design of column bases with connection detailing	Create
	Geotechnical Engineering - II (C412)	
C412.1	Analyze the stability infinite and finite soil slopes for different conditions	Analyze
C412.2	Calculate the magnitude of earth pressures acting on the earth retaining structures	Analyze
C412.3	Understand various types of foundations, foundation settlements and the bearing capacity of soils	Understand
C412.4	Calculate the load carrying capacity of piles and pile groups	Analyze
C412.5	Understand the forces acting on well foundations and their design criteria	Understand
	Remote Sensing & GIS (C413)	
C413.1	Identify the Air & Ground based sensor platforms	Understand
C413.2	Analyze the Aerial Photographs & Satellite Imageries	Analyze
C413.3	Create Input spatial data for GIS applications	Understand
C413.4	Analyze & Design the Raster & Vector data	Understand
C413.5	Apply Remote Sensing concepts in Water Resources Engineering	Apply
	Program Elective – III Waste Water Treatment (C414)	
C414.1	Know the quality and quantity of water for various industries and Advanced water treatment methods	Understand
C414.2	Learn the common methods of treatment of wastewaters and Biological treatment methods	Remember
C414.3	Study of methods to reduce impacts of disposal of wastes into environment and CETPs	Understand
C414.4	Study of methods of treatment of wastewaters from specific industries like steel plants, refineries, and power plants, that imply biological treatment methods	Understand
C414.5	Study of methods of treatment of wastewaters from industries like Aqua, dairy, sugar plants, and distilleries that imply biological treatment methods	Understand
	Open Elective – III Environmental and Pollution Control (C415)	
C415.1	Identify the air pollutant control devices and Have knowledge on the NAAQ standards and air emission standards	Remember
C415.2	Differentiate the treatment techniques used for sewage and industrial	Analyze

	wastewater treatment methods.	
415.3	Understand the fundamentals of solid waste management, practices adopted in his town/village and its importance in keeping the health of the city	Understand
415.4	Appreciate the methods of environmental sanitation and the management of community facilities without spread of epidemics.	Remember
415.5	Appreciate the importance of sustainable development while planning a project or executing an activity.	Remember
	Remote Sensing & GIS Lab (C416)	
C416.1	Work comfortably on GIS software	Understand
C416.2	Digitize and create thematic map and extract important features	Create
C416.3	Develop digital elevation model	Create
C416.4	Interpretation and Estimation of features from satellite imagery.	Analyze
C416.5	Analyze and Modelling using GIS software.	Analyze
	Geotechnical Engineering Lab (C417)	
C417.1	Determine index properties of soil and classify them	Remember
C417.2	Determine permeability of soils.	Analyze
C417.3	Determine Compaction, Consolidation and shear strength characteristics.	Analyze
	Industrial Training/ Internship or Seminar (C418)	
C418.1	Describe the abstract and information of the project	Understand
C418.2	Identify the time duration and cost required to develop the project	Understand
C418.3	Implement and test the project which is useful to the society	Evaluate
C418.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C418.5	Demonstrate the project individual and in a group	Apply
	Project Work Phase-I (C419)	
C419.1	Describe the abstract and information of the project	Understand
C419.2	Identify the time duration and cost required to develop the project	Understand
C419.3	Implement and test the project which is useful to the society	Evaluate
C419.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C419.5	Demonstrate the project individual and in a group	Apply

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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- IV-I**

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Estimation Specifications and Contract (C421)	
C421.1	Determine the quantities of different components of buildings.	Understand
C421.2	Find the cost of various buildingcomponents.	Apply
C421.3	Finalizing the value ofstructures	Evaluate
C421.4	Understand the quantity calculations of different components of thebuildings.	Understand
C421.5	Understand the rate analysis of different quantities of the buildingscomponents.	Understand
	Program Elective - IV Disaster Management and Mitigation (C422)	
C422.1	Know the application of Disaster Concepts to Management	Understand
C422.2	Analyzing Relationship between Development and Disasters	Analyze
C422.3	Ability to understand Categories of Disasters	Understand
C422.4	Realization of the responsibilities to society	Analyze
C422.5	To Understand Types and Categories of Disasters	Understand
	Program Elective – V Ground Improvement (C423)	
C423.1	Possess the knowledge of various methods of ground improvement and their suitability to different field situations.	Remember
C423.2	Design a reinforced earth embankment and check its stability	Create
C423.3	Understand vthe various functions of Geosynthetics and their applications in Civil Engineering practice	Understand
C423.4	Understand the concepts and applications of grouting.	Understand
C423.5	Understand how the reinforced earth technology and soil nailing can obviate the problems posed by the conventional retaining walls.	Understand
	Project Work Phase-II (C424)	
C424.1	Describe the abstract and information of the project	Understand
C424.2	Identify the time duration and cost required to develop the project	Understand
C424.3	Implement and test the project which is useful to the society	Evaluate
C424.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C424.5	Demonstrate the project individual and in a group	Apply

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- II-I

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	VECTOR CALCULUS & FOURIER TRANSFORMS(C211)	
C211.1	interpret the physical meaning of different operators such as gradient, curl and divergence	Evaluate
C211.2	estimate the work done against a field, circulation and flux using vector calculus	Evaluate
C211.3	apply the Laplace transform for solving differential equations	Apply
C211.4	find or compute the Fourier series of periodic signals know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms	Remember
C211.5	identify solution methods for partial differential equations that model physical processes	Apply
	MECHANICS OF SOLIDS (C212)	
C212.1	Describe the stress and strain under different loadings.	Understand
C212.2	Investigate the construction of shear force diagrams and bending moment diagrams.	Create
C212.3	Examine the bending and shear stress induced in the beams.	Analyze
C212.4	Appraise slope and deflection for different support arrangements.	Evaluate
C212.5	Execute how a cylinder fails what kind of stresses induced in cylinders subjected to internal, external pressures.	Apply
	FLUID MECHANICS &HYDRAULIC MACHINERY(C213)	
C213.1	Explain properties of fluids and measure pressure of the flowing fluid	Evaluate
C213.2	Use Euler's equation, Bernoulli's equation, Energy momentum equations and solve various fluid flow problems	Apply
C213.3	Perform dimensional analysis and explain boundary layer theory	Analyze
C213.4	Calculate hydrodynamic forces and efficiencies. Appraise the performance of turbines under varying load conditions	Evaluate
C213.5	Appraise the performance of pumps under varying load conditions. Explain hydraulic systems like lifts which are suitable for industrial requirements	Evaluate
	PRODUCTION TECHNOLOGY(C214)	
C214.1	understand the principles of casting and Pattern making	Understand
C214.2	design the gating system and understand special casting processes	Apply
C214.3	list out various welding defects and propose remedial measures and choose	Understand

	appropriate type of welding process for joining of metals.	
C214.4	distinguish between hot working and cold working processes and understand the principles of various forging, rolling,extrusion, drawing operations	Analyze
C214.5	understand the principles of various Sheet metal forming, High energy rate forming processes.	Understand
	KINEMATICS OF MACHINERY (C215)	
C215.1	Contrive a mechanism for a given plane motion with single degree of freedom.	Apply
C215.2	Suggest and analyze a mechanism for a given straight line motion and automobile steering motion	Analyze
C215.3	Analyze the motion (velocity and acceleration) of a plane mechanism.	Analyze
C215.4	Suggest and analyze mechanisms for a prescribed intermittent motion like opening and closing of IC engine valves etc.	Analyze
C215.5	Select a power transmission system for a given application and analyze motion of different transmission systems	Apply
	COMPUTER AIDED ENGINEERING DRAWING PRACTICE(C216)	
C216.1	Draw the projections of solids inclined both planes	Apply
C216.2	Draw the sections of solids and development of surfaces	Apply
C216.3	Draw the intersections of solids and Perspective projections	Apply
C216.4	Understand the commands used in CAD	Understand
C216.5	Model the 2D and 3D objects using CAO	Apply
	FLUID MECHANICS & HYDRAULIC MACHINES LAB (C217)	
C217.1	Explain properties of fluids and measure pressure of the flowing fluid	Evnlunte
C217.2	Use Euler's equation, Bernoulli's equation, Energy momentum equations and solve various fluid flow problems	Apply
C217.3	Perform dimensional analysis and explain boundary layer theory	Analyze
C217.4	Calculate hydrodynamic forces and efficiencies. Appraise the performance of turbines under varying load conditions	Evaluate
C217.5	Appraise the performance of pumps under varying load conditions. Explain hydraulic systems like lifts which are suitable for industrial requirements	Evalnate
	PRODUCTION TECHNOLOGY LAB (C218)	
C218.1	Understand the principles of casting	Understand
C218.2	Perform the operation on wood turning on lathe	Apply
C218.3	Understand the various principles of bending	Understand

C218.4	Understand the principles of various welding processes and analyze welded portions	Analyze
C218.5	Understand the principles of various moulding process	Understand
	DRAFTING AND MODELING LAB (C219)	
C219.1	Understand skills in engineering drawing and to introduce drawing packages and commands for computer aided drawing and modeling	Understand
C219.2	Utilize various commands in AUTOCAD to draw geometric entities and to create 2D wireframe models	Apply
C219.3	Interpret various commands in AutoCAD to draw geometric entities and to create 3D wire frame models	Apply
C219.4	Construct geometrical model of simple solids, machines and machine parts.	Analyze
C219.5	Understand view points and view ports, view point coordinates and views displayed and develop computer aided solid models with isometric and orthographic projection.	Understand
	ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE(C220)	
C220.1	Explain the concept of Traditional knowledge and its importance	understand
C220.2	Know the need and importance of protecting traditional knowledge	understand
C220.3	Explain the various enactments related to the protection of traditional knowledge	understand
C220.4	Explain the concepts of Intellectual property to protect the traditional knowledge	understand
C220.5	Explain the concepts of traditional knowledge in different sector	understand

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Nandamuru , Pedana Mandal, Krishna Dist – 521 369
DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- II-II

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	MATERIAL SCIENCE & METALLURGY (C221)	
C221.1	Interpret the Structure of Metals and phase diagrams of materials	Apply
C221.2	Distinguish different types of Ferrous metals, Non-ferrous Metals and Alloys	Analyze
C221.3	Interpret different heat treatment processes to get desired mechanical properties of metals	Analyze
C221.4	Describe the powder metallurgy	Understand
C221.5	Compare the unique nature of ceramics and composite materials.	Analyze
	COMPLEX VARIABLES & FOURIER TRANSFORMS (C222)	
C222.1	Demonstrate the ability to write and evaluate a proof of Cauchy-Riemann equations and give examples of each proof technique described.	Evaluate
C222.2	Understand the basic principles of Line integrals. And solving the Residue theorem	Apply
C222.3	Apply discrete and continuous probability distributions	Apply
C222.4	Infer the statistical inferential methods based on small and large sampling tests	Apply
C222.5	Design the components of a classical hypothesis test	Apply
	DYNAMICS OF MACHINERY (C223)	
C223.1	Compute frictional losses, torque transmission of mechanical systems.	Evaluate
C223.2	Analyze dynamic force analysis of slider crank mechanism and design of flywheel.	Apply
C223.3	Analyze stabilization of sea vehicles, aircrafts and automobile vehicles and Understand the working of various types of governors	Apply
C223.4	Understand balancing of reciprocating and rotary masses.	Understand
C223.5	Understand how to determine the natural frequencies of continuous systems starting from the general equation of displacement.	Understand
	THERMAL ENGINEERING-I (C224)	
C224.1	Compare the Air standard Cycles with Actual Cycles	Analyze
C224.2	Classify the essential components of IC engine	Understand
C224.3	Describe the combustion phenomenon in SI and CI engines	Understand
C224.4	Evaluate the performance of an IC Engine	Evaluate
C224.5	Interpret the basic principles of Gas turbines, Jet propulsion and rocket engineering	Apply
	INDUSTRIAL ENGINEERING & MANAGEMENT (C225)	
C225.1	Describe the role of industrial engineer and list the function of management	Understand
C225.2	Illustrate the Design of Plant Layout and study of quantitative techniques for optimal design of Plant Layout	Apply
C225.3	Distinguish between time study and Method study	Analyze
C225.4	Interpret control charts for assessment of process quality	Understand
C225.5	List out the functions of Human Resource Management, Personnel and industrial management	Remember

MECHANICS OF SOLIDS AND METALLURGY LAB (C226)		
C226.1	Apply methods to determine Mechanical properties and Elastic Constants	Apply
C226.2	Familiarise the students with the use of testing machines	Understand
C226.3	Study the stress, strain under different loadings.	Understand
C226.4	Characterize the microstructures of different ferrous and non ferrous metals.	Understand
C226.5	Identify the effect of heat treatment and cooling rates on the properties of steels	Understand
MACHINE DRAWING PRACTICE (C227)		
C227.1	Apply the procedure to draw and represent standard dimensions of different mechanical fasteners and joints and Couplings..	Apply
C227.2	Apply the procedure to draw different types of bearings showing different components.	Apply
C227.3	Apply the procedure to Assemble components of a machine part and draw the sectional assembly drawing showing the dimensions of all the components of the assembly as per bill of materials.	Apply
C227.4	Apply the procedure to draw Select and represent fits and geometrical form of different mating parts in assembly drawings.	Apply
C227.5	Apply the procedure to draw prepare manufacturing drawings indicating fits, tolerances, surface finish and surface treatment requirements.	Apply
THEORY OF MACHINES LAB(C228)		
C228.1	Suggest and analyze mechanisms for a prescribed intermittent motion like opening and closing of IC engine and Compute frictional losses, torque transmission of mechanical systems.	Analyze
C228.2	Analyze dynamic force analysis of slider crank mechanism and design of flywheel.	Analyze
C228.3	Analyze stabilization of sea vehicles, aircrafts and automobile vehicles and Understand the working of various types of governors	Analyze
C228.4	Understand balancing of reciprocating and rotary masses.	Understand
C228.5	Understand how to determine the natural frequencies of continuous systems starting from the general equation of displacement.	Understand
PYTHON PROGRAMMING LAB(C229)		
C229.1	Solve the different methods for linear, non-linear and differential equations	Apply
C229.2	Learn the Python Programming Language	Understand
C229.3	Familiar with the strings and matrices in PYTHON	Remember
C229.4	Write the Program scripts and functions in PYTHON to solve the methods	Understand
C229.5	To solve the system of linear equations using different methods	Apply

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- III-I**

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Thermal Engineering-II(R2031031)	
C311.1	Recognize the rankine cycle analysis and working of different types of boilers and its mountings	Understand
C311.2	Distinguish the different steam nozzle performances and problem analysis and steam turbines and its performance parameters	Apply
C311.3	Differentiate the working of reaction turbines and its performance parameters and steam condenser	Analyze
C311.4	Differentiate the working of reciprocating and rotary air compressors and its performance parameters	Analyze
C311.5	Differentiate the working of centrifugal and axial flow compressors and its performance parameters and steam condenser	Analyze
	Design of Machine Members-I(R2031032)	
C312.1	Apply knowledge about the design of bearings.	Apply
C312.2	Explain the concepts in designing various engine parts.	Understand
C312.3	Utilize the knowledge to design curved beams and power screws	Create
C312.4	Justify power transmission systems and to design pulleys and gear drives.	Evaluate
C312.5	Apply the concepts in designing various machine tool elements.	Apply
	Machining_Machine Tools & Metrology(R2031033)	
C313.1	Discuss the concepts of machining processes	Analyze
C313.2	Apply the principles of lathe, shaping, slotting and planning machines	Apply
C313.3	Apply the principles of drilling, milling and boring processes.	Apply
C313.4	Analyze the concepts of finishing processes and the system of limits and fits.	Analyze
C313.5	Learn the concepts of surface roughness and optical measuring instruments.	Understand
	Advanced Materials(R203103C)	
C314.1	Describe the basic concepts of composite materials	Understand
C314.2	Illustrate the polymer composites	Understand

C314.3	Analyze the macro mechanical analysis of lamina	Analyze
C314.4	Classify FGM and Shape memory alloys	Understand
C314.5	Distinguish the Nano materials	Analyze
	Operations Research(R20310311)	
C315.1	Construct the mathematical models of conflicting situations and mathematical analysis methods in operations research.	Analyze
C315.2	Build and solve Transportation Models and Assignment Models.	Apply
C315.3	Assess the life of systems using replacement theory and solve the game problems.	Analyze
C315.4	Calculate the waiting time of the queue and system and Model the project management problems through CPM and PERT.	Analyze
C315.5	Apply dynamic programming to multi stage decision making problems.	Apply
	Machine Tools Lab(R2031034)	
C316.1	Understand working principle,mechanisms and various operations on general purpose machines.	Understnnd
C316.2	Illustrate various operations performed on lathe.	Apply
C316.3	Explain the mechanism of shaper, drilling, boring and perform various operations.	Apply
C316.4	Perform Operations on slotting machines	Apply
C316.5	Perform various Operations on milling machines	Apply
	Thermal Engineering Lab(R2031035)	
C317.1	Implement the reasons and effects of various losses that occur in the actual engine operation.	Apply
C317.2	Describe the various engine systems along with their function and necessity.	Apply
C317.3	Interpret the combustion phenomenon in S.I and C.I engines.	Apply
C317.4	Analyze the performance evalution of testing on S.I and C.I engines	Analyze
C317.5	Analyze the performance and efficiency of reciprocating compressors	Analyze
	Advanced Communication Skills Lab(R2031036)	
C318.1	To improve the students fluency and develop their vocabulary.	Remember
C318.2	To read and comprehend texts in different contexts and communicate their ideas relevantly and coherently in writing.	Understand

C318.3	Students able to Speak effectively according to the context and make them industry-ready.	Analyze
C318.4	To help students acquire behavioural skills for their personal and professional life.	Apply
C318.5	To respond appropriately in different socio-cultural and professional contexts..	Apply
	Professional Ethics and Human Values(R2031037)	
C319.1	To understand the concepts of human values.	understand
C319.2	To gain knowledge about the principles of engineering ethics.	understand
C319.3	To interpret engineering as social experimentation.	understand
C319.4	To understand engineers' responsibility for safety and risk	understand
C319.5	To gain knowledge about the engineers' rights and responsibilities.	understand
	COMMUNITY SERVICE PROJECT(R2031039)	
C320.1	Describe the abstract and information of the project	Understand
C320.2	Identify the time duration and cost required to develop the project	Understand
C320.3	Implement and test the project which is useful to the society	Evaluate
C320.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C320.5	Demonstrate the project individual and in a group	Apply

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COURSE OUTCOMES

Academic year-2022-2023 Year/sem- III-II

SNO	QUESTIONNAIRE	Blooms Taxonomy
	Heat Transfer(R2032031)	
C321.1	Analyze the Steady State Conduction and fins	Analyze
C321.2	Analyze the unsteady heat conduction and Convective Heat Transfer	Analyze
C321.3	Analyze Forced and free convection	Analyze
C321.4	Analyze Boiling, condensation and heat exchangers	Analyze
C321.5	Understanding of the phenomenon of thermal radiation	Understand
	Design of Machine Members-II(R2032032)	
C322.1	Apply knowledge about the design of bearings.	Apply
C322.2	Explain the concepts in designing various engine parts.	Understand
C322.3	Utilize the knowledge to design curved beams and power screws	Create
C322.4	Justify power transmission systems and to design pulleys and gear drives.	Evaluate
C322.5	Apply the concepts in designing various machine tool elements.	Apply
	Introduction to Artificial Intelligence and Machine Learning(R2032033)	
C323.1	Discuss basic concepts of artificial intelligence, neural networks and genetic algorithms	Understand
C323.2	Demonstrate the principles of knowledge representation and reasoning	Apply
C323.3	Learn about Bayesian and computational learning and machine learning	Understand
C323.4	Utilize various machine learning techniques	Apply
C323.5	Interpret the machine learning analytics and deep learning techniques	Apply
	Automobile Engineering(R203203A)	
C324.1	Distinguish the various components of four wheeler Automobile	Apply
C324.2	Describe the knowledge of different parts of transmission system.	Apply
C324.3	Judge about steering and suspension systems.	Analyze
C324.4	Justify the braking system and electrical system used in automobiles.	Evaluate
C324.5	Understand the concepts about engine specifications and service, safety and electronic system used in automobiles	Understand
	Industrial Robotics(R203203G)	
C325.1	Explain the basic concepts and components of industrial robotics and automation	Understand
C325.2	Judge the knowledge about robot actuators and feedback components	Apply
C325.3	Analyze the motion of robot and manipulator kinematics	Analyze
C325.4	Analyze the general considerations of path description and generation	Analyze
C325.5	Utilize knowledge about the image processing, machine vision and robotic applications	Understand
	Heat Transfer Lab(R2032034)	
C326.1	Analyze the Steady State Conduction and fins	Analyze
C326.2	Analyze the unsteady heat conduction and Convective Heat Transfer	Analyze
C326.3	Analyze Forced and free convection	Analyze
C326.4	Analyze Boiling, condensation and heat exchangers	Analyze

C326.5	Understanding of the phenomenon of thermal radiation	Understand
	CAE&CAM Lab(R2032035)	
C327.1	Experiment with trusses and beams to determine stress, deflection, natural frequencies, harmonic analysis, HT analysis and buckling analysis	Analyze
C327.2	Create part programmes using FANUC controller	Create
C327.3	Apply G-codes for automated tool path using CAM software.	Apply
C327.4	Analyze about rapid prototyping machine and to print simple parts.	Analyze
C327.5	Experiment with virtual 3D printing simulation using Vlabs.	Analyze
	Measurements & Metrology Lab(R2032036)	
C328.1	Understand the measurements and calibration of instruments.	Understand
C328.2	Understand the machine tool alignment test	Understand
C328.3	Analyze the concepts of finishing processes and the system of limits and fits.	Analyze
C328.4	Learn the concepts of surface roughness and optical measuring instruments	Apply
C328.5	Understand gauging instruments for inspection of precision linear, geometric forms, angular measurements	Understand
	Artificial Intelligence and Machine Learning Lab(R2032037)	
C329.1	Apply data pre- processing techniques	Apply
C329.2	Generate decision trees for classification model and association rules on data	Understand
C329.3	Learn about machine learning models including classification and clustering	Understand
C329.4	Building neural network classifier and perform data labeling for various images using object recognition	Analyze
C329.5	Apply the knowledge of various tools for image classifier and automatic face recognition.	Apply
	Research Methodology and IPR(R2032038)	
C3210.1	Understand the objectives and characteristics of a research problem.	Understand
C3210.2	Analyze research related information and to follow research ethics	Analyze
C3210.3	Understand the types of intellectual property rights.	Understand
C3210.4	Learn about the scope of patent rights.	Learn
C3210.5	Understand the new developments in IPR.	Understand

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- IV-I**

CO NUMBER	COURSE OUTCOME (CO) STATEMENT "AT THE END OF THE COURSE, THE STUDENTS WILL BE ABLE TO"	BLOOMS TAXONOMY
	Industrial Management(C411)	
C411.1	Understand the concept, roles of an industrial engineer, functions & principles of management.	Understand
C411.2	Illustrate the design of plant layout and study of quantitative techniques for optimal design of plant layout	analyze
C411.3	Understand the concept of work study, method study, time study & principles of Ergonomics.	Understand
C411.4	Draw various statistical quality control charts & understand the concept of total quality management	Apply
C411.5	Understand the concepts of resource management, job-evaluation & value analysis	Understand
	Finite Element Methods(C412)	
C412.1	Understand the basic principles of finite element analysis procedure	Understand
C412.2	Formulate and analyze truss and beam problems.	Analyze
C412.3	Solve two dimensional stress analysis using constant strain triangle	Analyze
C412.4	Identify the higher order iso parametric elements. Implement the finite element analysis for 2D four noded element	Apply
C412.5	Solve dynamic and steady state heat transfer problems using FEM	Apply
	Production Planning & Control(C413)	
C413.1	Explain the concepts of production and service systems	Understand
C413.2	Implement the principles and techniques in the design, planning and control of Forecasting systems	Apply
C413.3	Execute different strategies employed in manufacturing and service industries to plan production and control inventory.	Apply
C413.4	Understand the concept of capacity ,aggregate planning and varies strategies involved for effective planning	Understand
C413.5	Explain different concepts in planning and control like MRP-I & MRP-II	Understand
	Power Plant Engineering(C414)	
C414.1	Explain power generation in steam power plants	Understand
C414.2	Explain plant layout and various systems in diesel power plant and gas turbine plant	Understand
C414.3	Explain various aspects like power generation,classification of dams,plant layout and plant auxiliaries	Understand

C414.4	Explain various types of reactors in nuclear power plant	Understand
C414.5	Explain combined operations of different power plant and power plant instruments and control systems	Understand
	Operations Management(C415)	
C415.1	To develop an understanding of how the operations, have strategic importance and can provide a competitive advantage in the workplace.	Analyze
C415.2	To understand the relationship between operations and other business functions	Apply
C415.3	To understand techniques of location and facility planning; line balancing; job designing	Apply
C415.4	Capacity planning in operations management.	Analyze
C415.5	To model Deterministic models and safety stock inventory control systems	Understand
	Finite Element Simulation Lab(C416)	
C416.1	Understand the concepts behind variational methods and weighted residual methods in FEM	Understand
C416.2	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements and 3-D element.	Remember
C416.3	Develop element characteristic equation procedure and generate global equations	Create
C416.4	Able to apply Suitable boundary conditions to global equations, and reduce it to a solvable form.	Apply
C416.5	Able to apply the FE procedure to field problems like heat transfer.	Apply
	Project-I(C417)	
C417.1	Describe the abstract and Information of the project	Understand
C417.2	Identify the time duration and cost required to develop the project	Understand
C417.3	Implement and test the project which is useful to the society	Evaluate
C417.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C417.5	Demonstrate the project Individual and in a group	Apply

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COURSE OUTCOMES

Academic year-2022-2023 Year/sem- IV-II

CO NUMBER	COURSE OUTCOME(CO)STATEMENT – AT THE END OF THE COURSE ,THE STUDENTS WILL BE ABLE TO	BLOOMS TAXONOMY
	Additive Manufacturing(C421)	
C421.1	Interpret the knowledge of Rapid prototyping systems	Apply
C421.2	Explain the Solid based rapid prototyping systems	Understand
C421.3	Differentiate the powder based rapid prototyping systems from other rapid prototyping systems.	Analyze
C421.4	Interpret the knowledge of Rapid tooling	Apply
C421.5	Distinguish the rapid prototyping data formats and Select the appropriate rapid prototyping system for suitable application.	Analyze
	Non Destructive Evaluation(C422)	
C422.1	Comprehensive, theory based understanding of the principles, concepts and methods of Non Destructive Testing, Visual Inspection & Radiography	understand
C422.2	Comprehensive, theory based understanding of the principles and concepts of Ultrasonic Test & Acoustic Emission Techniques	understand
C422.3	Comprehensive, theory based understanding of the principles and concepts of Liquid Penetrant Test & Eddy Current Test	understand
C422.4	Comprehensive, theory based understanding of the principles and concepts of Magnetic Particle Test	understand
C422.5	Select a testing process & understand the advantages and disadvantages of these techniques to evaluate products of railways, automobiles, aircrafts, chemical industries etc	remember
	Green Energy Systems(C423)	
C423.1	Identify the main sources of renewable energy and Solve the efficiency of solar collectors	Apply
C423.2	Explain the wind turbines and biomass.	Understand
C423.3	Explain the geothermal and ocean energy.	Understand
C423.4	Compare the electrical and mechanical energy systems	Analyze
C423.5	Select the energy efficient processes	Evaluate
	Advanced Materials(C424)	
C424.1	Describe the basic concepts of composite materials	Understand
C424.2	Illustrate the polymer composites	Understand
C424.3	Analyze the macro mechanical analysis of lamina	Analyze
C424.4	Classify FGM and Shape memory alloys	Understand
C424.5	Distinguish the Nano materials	Analyze
	Project-II(C425)	
C425.1	Describe the abstract and information of the project	Understand
C425.2	Identify the time duration and cost required to develop the project	Understand
C425.3	Implement and test the project which is useful to the society	Evaluate
C425.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C425.5	Demonstrate the project individual and in a group	Apply

Signature

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Department of Electronics and Communication Engineering

COURSE OUTCOMES

A.Y: 2022-23 **Year: II/I (R20)**

Course Code	Course Name: EDC (211)	Blooms Taxonomy Level
C211.1	Describe the fundamentals of semiconductor materials, PN Junction diode and their characteristics.	Understand
C211.2	Explain the operation of various special diodes and distinguish between their characteristics and also the operation of different types of rectifiers with and without filters.	Understand
C211.3	Describe the operation of different types of transistors in different configurations, FET'S and observe their characteristics.	Understand
C211.4	Analyze different types of transistors biasing and thermal stabilization techniques.	Analyze
C211.5	Analyze the small signal low frequency different types of transistors BJT and FET amplifier models.	Analyze
	STLD (212)	
C212.1	Explain the structure of number systems and its applications.	Understand
C212.2	Design circuits to solve problems using gates to replicate all logic functions.	Create
C212.3	Analyze combinational logic circuits and Design combinational logic circuits using programmable logic devices.	Create
C212.4	Analyze sequential logic circuits.	Analyze
C212.5	Design sequential circuits in terms of FSM.	Create
	S&S (C213)	
C213.1	Differentiate the various classifications of signals and systems	Understand
C213.2	Analyze the frequency domain representation of signals using Fourier concepts	Apply
C213.3	Classify the systems based on their properties and determine the response ofLTI Systems	Understand
C213.4	Know the sampling process and various types of sampling techniques	Understand
C213.5	Apply Laplace and z-transforms to analyze signals and Systems (continuous &discrete)	Apply
	MATHMATICS III (C214)	
C214.1	Apply scalar, vector fields, and scalar potential function and compute the gradient, divergence and curl. Use Vector integral theorems to facilitate vector integration	Apply

C214.2	Evaluatethe general solutions to linear ordinary differential equations by using Laplace transform.	Evaluate
C214.3	Find the Fourier series of continuous , finite discontinuities and periodic functions.Find the Fourier transforms of certain functions and integral transforms.	Understand
C214.4	To solve first order linear and non-linear partial differential equations in different standard forms.	Apply
C214 .5	Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution.	Understand
	RVSP (C215)	
C215.1	Understand the basics of probability, events, sample space and how to use them to real life problems.	Understand & Apply
C215.2	Analyze that the random variable is always a numerical quantity.	Understand & Apply
C215.3	Understand the multiple random variables and relate through examples to real problems.	Understand & Apply
C215.4	Understand the concept of random processes in both deterministic and non deterministic types, & correlation functions.	Understand & Apply
C215.5	Evaluate the Autocorrelation and its relation with power density spectrum and its properties. Evaluate the linear systems with random inputs	Understand & Apply
	OOPs through Java (C216)	
C216.1	Develop a familarity with oops concepts	Understand
C216.2	Describe important characteristics of oops and the features of such systems	Remember
C216.3	Describe the features and applications of important standard protocols	Analyze
C216.4	Gaining practical experience of inter -process communication in oops environment	Apply
C216.5	Describe the applications of important standard protocols which are used in oops	Create
C216.6	Describe the important characteristics of oops	Remember
	Electronic Devices and Circuits – Lab (C217)	
C217.1	Understand the working principleof p-n junction and Zenor Diode	Understand
C217.2	Apply the application of diode in rectifiers and special diodes	Apply
C217.3	Understand the operation of BJT and FET input and output characteristics in different configurations.	Understand
C217.4	Know the need of transistor biasing	Analyze
C217.5	Perform the analysis of frequency response of transistor amplifier circuits using BJT and FET in different configurations	Analyze
	Switching Theory and Logic Design – Lab (C218)	
C218.1	Explain the structure of number systems and its applications. & Design circuits to solve problems using gates to replicate all logic functions.	Create
C218.2	Analyze combinational logic circuits.	Analyze
C218.3	Design combinational logic circuits & programmable logic devices.	Create

C218.4	Analyze sequential logic circuits.	Analyze
C218.5	Design sequential circuits in terms of FSM.	Create

Year: III/I (R19)

AICA (C311)		
C311.1	Describe the Op-Amp and internal Circuitry: 555 Timer, PLL	Analyse
C311.2	Discuss the Applications of Operational amplifier: 555 Timer, PLL	Analyse
C311.3	Design the Active filters using Operational Amplifier	Create
C311.4	Use the Op-Amp in A to D Converters	Apply
C311.5	Use the Op-Amp in D to A Converters	Apply
EMTL (C321)		
C312.1	Determine E and H using various laws and applications of electric & magnetic fields	Evaluate
C312.2	Apply the Maxwell equations to analyze the time varying behavior of EM waves	Apply & Analyse
C312.3	Gain the knowledge in uniform plane wave concept and characteristics of uniform plane wave in various media	Remember
C312.4	Calculate Brewster angle, critical angle and total internal reflection	Evaluate
C312.5	Derive and Calculate the expressions for input impedance of transmission lines, reflection coefficient, VSWR etc. using smith chart	Evaluate

DC (313)		
C313.1	Analyze the recording of the digital data from a analog data in a compact disc	Analyze
C313.2	Analyze & Apply various types of digital communication methods. Eg: Mobile Communications and Computer Network.	Analyze
C313.3	Analyze & Calculate BER in digital communication channels..	Analyze
C313.4	Analyze the information rate, entropy & channel capacity in the information transmission channel.	Analyze
C313.5	Analyze suitable source code for the given application	Analyze
C313.6	Analyze & Design different error correcting codes for the given application.	Analyze
COA (C314)		

C314.1	Understand different number systems, codes and Relate Postulates of Boolean algebra and minimize combinational functions	Analyze
C314.2	Evaluate and Design of different combinational circuits, sequential circuits.	Evaluate
C314.3	Understanding basic structure of components register through language, micro operations and able to write micro-programs	Understand
C314.4	Analyse the data transfer and manipulators program and control of micro-program in central processing unit	Analyze
C314.5	Evaluate performance of Internal memory and Input-output organization of computers.	Evaluate

	EMI (315)	
C315.1	Discuss the structure of different analog instruments and its characteristics	Understand
C315.2	Analyze different signal generators and its working	Analyze
C315.3	Illustrate different CRO's and its working, applications	Analyze
C315.4	Measure different parameters using bridges and its applications.	Evaluate
C315.5	Analyze different transducers and its working, applications.	Analyze
	LINEAR INTEGRATED CIRCUITS and APPLICATIONS LAB (C316)	
C316.1	Study of analog ICs	Understand
C316.2	Design Op –Amp Application circuits	Create
C316.3	Design Timer Applications circuits	Create
C316.4	Design PLL Applications circuits	Create
C316.5	Design VCO Applications circuits & Design of Dual Power Supply using 78XX and 79XX	Create
	Digital Communications Lab (C317)	
C317.1	Connect the circuit for Time division multiplexing and verify the result	Create
C317.2	Connect the circuits for Pulse code modulation, Differential pulse code modulation, Delta modulation, and verify the result.	Create
C317.3	Connect the circuits for Frequency shift keying, Phase shift keying, Differential phase shift keying and verify the result.	Create
C317.4	Connect the circuits for Companding and verify the result	Create
C317.5	Connect the circuits for Source Encoder and Decoder , Linear Block Code-Encoder and Decoder , Binary Cyclic Code-Encoder and Decoder	Create

	Convolution Code –Encoder and Decoder BCH Codes and verify the result.	
	MICROPROCESSOR and MICROCONTROLLERS LAB (C318)	
C318.1	8086 Assembly Language Programming for 16 -bit arithmetic operations (using Various Addressing Modes), Addition of n-BCD numbers, Multiplication and Division operations, sorting an array, Factorial of given n-numbers.	Create
C328.2	Interfacing ADC , DAC, stepper motor to8086	Create
C328.3	8051 Assembly Language Programming for Finding number of 1's and number of 0's in a given 8-bit number , Average of n-numbers, verify Timer/ Counter	Create
C328.4	Interfacing Traffic Light Controller, UART, LCD to8051.	Create
C328.5	*Experiments using ARM CORTEX M3 PROCESSOR USING KEIL MDK ARM* multiply of 2 16-bit binary numbers, to find the sum of first 10 integers numbers, to toggle LED every second using timer interrupt.	Create
	MINI PROJECT WITH HARDWARE DEVELOPMENT (C319)	
C319.1	Describe the abstract of the project	
C329.2	Collect the information about various existing conservatory management systems and smart grids.	
C329.3	Identify the time duration and cost required to develop the project	
C329.4	Implement and test the project which is useful to the society	

Year:IV-I (R-19)

MW&OC (C411)		
C411.1	Define the basic elements of optical fiber communication link, structure, Propagation and transmission properties of an optical fiber.	Remember
C411.2	Explain the different types of fibers and attenuation and dispersion losses in optical fibers	Understand
C411.3	Describe the types of fiber connectors for combining optical fibers and losses at fiber Joint	Understand
C411.4	Describe the principles of optical sources, optical detectors and power launching, coupling methods.	Understand
C411.5	Analyze the characteristics of optical fiber receivers, Design a optical fiber communication link and estimation of performance of optical link	Analyze
DC&CN (C412)		
C412.1	Define the fundamentals and basic principles of computer networks	Remember
C412.2	Describe the Fourier analysis of the Physical Layer	Analyze

C412.3	Describe the various data link layer protocol techniques regarding communication system	Understand
C412.4	Describe Medium Access control Sub Layer	Understand
C412.5	Discuss various routing algorithms such as static routing and dynamic routing, Describe the transport layer and application layer of OSI	Understand
	DI&VP (C413)	
C413.1	Discriminate the different types of images and analyze the image using based on pixel values and frequency components	Understand
C413.2	Implement the various image enhancement techniques on both spatial and frequency domains based on the application and variation in the performance levels	Apply
C413.3	Interpret image restoration process in real time under blur and noisy environments.	Apply
C413.4	Apply and evaluate segmentation and morphological techniques on digital images.	Analyze
C413.5	Apply and evaluate various image compression techniques and categorize image segmentation techniques on different digital images for specific criteria, Analyze the color image processing techniques.	Evaluate
	Smart Sensors (C414)	
C414.1	Understand measuring parameters, measuring systems, effects of environment, characteristics and parameters to be considered for designing an instrument	Understand
C414.2	Understand different types of sensors/transducers, working principles, selection procedure, applications of sensing systems	Understand
C414.3	Understand Challenges and applications of sensors and sensor networks	Understand
C414.4	Select a sensor/sensing system for a requirement. Test, install and collect the data from a group of sensors.	Create
C414.5	Derive sensor-based solution for different applications	Create
	Embedded Systems (C415)	
C415.1	Describe the differences between the general computing system and the embedded system, also recognize the classification of embedded systems	Remember
C415.2	Discuss the I/O types and examples, Serial Communication devices, Parallel device ports by using embedded hardware.	Understand
C415.3	Develop an application using embedded software design	Create
C415.4	Design real time embedded systems using the concepts of RTOS	Create
C415.5	Illustrate the Embedded Software Development Process and tools.	Analyze
C415.6	Develop an embedded system implementation and testing using hardware and translation tools.	Create
	MWE & OC Lab (417)	
C417.1	Examine the characteristics of high frequency microwave oscillators.	Analyze

C417.2	Demonstrate and Evaluate different characteristics of wave guide components	Apply & Evaluate
C417.3	Examine the Radiation pattern of Various Antennas.	Analyze
C417.4	Understand the multiport microwave Junctions and Calculate their scattering parameters	Understand & Analyze
C417.5	Examine the characteristics of optical sources. Test the different types of losses in optical transmission link.	Analyze
	IOT LAB(C416)	
C416.1	Understand internet of Things and its hardware and software components andelements of IOT system.	Understand
C416.2	To learn and understand	Understand
C416.3	Demonstrate the communication protocol used to connect the various connecting devices & Explain Internet connectivity principles & Application layer protocols.	Apply
C416.4	Identify the data acquisition, storage and business models used in IOT.	Understand
C416.5	Design real time IOT based applications.	Create
	Project Part-I(C418)	
C418.1	Describe the abstract of the project	
C418.2	Collect the information about various existing conservatory management systems and smart grids.	
C418.3	Identify the time duration and cost required to develop the project	
C418.4	Implement and test the project which is useful to the society	
C418.5	Describe the summary of the project and identify the impact of the project in the society. Demonstrate the project individual and in a group	

Coordinator

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Nandamuru , Pedana Mandal, Krishna Dist – 521 369

Department of Electronics and Communication Engineering

COURSE OUTCOMES

A.Y: 2022-23 **Year: II/II (R20)**

	Electronic Circuit Analysis (C221)	
C221.1	Analyze the amplifier circuits using small signal high frequency model	Analyze
C221.2	Analyze the different types of the coupled amplifiers and their performance characteristics	Analyze
C221.3	Describe and analyze the different types of feedback amplifiers.	Analyze
C221.4	Analyze and Design oscillator Circuits.	Create
C221.5	Analyze different types of power amplifiers and compare them in terms of efficiency and also Analyze the effects of cascading on single, double tuned amplifiers on bandwidth and their stability.	Analyze
	DICD(222)	
C222.1	Understand the structure of commercially available digital integrated circuit families.	Understand
C222.2	Learn the IEEE Standard 1076 Hardware Description Language (VHDL).	Understand
C222.3	Model complex digital systems at several levels of abstractions, behavioral, structural, and rapid system prototyping	Create
C222.4	Analyze and design basic digital circuits with combinatorial logic circuits using VHDL.	Analyze
C222.5	Analyze and design basic digital circuits with sequential logic circuits using VHDL.	Analyze
	Analog Communications (C223)	
C223.1	Explain the basic concepts of Analog Communication	Understand
C223.2	Explain the analog communication systems using amplitude modulation and demodulation	Understand
C223.3	Explain the analog communication systems using angle modulation and demodulation	Understand
C223.4	Evaluate the performance of fundamental blocks constituting various analog modulation techniques	Evaluate
C223.5	Analyze the impact of noise in various analog communication systems	Analyze
	Linear Control Systems (C224)	
C224.1	Understand the concepts of feedback and its advantages to various control systems	Understand
C224.2	Discuss the characteristics of the given system in terms of the transfer function	Apply
C224.3	Analyze the system in terms of absolute stability and relative stability by different approaches	Analyze
C224.4	Analyse the frequency response by applying the performance metrics to design the control system .	Analyze
C224.5	Design different control systems as per given specifications and also the concepts of controllability and observability	Evaluate

	Management and Organizational Behavior (C225)	
C225.1	Explain the concept and functions of management, system approach to management	Understand
C225.2	Explain the concept of HRM and Marketing Management	Understand
C225.3	Define the concept of strategic management, generic alternate strategies	Remember
C225.4	Describe the concept of impression management and theories of motivation	Remember
C225.5	Explain the concept of Group behaviour and strategies of stress	Understand
	ECA Lab (C226)	
C226.1	Analyze the amplifier circuits using small signal model	Analyze
C226.2	Analyze the different types of the coupled amplifiers and their performance characteristics	Analyze
C226.3	Describe and analyze the different types of feedback amplifiers.	Analyze
C226.4	Analyze and Design oscillator Circuits.	Analyze
C226.5	Analyze different types of power amplifiers and compare them in terms of efficiency & effects of cascading on single, double tuned amplifiers on bandwidth and their stability.	Analyze
	DICD IAB (C227)	
C227.1	Understand the IEEE Standard 1076 Hardware Description Languages VHDL & VERILOG.	Apply
C227.2	Understand the structure of commercially available combinational logic circuits digital intergrated circuit families design and modeling.	Apply
C227.3	Understand the structure of commercially available sequential logic circuits digital intergrated circuit families design and modeling.	Apply
C227.4	Analyze and design the basic Combinational MOS Logic Circuits.	Analyze
C227.5	Analyze and design the basic Combinational MOS Logic Circuits.	Analyze
C227.1	Understand the IEEE Standard 1076 Hardware Description Languages VHDL & VERILOG.	Apply
	AC LAB (C228)	
C228.1	Differentiate various Analog modulation and demodulation schemes and their spectral characteristics	Understand

C228.2	Analyze noise characteristics of various analog modulation methods	Analyze
C228.3	Analyze various functional blocks of radio transmitters and receivers	Analyze
C228.4	Design simple analog systems for various modulation techniques	Apply
C228.5	Differentiate basic techniques for generating and demodulating various pulse modulated signal	Apply
C228.1	Differentiate various Analog modulation and demodulation schemes and their spectral characteristics	Understand
	SOFT SKILLS (SKILL ORIENTED COURSE)	
C229.1	Use language fluently, accurately and appropriately in debates and group discussions	Apply
C229.2	Use their skills of listening comprehension to communicate effectively in cross-cultural contexts	Apply
C229.3	Learn and use new vocabulary	Apply
C229.4	Write resumes, project reports and reviews	Apply
C229.5	Exhibit interview skills and develop soft skills	Apply

YEAR: III-II (R19)

	MPMC(321)	
C321.1	Understand 8086 microprocessor architecture and its functionalities and Illustrate Minimum and maximum mode operations for 8086 Microprocessor	Understand & Apply
C321.2	Demonstrate programming skills in assembly language for 8086.	Apply
C321.3	Analyze various interfacing techniques and apply them for the design of processor based system.	Analyze
C321.4	Understand the 8051 Microcontroller architectures and its functionalties. Demonstrate programming skills in ALP and interfacing techniques.	Understand & analyze
C321.5	Understand ARM architecture and different ARM processors. Programming techniques	Understand & Apply
	VLSI Design (C322)	
C322.1	Demonstrate the Fabrication of IC and Calculate compute electrical properties of MOS Circuits.	Apply

C322.2	Design various gates, adders, Multipliers and Memories using stick diagrams, Layouts and apply design rules to get Layout of IC	Create
C322.3	Design the digital circuits by applying the basic circuit concepts such as sheet resistance, delay, area of capacitance.	Create
C322.4	Design the Subsystems with CMOS Technology for various static CMOS Combinational and Sequential logic circuits at the transistor level including mask layout	Create
C322.5	Design the digital circuits by using the techniques of ASIC and FPGA design flow.	Create
C322.6	Demonstrate VHDL synthesis, simulation, design captures tools, design verification tools and build a Boolean function using FPGA IC	Create
Digital Signal Processing(C323)		
C323.1	Interpret, represent and process discrete/digital signals & systems and Discuss the properties of LTI systems in terms of z-transforms	Understand
C323.2	Compute and analyze signal spectra using DFT/FFT algorithms.	Analyze
C323.3	Design IIR filters to suit specific requirements for specific applications and basic structures of IIR Systems.	Create
C323.4	Design FIR filters to suit specific requirements for specific applications and basic structures of FIR Systems.	Create
C323.5	Design multi rate digital signal processing of signals through system	Create
C323.6	Discuss the architecture of a digital signal processor and some programming issues in floating-point digital signal processor	Understand

ES (C324)		
C324.1	Understand the basic concepts of an embedded system	Understand
C324.2	Able to know an embedded system design approach to perform a specific function.	Create
C324.3	The hardware components required for an embedded system and the design approach of an embedded hardware.	Create
C324.4	The various embedded firmware design approaches on embedded environment.	Create
C324.5	Understand how to integrate hardware and firmware of an embedded system using real time operating system.	Understand
CN (C325)		
C325.1	Demonstrate different network models for networking links OSI, TCP/IP, B-ISDN, N-BISDN and get knowledge about various communication techniques, methods and protocol standards	Analyze
C325.2	Discuss different transmission media and different switching networks.	Understand
C325.3	Analyze data link layer services, functions and protocols like HDLC and PPP.	Analyze

C325.4	Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD,CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols	Analyze
C325.5	Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and SNMP ,DNS etc.	Understand Analyze
	MICROPROCESSOR and MICROCONTROLLERS LAB (C326)	
C326.1	8086 Assembly Language Programming for 16 -bit arithmetic operations (using Various Addressing Modes), Addition of n-BCD numbers, Multiplication and Division operations, sorting an array, Factorial of given n-numbers.	Create
C326.2	Interfacing ADC , DAC, stepper motor to8086	Create
C326.3	8051 Assembly Language Programming for Finding number of 1's and number of 0's in a given 8-bit number , Average of n-numbers, verify Timer/ Counter	Create
C326.4	Interfacing Traffic Light Controller, UART, LCD to8051.	Create
C326.5	*Experiments using ARM CORTEX M3 PROCESSOR USING KEIL MDK ARM* multiply of 2 16-bit binary numbers, to find the sum of first 10 integers numbers, to toggle LED every second using timer interrupt.	Create
	VLSI LAB (C327)	
C327.1	Develop Verilog /VHDL Source code perform simulation using and analyze the obtained simulation results using necessary Synthesizer Realization of Logic gates	Create
C327.2	Design and Implementing the combinational circuits 4-bit ripple carry and carry look ahead adder using behavioral, dataflow and structural modeling , 16:1 mux through 4:1 mux, 3:8 decoder realization through 2:4 decoder , 8:3 encoder 8-bit parity generator and checker	Create
C327.3	Design and Implementing the sequential circuits like Flip-Flops ,8-bit synchronous up-down counter ,4-bit sequence detector through Mealy and Moore state machines.	Create
C327.4	**Back-end Level Design and Implementation** Design and Implementing the combinational circuits Universal Gates , An Inverter, Full Adder, Full Subtractor , Decoder	Create
C327.5	**Back-end Level Design and Implementation** Design and Implementing the sequential circuits -D-Flip-flop	Create

	DSP LAB (C328)	
C328.1	Programs using MATLAB Generation of DT signals,Verify the Linear Convolution of two DT signals , Verify the Circular Convolution of two DT signals , Find the sum of DT sinusoidal signals, Computation of Discrete Fourier Transform(DFT) and Inverse ,Discrete Fourier Transform (IDFT)	Create
C328.2	ProgramUsing Code Composer Studio(CCS) Generation of DT signals,Verify the Linear Convolution of two DT signals , Verify the Circular Convolution of two DT signals , Find the sum of DT sinusoidal signals, Computation of Discrete Fourier Transform(DFT) and Inverse ,Discrete Fourier Transform (IDFT)	Create
C328.3	Transfer Function Stability Analysis: using pole-zero plot, bode Plot and Nyquist plot.	Create
C328.4	Experiments using a TIDSP Starter Kit. Generation of a sinusoidal signal, Linear and circular convolution of DT sequences, Compute N-point DFT of a given DT sequence, Design and implementation of FIR filters, Design and implementation of IIR filters	Create
C328.5	ExperimentsaretobedoneusingCypressFM4StarterKit. Verification of sampling theorem, Implementation of FFT algorithm,Implementation of FIR filters, Implementation of IIR filters.	Create
	ES LAB (C329)	
C329.1	Comprehend Microcontroller-Transducers Interface techniques	Analyze
C329.2	Establish Serial Communication link with Arduino	Analyze
C329.3	Analyze basics of SPI interface	Analyze
C329.4	Interface Stepper Motor with Arduino	Analyze
C329.5	Analyze Accelerometer interface techniques	Analyze

WIRELESS COMMUNICATION (Professional Elective 5)		
421.1	To introduce the fundamental technologies for wireless Communication networking	Remember
421.2	Introducing the concepts of Multiple Access Schemes	Understand
421.3	Introducing the comprehensive exposure to the fast-evolving high-tech fields of Wireless communications	Analyze
421.4	It introduces the latest technologies such as CDMA, OFDM, and MIMO, which form The bedrock of 3G/4G wireless networks	Understand
421.5	Understand Satellite-Based Wireless Systems	Understand
CYBER SECURITY & CRYPTOGRAPHY (Open Elective (OE2)		
422.1	Able to identify security risks	Analyze
422.2	Taking preventive steps for security risks	Apply
422.3	Remember tools and methods	Remember
422.4	To understand the forensics fundamentals, the evidence capturing process	Understand
422.5	To understand the preservation of digital evidence	Understand
Seminar(C425)		
C425.1	Identify recent technical topics from interested domains.	
C425.2	Analyze the applicability of modern software tools and technology.	
C425.3	Develop Presentation and Communication skills.	
C425.4	Develop Technical report preparation skills.	
	Project Part -II(C426)	
C423.1	Describe the abstract of the project	
C423.2	Collect the information about various existing conservatory management systems and smart grids.	
C423.3	Identify the time duration and cost required to develop the project	
C423.4	Implement and test the project which is useful to the society	
C423.5	Describe and demonstrate the summary of the project and identify the impact of the project in the society	

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Nandamuru , Pedana Mandal, Krishna Dist – 521 369
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- II-I**

	Course Outcomes(CO)	Blooms Taxonomy
	Mathematics-III(C211)	
C21J.1	Apply scalar ,vector fields ,scalar potential function and compute the gradient, divergence and curl.Use Vector integral theorems to facilitate vector integration	Apply
C21J.2	Evaluatethe general solutions to linear ordinary differential equations by using Laplace transform.	Evaluate
C211.3	Find the Fourier series of continuous , finite discontinuities and periodic functions.Find the Fourier transforms of certain functions and integral transforms.	Understand
C2J1.4	To solve first order linear and non-linear partial differential equations in different standard forms.	Apply
C2J1 .5	Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution.	Understand
	OOPS through C++(C212)	
C2J2.1	List the key concepts of Object Oriented Programming and Identify the benefits of object oriented design.	Remember
C2J2 2	Define and Describe the concepts of class, method, constructor, destructor, instance, overloading and Scope rules	Understand
C212.3	Implement the concepts of Inheritance, Operator overloading and abstract classes	Apply
C212.4	Adequately use the concepts of Polymorphism and Virtual Functions	Apply
C212.5	Demonstrate need of generic programming and exception handling	Apply
	Operating Systems(C213)	
C213.1	Explain the structure of OS and basic architectural components involved in OS	Remember
C213.2	Implement various process scheduling algorithms and Solve Different Process Synchronization Problems	Apply
C213.3	Compare and contrast various memory management schemes and page-replacement algorithms	Analyze

C213.4	Implement various deadlock algorithms and different file system structures	Apply
C213.5	Describe system protection and system security	Understand
	Software Engineering(C214)	
C214.1	Explain the basic terminology used in software engineering	Understand
C214.2	Converting an Object oriented design into high quality executable code	Understand
C214.3	Skills to design , implement ,and execute test cases at the unit and integration level	Understand
C214.4	Design architectural styles and class based components	Analyze
C214.5	Compare conventional and agile software methods	Understand
	Mathematical Foundations of Computer Science(C215)	
C215.1	Write an argument using logical notation and determine if the argument is or is not valid. Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.	Remember
C215.2	Understand the basic principles of sets and operations in sets.Prove basic set equalities. Demonstrate an understanding of relations and functions and their propertiesTo learn basic definitions groups, monoids, subgroups, semi groups and rings.	Understand
C215.3	Solving the Permutations and Combinations Problems,Overview of number theory, basic algorithms in number theory	Apply
C215.4	Solving homogeneous and non-homogeneous recurrence relations.	Apply
C215.5	Demonstrate different traversal methods for trees and graphs.	Apply
	OBJECT ORIENTED PROGRAMMING THROUGH C++ LAB(C216)	
C216.1	List the key concepts of Object Oriented Programming and Identify the benefits of object oriented design.	**Remember**
C216.2	Define and Describe the concepts of class, method, constructor, destructor, instance, overloading and Scope rules	**Understand**
C216.3	Implement the concepts of Inheritance, Operator overloading and abstract classes	**Apply**
C216.4	Adequately use the concepts of Polymorphism and Virtual Functions	**Apply**
C216.5	Demonstrate need of generic programming and exception handling	**Apply**
C216.6	Design and implement a program to solve any given problem using STL Programming model	**Create**
	OPERATING SYSTEMS(C217)	

C217.1	Learn Unix utilities and Unix file system and file access control	**Remember**
C217.2	Implement Different CPU-Scheduling Algorithms and process Synchronization Techniques	**Understand**
C217.3	Compare Different Memory-Management Strategies And Page replacement Algorithms	**Apply**
C217.4	Understand Deadlock Prevention, Avoidance and various File Allocation methods	**Apply**
C217.5	Discuss Types of Threads and Issues	**Apply**
	SOFTWARE ENGINEERING(C218)	
C218.1	Able to elicit, analyze and specify software requirements through a predictive working relationship.	Understand
C218.2	Prepare SRS document, design document , test cases, software configuration.	**create**
C218.3	Develp function oriented and object oriented software design..	**Apply**
C218.4	Use modern engineering tools necessary for software project management.	**Understand**
C218.5	Generate the test cases for software testing.	**Apply**
	Applications of Python-NumPy(C219)	
C219.1	Explain how data is collected, managed and stored for processin	**Understand**
C219.2	Understand the workings of various numerical techniques, different descriptive measures of Statistics, correlation and regression to solve the engineering problems	**Understand**
C219.3	Understand how to apply some linear algebra operations to n-dimensional arrays	**Understand**
C219.4	Use NumPy perform common data wrangling and computational tasks in Python	**Apply**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- II-II

	Course Outcomes(CO)	Blooms Taxonomy
	PROBABILITY & STATISTICS (C221)	
C221.1	Apply scalar ,vector fields ,scalar potential function and compute the gradient, divergence and curl.Use Vector integral theorems to facilitate vector integration	Apply
C221.2	Evaluatethe general solutions to linear ordinary differential equations by using Laplace transform.	Evaluate
C221.3	Find the Fourier series of continuous , finite discontinuities and periodic functions.Find the Fourier transforms of certain functions and integral transforms.	Understand
C221.4	To solve first order linear and non-linear partial differential equations in different standard forms.	Apply
C221 .5	Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution.	Understand
	DATA BASE MANAGEMENT SYSTEMS(C222)	
C222.1	Describe a relational database and object-oriented database	Remember
C222.2	Create, maintain and manipulate a relational database using SQL	Understand
C222.3	Describe ER model and normalization for database design	Apply
C222.4	Examine issues in data storage and query processing and can formulate appropriate solutions	Apply
C222.5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage	Apply
	FOEMAL LANGUAGES AND AUTOMATA TIIEORY(C223)	
C223.1	Design the DFA and NFA after understanding the core concepts in automata theory and formal languages.	Remember
C223.2	Describe the equivalence of regular expression and Finite automata and different types of grammars	Apply

C223.3	Understand the concept of context free grammar and normal forms	Analyze
C223.4	Design pushdown automata and the equivalent context free grammars	Apply
C223.5	Understand Turing Machine computational model and concepts such as decidability and intractability.	Understand
	JAVA PROGRAMMING (C224)	
C224.1	Discuss object oriented programming concepts and Java Basics	Understand
C224.2	Use Classes and Objects in JAVA Programming	Understand
C224.3	Implement inheritance,Packages and Exception handling concepts	Understand
C224.4	Execute Multi-Threading concepts and Input output Streams	Analyze
C224.5	Design and implement Applet and event handling mechanisms in application programs	Understand
	MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS (C225)	
C225.1	Explain the concept and importance of management and managerial problems	Remember
C225.2	Describe an idea of production methods and technical relationship betweeninput and output	Understand
C225.3	Determine the types of market and pricing methods and strategies	Apply
C225.4	Describe the types of industrial organization	Apply
C225.5	Analyze the financial statements.	Apply
	DATA BASE MANAGEMENT SYSTEMS LAB(C226)	
C226.1	Utilize SQL to execute queries for creating database and performing data manipulation operations	Apply
C226.2	Examine integrity constraints to build efficient databases	Analyze
C226.3	Apply Queries using Advanced Concepts of SQL	Apply
C226.4	Build PL/SQL programs including stored procedures, functions, cursors and triggers	create
C226.1	Utilize SQL to execute queries for creating database and performing data manipulation operations	Apply
	R-PROGRAMMING LAB(C227)	

C227.1	Access online resources for R and import new function packages into the R workspace	Understand
C227.2	Import, review, manipulate and summa data-sets in R	Understand
C227.3	Explore data-sets to create testable hypotheses and identify appropriate statistical tests	Apply
C227.4	Perform appropriate statistical tests using R	Analyze
C227.5	Create and edit visualizations with R	Apply
	JAVA PROGRAMMING LAB(C228)	
C228.1	Discuss object oriented programming concepts	Understand
C228.2	Use Classes and Objects in JAVA Programming	Apply
C228.3	Implement inheritance and Exception handling concepts	Apply
C228.4	Execute Multi-Threading concepts	Apply
C228.5	Design and implement Applet and event handling mechanisms in application programs	Create
C228.6	Use swings aspects in graphical interactive application development	Apply
	SKILL ORIENTED COURSE-II:APPLICATIONS OF PYTHONPANDAS(C229)	
C229.1	Use Pandas to create and manipulate data structures like Series and DataFrames.	Analyze
C229.2	Experiment with arrays, queries, and dataframes.	Analyze
C229.3	Apply dataframe structures for cleaning and processing and manipulating files	Apply
C229.4	Understand best practices for creating basic charts	Understand

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COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- III-I**

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	COMPUTER NETWORKS (C311)	
C311.1	Illustrate the OSI and TCP/IP reference model	Understand
C311.2	Analyze MAC layer protocols and LAN technologies	Analyze
C311.3	Design applications using internet protocols	Create
C311.4	Implement routing and congestion control algorithms	Understand
C311.5	Develop application layer protocols	Create
	Design and Analysis of Algorithms(C312)	
C312.1	Analyze the performance of a given algorithm, denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms	Analyze
C312.2	List and describe various algorithmic approaches and Solve problems using divide and conquer &greedy Method	Understand
C312.3	Synthesize efficient algorithms dynamic programming approaches to solve in common engineering design situations.	Analyze
C312.4	Organize important algorithmic design paradigms and methods of analysis: backtracking, branch and bound algorithmic approaches	Apply
C312.5	Demonstrate NP- Completeness theory ,lower bound theory and String Matching	Apply
	Data Warehousing and Mining(C313)	
C313.1	Draw and Explanation of the Architecture of Data Ware Housing	Apply
C313.2	Explain Various functionalities of Data Mining	Understand
C313.3	Explain the need and importance of preprocessing techniques	Understand
C313.4	Explain the general approach to solving a classification problem	Understand
C313.5	Examine different Clustering algorithms	Analyze
	Internet Of Things (C314)	
C314.1	Explain in a concise manner how the general Internet as well as Internet of Things work.	Understand
C314.2	Understand constraints and opportunities of wireless and mobile networks for Internet of Things.	Analyze
C314.3	Use basic sensing and measurement and tools to determine the real-time performance of network of devices.	Create

C314.4	Develop prototype models for various applications using IoT technology.	Understand
Software Project Management (C315)		
C315.1	Apply the process to be followed in the software development life-cycle models	Understand
C315.2	Apply the concepts of project management & planning	Analyze
C315.3	Implement the project plans through managing people, communications and change	Create
C315.4	Conduct activities necessary to successfully complete and close the Software projects	Understand
C315.5	Implement communication, modeling, and construction & deployment practices in software development	Create
Data Warehousing and Data mining Lab (C316)		
C316.1	Design a data mart or data warehouse for any organization	Remember
C316.2	Extract knowledge using data mining techniques and enlist various algorithms used in information analysis of Data Mining Techniques	Understand
C316.3	Demonstrate the working of algorithms for data mining tasks such as association rule mining, classification for realistic data	Analyze
C316.4	Implement and Analyze on knowledge flow application on data sets and Apply the suitable visualization techniques to output analytical results	Apply
Computer Networks Lab (C317)		
C317.1	Know how reliable data communication is achieved through data link layer.	Understand
C317.2	Suggest appropriate routing algorithm for the network.	Analyze
C317.3	Provide internet connection to the system and its installation.	Create
C317.4	Work on various network management tools	Understand

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Nandamuru , Pedana Mandal, Krishna Dist – 521 369
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- III-II**

SNO	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Machine learning (C321)	
C321.1	Explain the fundamental usage of the concept Machine Learning system	Analyze
C321.2	Demonstrate on various regression Technique	Analyze
C321.3	Analyze the Ensemble Learning Methods	Analyze
C321.4	Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning	Analyze
C321.5	Discuss the Neural Network Models and Fundamentals concepts of Deep Learning	Understand
	Compiler Design (C322)	
C322.1	Demonstrate phases in the design of compiler	Apply
C322.2	Organize Symax Analysis, Top Down and LL(1) grammars	Understand
C322.3	Design Bottom Up Parsing and Construction of LR parsers	Create
C322.4	Analyze synthesized, inherited attributes and syntax directed translation schemes	Evaluate
C322.5	Determine algorithms to generate code for a target machine	Apply
	CRYPTOGRAPHY AND NETWORK SECURITY (C323)	
C323.1	Explain different security threats and countermeasures and foundation course of cryptography mathematics.	Understand
C323.2	Classify the basic principles of symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key cryptography	Apply
C323.3	Revise the basic principles of Public key algorithms and Working operations of some Asymmetric key algorithms such as RSA, ECC and some more	Understand
C323.4	Design applications of hash algorithms, digital signatures and key management techniques.	Apply
C323.5	Determine the knowledge of Application layer, Transport layer and Network layer security Protocols such as PGP, S/MIME, SSL,TSL, and IPsec .	Apply
	OBJECT ORIENTED ANALYSIS AND DESIGN (C324)	
C324.1	Analyze the nature of complex system and its solutions.	Apply
C324.2	Illustrate & relate the conceptual model of the UML, identify & design the classes and relationships	Apply
C324.3	Analyze &Design Class and Object Diagrams that represent Static Aspects of a Software System and apply basic and Advanced Structural Modeling Concepts for designing real time applications.	Analyze
C324.4	Analyze & Design behavioral aspects of a Software System using Use Case, Interaction and Activity Diagrams.	Evaluate
C324.5	Analyze & Apply techniques of State Chart Diagrams and Implementation Diagram to model behavioral aspects and Runtime environment of Software Systems.	Understand
	Fundamentals of Utilization of Electrical Energy (C325)	
C325.1	Fundamentals of utilization of Electrical Energy	Understand
C325.2	Able to identify most appropriate heating or welding techniques for suitable applications.	Apply
C325.3	Able to understand various level of illuminosity produced by different illuminating	Analyze

	sources.	
C325.4	Able to estimate the illumination levels produced by various sources and recommend the most efficient illuminating sources and should be able to design different lighting systems by taking inputs and constraints in view.	Analyze
C325.4	Able to determine the speed/time characteristics of different types of traction motors.	
	MACHINE LEARNING USING PYTHON LAB (C326)	
C326.1	Implement procedures for the machine learning algorithms	Analyze
C326.2	Design and Develop Python programs for various Learning algorithms	Analyze
C326.3	Apply appropriate data sets to the Machine Learning algorithms	Analyze
C326.4	Develop Machine Learning algorithms to solve real world problems	Analyze
	COMPILER DESIGN LAB (C327)	
C327.1	Design simple lexical analyzers	Analyze
C327.2	Determine predictive parsing table for a CFG	Create
C327.3	Apply Lex and Yacc tools	Apply
C327.4	Examine LR parser and generating SLR Parsing table	Analyze
C327.5	Relate Intermediate code generation for subset C language	Analyze
	CRYPTOGRAPHY NETWORK SECURITY LAB(C328)	
C328.5	Apply the knowledge of symmetric cryptography to implement encryption and decryption using Ceaser Cipher, Substitution Cipher, Hill Cipher	Analyze
C328.5	Demonstrate the different algorithms like DES, BlowFish, and Rijndael, encrypt the text "Hello world" using Blowfish Algorithm.	Create
C328.5	Analyze and implement public key algorithms like RSA, Diffie-Hellman Key Exchange mechanism, the message digest of a text using the SHA-1 algorithm	Apply
	MEAN STACK TECHNOLOGIES-MODULE I-SOC(C329)	
C329.1	Develop professional web pages of an application using HTML elements like lists, navigations, tables, various form elements, embedded media which includes images, audio, video and CSS Styles.	Apply
C329.2	Utilize JavaScript for developing interactive HTML web pages and validate form data.	Apply
C329.3	Build a basic web server using Node.js and also working with Node Package Manager (NPM).	Analyze
C329.4	Build a web server using Express.js	Evaluate
C329.5	Make use of Typescript to optimize JavaScript code by using the concept of strict type checking.	Understand

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- IV-I**

CO NUMBER	COURSE OUTCOME(CO)STATEMENT–AT THE END OF THE COURSE ,THE STUDENTS WILL BE ABLE TO	BLOOMS TAXONOMY
	CRYPTOGRAPHY AND NETWORK SECURITY (C411)	
C411.1	Identify information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of finite fields and number theory	Understand
C411.2	Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication	analyze
C411.3	Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.	Understand
C411.4	Apply different digital signature algorithms to achieve authentication and create secure applications	Apply
C411.5	Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP	Understand
	UML & DESIGN PATTERNS (C412)	
C412.1	Illustrate software design with UML diagrams	Understand
C412.2	Design software applications using OO concepts	Analyze
C412.3	Identify various scenarios based on software requirements	Analyze
C412.4	Apply UML based software design into pattern based design using design patterns	Apply
C412.5	Illustrate the various testing methodologies for OO software	Apply
	MACHINE LEARNING (C413)	
C413.1	Identify machine learning techniques suitable for a given problem	Understand
C413.2	Solve the problems using various machine learning techniques	Apply
C413.3	Apply Dimensionality reduction techniques	Apply
C413.4	Design application using machine learning techniques	Understand
	SOFTWARE PROJECT MANAGEMENT (C414)	
C414.1	Apply the process to be followed in the software development life-cycle models.	Understand
C414.2	Apply the concepts of project management & planning.	Understand
C414.3	Implement the project plans through managing people, communications and change	Understand
C414.4	Conduct activities necessary to successfully complete and close the Software projects	Understand
C414.5	Implement communication, modeling, and construction & deployment practices in software development.	Understand

	CLOUD COMPUTING (C415)	
C415.1	Interpret the key dimensions of the challenge of Cloud Computing	Analyze
C415.2	Examine the economics, financial, and technological implications for selecting cloud computing for own organization	Apply
C415.3	Assessing the financial, technological, and organizational capacity of employer's for actively initiating and installing cloud-based applications	Apply
C415.4	te own organizations' needs for capacity building and training in cloud computingrelated IT areas	Analyze
C415.5	Illustrate Virtualization for Data-Center Automation	Understand
	FUNDAMENTALS OF UTILIZATION OF ELECTRICAL ENERGY (C416)	
C416.1	know the various sources of electrical energy and its generation technologies for conventional and non-conventional energy sources.	Understand
C416.2	know various types of illumination equipment, illumination measurement and illumination techniques.	Remember
C416.3	learn about various methods used for electrical energy based heating and welding applications	Create
C416.4	know about the mechanisms, equipment and technology used in the electric traction.	Apply
C416.5	understand the importance of electrical earthing, earthing equipment and electrical earthing measurement methods.	Apply
	UML LAB (C417)	
C417.1	Create use case documents that capture requirements for a software system	Understand
C417.2	Create class diagrams that model both the domain model and design model of a software system	Understand
C417.3	Create interaction diagrams that model the dynamic aspects of a software system	Evaluate
C417.4	Write code that builds a software system	Evaluate
C417.5	Develop simple applications	Apply
	Project-I(C417)	
C417.1	Describe the abstract and information of the project	Understand
C417.2	Identify the time duration and cost required to develop the project	Understand
C417.3	Implement and test the project which is useful to the society	Evaluate
C417.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C417.5	Demonstrate the project individual and in a group	Apply

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Academic year-2022-2023 Year/sem- IV-II

CO NUMBER	COURSE OUTCOME(CO)STATEMENT –AT THE END OF THE COURSE ,THE STUDENTS WILL BE ABLE TO	BLOOMS TAXONOMY
	Management and Organizational Behavior (C421)	
C421.1	After completion of the Course the student will acquire the knowledge on management functions, global leadership and organizational structure	Apply
C421.2	Will familiarize with the concepts of functional management that is HRM and Marketing of new product developments	Understand
C421.3	The learner is able to think in strategically through contemporary management practices	Analyze
C421.4	The learner can develop positive attitude through personality development and can equip with motivational theories	Apply
C421.5	The student can attain the group performance and grievance handling in managing the organizational culture	Analyze
	ENTERPREUNERSHIP (C422)	
C422.1	Learners will pick up about Foundation of Entrepreneurship Development and its theories.	understand
C422.2	Learners will explore entrepreneurial skills and management function of a company with special reference to SME sector.	understand
C422.3	Learners will identify the type of entrepreneur and the steps involved in an entrepreneurial venture.	understand
C422.4	Learners will understand various steps involved in starting a venture and to explore marketing methods & new trends in entrepreneurship.	understand
	DevOps(C423)	
C423.1	Enumerate the principles of continuous development and deployment, automation of configuration management, inter-team collaboration, and IT service agility	Apply
C423.2	Describe DevOps & DevSecOps methodologies and their key concepts	Understand
C423.3	Illustrate the types of version control systems, continuous integration tools, continuous monitoring tools, and cloud models	Understand
C423.4	Set up complete private Infrastructure using version control systems and CI/CD tools	Analyze
	Project-II(C425)	
C425.1	Describe the abstract and information of the project	Understand
C425.2	Identify the time duration and cost required to develop the project	Understand
C425.3	Implement and test the project which is useful to the society	Evaluate
C425.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C425.5	Demonstrate the project individual and in a group	Apply

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COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- II-I-CSE(AIML)**

	Course Outcomes(CO)	Blooms Taxonomy
	Mathematics-III(C211)	
C211.1	Apply scalar ,vector fields ,scalar potential function and compute the gradient, divergence and curl.Use Vector integral theorems to facilitate vector integration	Apply
C211.2	Evaluatethe general solutions to linear ordinary differential equations by using Laplace transform.	Evaluate
C211.3	Find the Fourier series of continuous , finite discontinuities and periodic functions.Find the Fourier transforms of certain functions and integral transforms.	Understand
C211.4	To solve first order linear and non-linear partial differential equations in different standard forms.	Apply
C211.5	Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution.	Understand
	Mathematical Foundations of Computer Science (C212)	
C212.1	Write an argument using logical notation and determine if the argument is or is not valid. Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.	Remember
C212.2	Understand the basic principles of sets and operations in sets.Prove basic set equalities. Demonstrate an understanding of relations and functions and their propertiesTo learn basic definitions groups, monoids, subgroups, semi groups and rings.	Understand
C212.3	Solving the Permutations and Combinations Problems,Overview of number theory, basic algorithms in number theory	Apply
C212.4	Solving homogeneous and non-homogeneous recurrence relations.	Apply
C212.5	Demonstrate different traversal methods for trees and graphs.	Apply
	Introduction to Artificial Intelligence and Machine Learning (C213)	
C213.1	Enumerate the history and foundations of Artificial Intelligence	Remember
C213.2	Apply the basic principles of AI in problem solving	Apply
C213.3	Choose the appropriate representation of Knowledge	Analyze

C213.4	Enumerate the Perspectives and Issues in Machine Learning	Apply
C213.5	Identify issues in Decision Tree Learning	Understand
	Object Oriented Programming with Java (C214)	
C214.1	Able to realize the concept of Object Oriented Programming & Java Programming Constructs	Understand
C214.2	Able to describe the basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords	Understand
C214.3	Apply the concept of exception handling and Input/ Output operations	Understand
C214.4	Able to design the applications of Java & Java applet	Analyze
C214.5	Able to Analyze & Design the concept of Event Handling and Abstract Window Toolkit	Understand
	Database Management Systems (C215)	
C215.1	Describe a relational database and object-oriented database	Remember
C215.2	Create, maintain and manipulate a relational database using SQL	Understand
C215.3	Describe ER model and normalization for database design	Apply
C215.4	Examine issues in data storage and query processing and can formulate appropriate solutions	Apply
C215.5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage	Apply
	Introduction to Artificial Intelligence and Machine Learning Lab (C216)	
C216.1	Apply the basic principles of AI in problem solving using LISP/PROLOG	**Remember**
C216.2	Implement different algorithms using LISP/PROLOG	**Understand**
C216.3	Develop an Expert System using JESS/PROLOG	**Apply**
	Object Oriented Programming with Java Lab (C217)	
C217.1	Evaluate default value of all primitive data type, Operations, Expressions, Control-flow, Strings	**Remember**
C217.2	Determine Class, Objects, Methods, Inheritance, Exception, Runtime Polymorphism, User defined Exception handling mechanism	**Understand**
C217.3	Illustrating simple inheritance, multi-level inheritance, Exception handling mechanism	**Apply**
C217.4	Construct Threads, Event Handling, implement packages, developing applets	**Apply**

	Database Management Systems Lab(C218)	
C218.1	Utilize SQL to execute queries for creating database and performing data manipulation operations	Understand
C218.2	Examine integrity constraints to build efficient databases	**create**
C218.3	Apply Queries using Advanced Concepts of SQL	**Apply**
C218.4	Build PL/SQL programs including stored procedures, functions, cursors and triggers	**Understand**
	Mobile App Development(C219)	
C219.1	Identify various concepts of mobile programming that make it unique from programming for other platforms	**Understand**
C219.2	Critique mobile applications on their design pros and cons	**Understand**
C219.3	Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces,	**Understand**
C219.4	Program mobile applications for the Android operating system that use basic and advanced phone features and Deploy applications to the Android marketplace for distribution.	**Apply**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES

Academic year-2022-2023 Year/sem- II-II-CSE(AIML)

	Course Outcomes(CO)	Blooms Taxonomy
	PROBABILITY & STATISTICS (C221)	
C221.1	Apply scalar ,vector fields ,scalar potential function and compute the gradient, divergence and curl.Use Vector integral theorems to facilitate vector integration	Apply
C221.2	Evaluatethe general solutions to linear ordinary differential equations by using Laplace transform.	Evaluate
C221.3	Find the Fourier series of continuous , finite discontinuities and periodic functions.Find the Fourier transforms of certain functions and integral transforms.	Understand
C221.4	To solve first order linear and non-linear partial differential equations in different standard forms.	Apply
C221 .5	Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution.	Understand
	COMPUTER ORGANIZATION (C222)	
C222.1	Develop a detailed understanding of computer systems•	Remember
C222.2	Cite different number systems, binary addition and subtraction, standard, floating-point, and micro operations	Understand
C222.3	Develop a detailed understanding of architecture and functionality of central processing unit	Apply
C222.4	Exemplify in a better way the I/O and memory organization	Apply
C222.5	Illustrate concepts of parallel processing, pipelining and inter processor communication	Apply
	DATA WAREHOUSING AND MINING (C223)	
C223.1	Summarize the architecture of data warehouse	Remember
C223.2	Apply different preprocessing methods, Similarity, Dissimilarity measures for any given raw data.	Apply

C223.3	Construct a decision tree and resolve the problem of model overfitting	Analyze
C223.4	Compare Apriori and FP-growth association rule mining algorithms for frequent pattern generation	Apply
C223.5	Apply suitable clustering algorithm for the given data set	Understand
	FORMAL LANGUAGES AND AUTOMATA THEORY (C224)	
C224.1	Classify machines by their power to recognize languages	Understand
C224.2	Summarize language classes & grammars relationship among them with the help of Chomsky hierarchy	Understand
C224.3	Employ finite state machines to solve problems in computing	Understand
C224.4	Illustrate deterministic and non-deterministic machines	Analyze
C224.5	Quote the hierarchy of problems arising in the computer science	Understand
	MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY (C225)	
C225.1	The Learner is equipped with the knowledge of estimating the Demand and demand elasticities for a product	Remember
C225.2	The knowledge of understanding of the Input-Output-Cost relationships and estimation of the least cost combination of inputs	Understand
C225.3	The pupil is also ready to understand the nature of different markets and Price Output determination under various market conditions and also to have the knowledge of different Business Units	Apply
C225.4	The Learner is able to prepare Financial Statements and the usage of various Accounting tools for Analysis	Apply
C225.5	The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making	Apply
	R PROGRAMMING LAB (C226)	
C226.1	Implement basic concepts of R programming, and its different module that includes conditional, looping, Data, Strings, Functions, Frames, Arrays, and File programming.	Apply
C226.2	Implement the concepts of R Script to extract the data from data frames and file operations.	Analyze
C226.3	Implement the various statistical techniques using R.	Apply
C226.4	Extend the functionality of R by using add-on packages	create
C226.1	Use R Graphics and Tables to visualize results of various statistical operations on data	Apply
	DATA MINING USING PYTHON LAB (C227)	

C227.1	Apply preprocessing techniques on real world datasets	Apply
C227.2	Apply apriori algorithm to generate frequent itemsets.	Apply
C227.3	Apply Classification and clustering algorithms on different datasets.	Apply
	WEB APPLICATION DEVELOPMENT LAB (C228)	
C228.1	Develop Single Page Applications	Understand
C228.2	Develop NodeJS & ReactJS Reusable Service	Apply
C228.3	Store the data in MySQL	Apply
C228.4	Get acquainted with the latest web application development trends in the IT industry	Apply
	NATURAL LANGUAGE PROCESSING WITH PYTHON - SOC(C229)	
C229.1	Explore natural language processing (NLP) libraries in Python	Analyze
C229.2	Learn various techniques for implementing NLP including parsing & text processing	Analyze
C229.3	Understand how to use NLP for text feature engineering	Apply

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COURSE OUTCOMES

Academic year-2022-2023 **Year/sem- III-I –CSE(AIML)**

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	COMPILER DESIGN (C311)	
C311.1	Demonstrate phases in the design of compiler	Understand
C311.2	Organize Syntax Analysis, Top Down and LL(1) grammars	Analyze
C311.3	Design Bottom Up Parsing and Construction of LR parsers	Create
C311.4	Analyze synthesized, inherited attributes and syntax directed translation schemes	Understand
C311.5	Determine algorithms to generate code for a target machine	Create
	OPERATING SYSTEMS (C312)	
C312.1	Describe various generations of Operating System and functions of Operating System	Analyze
C312.2	Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance	Understand
C312.3	Solve Inter Process Communication problems using Mathematical Equations by various methods	Analyze
C312.4	Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques	Apply
C312.5	Outline File Systems in Operating System like UNIX/Linux and Windows	Apply
	MACHINE LEARNING (C313)	
C313.1	Explain the fundamental usage of the concept Machine Learning system	Apply
C313.2	Demonstrate on various regression Technique	Understand
C313.3	Analyze the Ensemble Learning Methods	Understand
C313.4	Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning	Understand
C313.5	Discuss the Neural Network Models and Fundamentals concepts of Deep Learning	Analyze
	Internet Of Things (C314)	
C314.1	Explain in a concise manner how the general Internet as well as Internet of Things work.•	Understand
C314.2	Understand constraints and opportunities of wireless and mobile networks for Internet of Things.	Analyze
C314.3	Use basic sensing and measurement and tools to determine the real-time performance of network of devices.	Create

C314.4	Develop prototype models for various applications using IoT technology.	Understand
	SOFTWARE ENGINEERING (C315)	
C315.1	Ability to transform an Object-Oriented Design into high quality, executable code	Understand
C315.2	Skills to design, implement, and execute test cases at the Unit and Integration level	Analyze
C315.3	Compare conventional and agile software methods	Create
	OPERATING SYSTEMS & COMPILER DESIGN LAB (C316)	
C316.1	Implement various scheduling, page replacement algorithms and algorithms related to deadlocks	Remember
C316.2	Design programs for shared memory management and semaphores	Understand
C316.3	Determine predictive parsing table for a CFG	Analyze
C316.4	Apply Lex and Yacc tools	Apply
C316.5	Examine LR parser and generating SLR Parsing table	Apply
	MACHINE LEARNING LAB (C317)	
C317.1	Implement procedures for the machine learning algorithms	Understand
C317.2	Design and Develop Python programs for various Learning algorithms	Analyze
C317.3	Apply appropriate data sets to the Machine Learning algorithms	Create
C317.4	Develop Machine Learning algorithms to solve real world problems	Understand
	CONTINUOUS INTEGRATION AND CONTINUOUS DELIVERY USING (C318)	
C318.1	Understand the why, what and how of DevOps adoption	Understand
C318.2	Attain literacy on Devops	Analyze
C318.3	Align capabilities required in the team	Create
C318.4	Create an automated CICD pipeline using a stack of tools	Understand

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COURSE OUTCOMES

Academic year-2022-2023 Year/sem- III-II-CSE(AIML)

SNO	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	COMPUTER NETWORKS (C321)	
C321.1	Demonstrate different network models for networking links OSI, TCP/IP, B-ISDN, N-BISDN and get knowledge about various communication techniques, methods and protocol standards.	Analyze
C321.2	Discuss different transmission media and different switching networks.	Analyze
C321.3	Analyze data link layer services, functions and protocols like HDLC and PPP.	Analyze
C321.4	Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols	Analyze
C321.5	Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and SNMP etc.	Understand
	DEEP LEARNING (C322)	
C322.1	Demonstrate the fundamental concepts learning techniques of Artificial Intelligence, Machine Learning and Deep Learning	Apply
C322.2	Discuss the Neural Network training, various random models.	Understand
C322.3	Explain the Techniques of Keras, TensorFlow, Theano and CNTK	Create
C322.4	Classify the Concepts of CNN and RNN	Evaluate
C322.5	Implement Interactive Applications of Deep Learning.	Apply
	DESIGN AND ANALYSIS OF ALGORITHMS (C323)	
C323.1	Analyze the performance of a given algorithm, denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms	Understand
C323.2	List and describe various algorithmic approaches and Solve problems using divide and conquer &greedy Method	Apply
C323.3	Synthesize efficient algorithms dynamic programming approaches to solve in common engineering design situations	Understand
C323.4	Organize important algorithmic design paradigms and methods of analysis: backtracking, branch and bound algorithmic approaches	Apply
C323.5	Demonstrate NP- Completeness theory ,lower bound theory and String Matching	Apply
	SOFTWARE PROJECT MANAGEMENT (C324)	
C324.1	Apply the process to be followed in the software development life-cycle models	Apply
C324.2	Apply the concepts of project management & planning	Apply
C324.3	Implement the project plans through managing people, communications and change	Analyze
C324.4	Conduct activities necessary to successfully complete and close the Software projects	Evaluate
C324.5	Implement communication, modeling, and construction & deployment practices in software development	Understand
	Fundamentals of Utilization of Electrical Energy (C325)	
C325.1	Fundamentals of utilization of Electrical Energy	Understand
C325.2	Able to identify most appropriate heating or welding techniques for suitable applications.	Apply
C325.3	Able to understand various level of illuminosity produced by different illuminating	Analyze

	sources.	
C325.4	Able to estimate the illumination levels produced by various sources and recommend the most efficient illuminating sources and should be able to design different lighting systems by taking inputs and constraints in view.	Analyze
C325.4	Able to determine the speed/time characteristics of different types of traction motors.	
	COMPUTER NETWORKS LAB (C326)	
C326.1	Know how reliable data communication is achieved through data link layer.	Analyze
C326.2	Suggest appropriate routing algorithm for the network	Analyze
C326.3	Provide internet connection to the system and its installation.	Analyze
C326.4	Work on various network management tools	Analyze
	ALGORITHMS FOR EFFICIENT CODING LAB (C327)	
C327.1	Analyze the program execution time	Analyze
C327.2	Analyse The Time Complexity Of The Program	Analyze
	DEEP LEARNING WITH TENSORFLOW LAB (C328)	
C328.1	Implement deep neural networks to solve real world problems	
C328.2	Choose appropriate pre-trained model to solve real time problem	
C328.3	Interpret the results of two different deep learning models	
	MEAN STACK TECHNOLOGIES-MODULE I-SOC(C329)	
C329.1	Develop professional web pages of an application using HTML elements like lists, navigations, tables, various form elements, embedded media which includes images, audio, video and CSS Styles.	
C329.2	Utilize JavaScript for developing interactive HTML web pages and validate form data.	
C329.3	Build a basic web server using Node.js and also working with Node Package Manager (NPM).	
C329.4	Build a web server using Express.js	
C329.5	Make use of Typescript to optimize JavaScript code by using the concept of strict type checking.	

CO-ORDINATOR

HOD