SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by NAAC & NBA (CSE, ECE, & ME)

Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada

Nandamuru-521369, PedanaMandal, Krishna District, Andhra Pradesh,India

DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 Branch : CIVIL Year/Sem : I B.Tech I Semester

CO Number	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Engineering Physics	
CO.1	Analyze the intensity variation of light due to polarization, interference and diffraction.	Analyze
CO.2	Familiarize with the basics of crystals and their structures.	Understand
CO.3	Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.	Understand
CO.4	Summarize various types of polarization of dielectrics and classify the magnetic materials.	Understand
CO.5	Explain the basic concepts of Quantum Mechanics and the band theory of solids Identify the type of semiconductor using Hall effect.	Understand
	Linear Algebra & Calculus	
CO1	Useofmatrixalgebratechniquesthatareneededbyengineersforpracticalapplications.	Apply
CO2	Apply the concept of Cayley-Hamilton theorem and Quadratic Forms	Apply
CO3	Utilizemeanvalue theorems toreallifeproblems	Apply
CO4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
CO5	Evaluate with double and tripleintegralsof functionsof several variablesin twodimensionsusingCartesian and polar coordinates and in three dimensions using cylindricalandspherical coordinates.	Evaluate
	Basic Electrical & Electronics Engineering	
CO1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments	Understand
CO2	Demonstrate the working of electrical machines, measuring instruments and power generation stations	Apply
CO3	Apply mathematical tools and fundamental concepts to derive various equations related to electrical circuits and machines	Apply
CO4	Calculate electrical load and electricity bill of residential and commercial buildings	Apply
	Engineering Graphics	
CO1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.	Understand
CO2	Draw and interpret orthographic projections of points, lines and planes in front, top and side views.	Analyze

CO3	Understand and Draw projection of solids in various positions in first quadrant.	Apply
CO4	Explain principles behinddevelopment of surfaces.	Analyze
CO5	Prepareisometricand perspectivesections of simplesolids.	Apply
	Introduction to Programming	
CO1	Realize basics of computers, the concept of algorithm and algorithmic thinking	Understand
CO2	Analyse a problem and develop an algorithm to solve it.	Analyze
CO3	Implement various algorithms using the C programming language	Apply
CO4	List more advanced features of C language	Understand
CO5	Develop problem-solving skills and the ability to debug and optimize the code.	Apply
	NSS	
CO1	Understand the importance of discipline, character and service motto	Understand
CO2	Apply knowledge, facts, and techniques in solving societal issues.	Apply
CO3	Explore human relationship by analyzing social problems.	Explain
CO4	Develop leadership skills and civic responsibilities	Create
CO5	Understand the importance of discipline, character and service motto	Understand
	Engineering Physics Lab	
CO1	Operate optical instruments like travelling microscope and spectrometer, Photo Cell. Estimate the wavelengths of different colours using diffraction grating.	Apply
CO2	Plot the characteristics curve of given thermistor.	Apply
CO3	Evaluate dielectric constant and magnetic susceptibility for dielectric and magnetic materials respectively.	Apply
CO4	Identify the type of semiconductor using Hall effect.	Apply
CO5	Verification of transverse laws using sonometer Determination of regidity modulus and electrically vibrating tuning fork.	Apply
	Basic Electrical & Electronics Engineering Lab	
CO1	Measure voltage, current and power in an electrical circuit	Apply
CO2	Measure of Resistance using Wheatstone bridge	Apply
CO3	Discover critical field resistance and critical speedof DC shunt generators	Apply
CO4	Investigate the effect of reactive power and power factor in electrical loads	Apply
	Introduction to Programming Lab	
CO1	Read,understand, and trace The execution of programs written in C language.	Understand
CO2	Select the right control structure for solving the problem	Apply
CO3	Develop Cprograms which utilize memory efficiently using programming constructs like pointers.	Create

CO4	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic conceptsofpointersin C.	Understand
	IT WORKSHOP	
CO1	Demonstrate Hardware troubleshooting	Apply
CO2	Identify Hardware components and interdependencies	Understand
CO3	Describe usage of web browsers,emails,news groups and discussion forums.	Understand
CO4	Design word documents and create presentations using different styles.	Apply
CO5	Prepare spreadsheets with calculations	Apply

Coordinator

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DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 Branch :MECHANICAL Year/Sem : I B.Tech I Semester

CO	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Engineering Physics	
CO1	Analyze the phenomenon of interference and diffraction polarization of light.	Analyze
CO2	Understand the various crystal systems and structure of Simple cubic, Body centered cubic &Face centered cubic structures.	Understand
CO3	Understand various types of polarization's in dielectric materials And Classify the magnetic various magnetic materials	Understand
CO4	Understand basic concepts of Quantum mechanics and classical &Quantum free electron theories of solids.	Understand
CO5	Identifying the type of semiconductor using Hall effect	Understand
	Linear Algebra & Calculus	
CO1	Useofmatrixalgebratechniquesthatareneededbyengineersforpracticalapplications.	Apply
CO2	Apply the concept of Cayley-Hamilton theorem and Quadratic Forms	Apply
CO3	Utilizemeanvalue theorems toreallifeproblems	Apply
CO4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
CO5	Evaluate with double and tripleintegralsof functionsof several variablesin twodimensionsusingCartesian and polar coordinates and in three dimensions using cylindricalandspherical coordinates.	Evaluate
	Basic Electrical & Electronics Engineering	
CO1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments	Understand
CO2	Demonstrate the working of electrical machines, measuring instruments and power generation stations	Apply
CO3	Apply mathematical tools and fundamental concepts to derive various equations related to electrical circuits and machines	Apply
CO4	Calculate electrical load and electricity bill of residential and commercial buildings	Apply
	Engineering Graphics	
CO1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.	Understand
CO2	Draw and interpret orthographic projections of points, lines and	Analyze

	planes in front, top and side views.	
CO3	Understand and Draw projection of solids in various positions in first quadrant.	Apply
CO4	Explain principles behinddevelopment of surfaces.	Analyze
CO5	Prepareisometricand perspectivesections of simplesolids.	Apply
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CO5	Develop problem-solving skills and the ability to debug and optimize the code.	Apply
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	Introduction to Programming Lab	
CO1	Read, understand, and trace the execution of programs written in C language.	Understand

CO2	Select the right control structure for solving the problem	Apply
CO3	Develop Cprograms which utilize memory efficiently using programming constructs like pointers.	Creat
CO4	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic concepts of pointers in C.	Creat
	IT WORKSHOP	
CO1	Demonstrate Hardware troubleshooting	Apply
CO2	Identify Hardware components and interdependencies	Understand
CO3	Describe usage of web browsers,emails,news groups and discussion forums.	Understand
CO4	Design word documents and create presentations using different styles.	Apply
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A:Y 2023-24 Branch : ECE Year/Sem : I B.Tech I Semester

CO Number	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Engineering Physics	
CO.1	Analyze the intensity variation of light due to polarization, interference and diffraction.	Analyze
CO.2	Familiarize with the basics of crystals and their structures.	Understand
CO.3	Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.	Understand
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CO.5	Explain the basic concepts of Quantum Mechanics and the band theory of solids Identify the type of semiconductor using Hall effect.	Understand
	Linear Algebra & Calculus	
CO1	Useofmatrixalgebratechniquesthatareneededbyengineersforpracticalapplications.	Apply
CO2	Apply the concept of Cayley-Hamilton theorem and Quadratic Forms	Apply
CO3	Utilizemeanvalue theorems toreallifeproblems	Apply
CO4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
CO5	Evaluate with double and tripleintegralsof functionsof several variablesin twodimensionsusingCartesian and polar coordinates and in three dimensions using cylindricalandspherical coordinates.	Evaluate
	Basic Electrical & Electronics Engineering	
CO1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments	Understand
CO2	Demonstrate the working of electrical machines, measuring instruments and power generation stations	Apply
CO3	Apply mathematical tools and fundamental concepts to derive various equations related to electrical circuits and machines	Apply
CO4	Calculate electrical load and electricity bill of residential and commercial buildings	Apply
	Engineering Graphics	
CO1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.	Understand
CO2	Draw and interpret orthographic projections of points, lines and planes in front, top and side views.	Analyze

CO3	Understand and Draw projection of solids in various positions in first quadrant.	Apply
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CO1	Read,understand,and trace the execution of programs written in C language.	Understand
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CO1	Demonstrate Hardware troubleshooting	Apply
CO2	Identify Hardware components and interdependencies	Understand
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CO4	Design word documents and create presentations using different styles.	Apply
CO5	Prepare spreadsheets with calculations	Apply

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DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 Branch : CSE Year/Sem : I B.Tech I Semester

CO Numbe	Course outcome (CO)-at the end of the course the student will be able to	Bloom's Taxonom
	Communicative English	
CO1	Your ability toUnderstand the context, topic, and pieces of specific information from social orTransactionaldialogues	Understand
CO2	Apply grammatical structures to formulate sentences and correct word forms.	Apply
CO3	Analyze discourse markers to speak clearly on a specific topic in informal discussions.	Analyze
CO4	Evaluate reading/listening texts and to write summaries based on global comprehension of the setexts.	Evaluate
CO5	Evaluateacoherentparagraph,essay,and resume	Evaluate
	Chemistry	
CO1	Compare the materials of construction for battery and electro chemical sensors.	Analyze
CO2	Explain the preparation, properties, and applications of thermo plastics & thermo setting & elastomers,conducting polymers.	Understand
CO3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures	Understand
CO4	Apply the principle of Band diagrams in the application of conductors and semi conductors.	Apply
CO5	Summarize the concepts of Instrumental methods.	Understand
	LinearAlgebra&Calculus	
CO1	Useofmatrixalgebratechniquesthatareneededbyengineersforpracticalapplications.	Apply
CO2	Apply the concept of Cayley-Hamilton theorem and Quadratic Forms	Apply
CO3	Utilizemeanvalue theorems toreallifeproblems	Apply
CO4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
CO5	Evaluate with double and tripleintegralsof functionsof several variablesin twodimensionsusingCartesian and polar coordinates and in three dimensions using cylindricalandspherical coordinates.	Evaluate
	Basic Civil & MechanicalEngineering	
CO1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society.	Understand
CO2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying.	Remember

CO3	Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation.	Understand
CO4	Understand the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated.	Understand
CO5	Understand the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.	Understand
	IntroductiontoProgramming	
CO1	Realize basics of computers, the concept of algorithm and algorithmic thinking	Understand
CO2	Analyse a problem and develop an algorithm to solve it.	Analyze
CO3	Implement various algorithms using the C programming language	Apply
CO4	List more advanced features of C language	Understand
CO5	Develop problem-solving skills and the ability to debug and optimize the code.	Apply
	Healthandwellness, YogaandSports	
CO1	Practice yoga and sports for physical fitness and sound health	Understand
CO2	Solvesomesocietalissuesbyapplyingacquiredknowledge,facts,andtechniques	Apply
CO3	Explorehumanrelationshipsbyanalyzingsocialproblems.	Analyze
CO4	Determinetoextendtheir helpforthefellowbeingsanddowntroddenpeople.	Evaluate
CO5	Developleadershipskillsandcivicresponsibilities.	Create
	CommunicativeEnglish Lab	
CO1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills.	Understand
CO2	Apply communication skills through various language learning activities.	Apply
CO3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.	Analyse
CO4	Evaluate and exhibit professionalism in participating in debates and group discussions.	Evaluate
CO5	Create effective Course Objectives	Creat
	Chemistry Lab	
CO1	Determine the cell constant and conductance of solutions.	Understand
CO2	Prepare advanced polymer Bakelite materials.	Understand
CO3	Measure the strength of an acid present in secondary batteries.CO4: Analyse the IR spectra of some organic compounds.	Understand

CO4	Calculate strength of acid in Pb-Acid battery.	Create
CO5	Determine the cell constant and conductance of solutions.	Evaluate
	IntroductiontoProgramming Lab	
CO1	Read,understand,andtracetheexecutionofprogramswritteninClanguage.	Understand
CO2	Select the right control structure for solving the problem	Apply
CO3	Develop C programs which utilize memory efficiently using programming constructs like pointers.	Create
CO4	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic concepts of pointers in C.	Understand
	Engineering Workshop Lab	
CO1	Identify workshop tools and their operational capabilities.	Understand
CO2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.	Apply
CO3	Apply fitting operations in various applications.	Apply
CO4	Apply basic electrical engineering knowledge for House Wiring Practice	Apply

Coordinator

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A:Y 2023-24 Branch : CSE(AI&ML) Year/Sem : I B.Tech I Semester

CO Number	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Engineering Physics	
CO.1	Analyze the intensity variation of light due to polarization, interference and diffraction.	Analyze
CO.2	Familiarize with the basics of crystals and their structures.	Understand
CO.3	Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.	Understand
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CO2	Apply the concept of Cayley-Hamilton theorem and Quadratic Forms	Apply
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CO4	Determine the total derivative, functional dependence and maxima and minima of functions of several variables by using partial differential coefficients.	Understand
CO5	Evaluate with double and tripleintegralsof functionsof several variablesin twodimensionsusingCartesian and polar coordinates and in three dimensions using cylindricalandspherical coordinates.	Evaluate
	Basic Electrical & Electronics Engineering	
CO1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments	Understand
CO2	Demonstrate the working of electrical machines, measuring instruments and power generation stations	Apply
CO3	Apply mathematical tools and fundamental concepts to derive various equations related to electrical circuits and machines	Apply
CO4	Calculate electrical load and electricity bill of residential and commercial buildings	Apply
	Engineering Graphics	
CO1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.	Understand

CO2	Draw and interpret orthographic projections of points, lines and planes in front, top and side views.	Analyze
CO3	Understand and Draw projection of solids in various positions in first quadrant.	Apply
CO4	Explain principles behinddevelopment of surfaces.	Analyze
CO5	Prepareisometricand perspectivesections of simplesolids.	Apply
	Introduction to Programming	
CO1	Realize basics of computers, the concept of algorithm and algorithmic thinking	Understand
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CO4	List more advanced features of C language	Understand
CO5	Develop problem-solving skills and the ability to debug and optimize the code.	Apply
	NSS	
CO1	Understand the importance of discipline, character and service motto	Understand
CO2	Apply knowledge, facts, and techniques in solving societal issues.	Apply
CO3	Explore human relationship by analyzing social problems.	Explain
CO4	Develop leadership skills and civic responsibilities	Create
CO5	Understand the importance of discipline, character and service motto	Understand
	Engineering Physics Lab	
CO1	Operate optical instruments like travelling microscope and spectrometer, Photo Cell. Estimate the wavelengths of different colours using diffraction grating.	Apply
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CO1	Read,understand,and trace the execution of programs written in C language.	Understand
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CO4	Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic conceptsofpointersin C.	Understand
	IT WORKSHOP	
CO1	Demonstrate Hardware troubleshooting	Apply
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DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 Branch : CIVIL Year/Sem : I B.Tech II Semester

CO	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Communicative English	
CO1	Understand the context, topic, and pieces of specific information from social orTransactional dialogues.	Understand
CO2	Apply grammatical structures to formulate sentences and correct word forms.	Apply
CO3	Analyze discourse markers to speak clearly on a specific topic in informal discussions.	Analyze
CO4	Evaluate reading / listening texts and to write summaries based on global comprehension of these texts.	Evaluate
CO5	Evaluate a coherent paragraph, essay, and resume	Evaluate
	Differential Equations & Vector Calculus	
CO1	Applydifferential equations to solve circuits,chemical reactions,Newton's law of cooling,natural growth and decay	Apply
CO2	Solve the differential equations related to various engineering fields	Apply
CO3	Identify solution methods for partial differential equations that model physical proces	Understand
CO4	Interpret the physical meaning of different operators such as gradient, curl and divergence.	Apply
CO5	Estimate the work done against a field, circulation and flux using vector calculus.	Apply
	Engineering Chemistry	
CO1	Develop the corrosion prevention methods and factors affecting corrosion.	Analyze
CO2	Explain the preparation, properties, andapplications ofthermoplastics &thermosetting, elastomers & conducting polymers.	Understand
CO3	Explain calorific values, octane number, refining of petroleum and cracking of oils.	Understand
CO4	Explain the setting and hardening of cement.	Understand
CO5	Summarize the concepts of colloids, micelle and nanomaterials.	Understand
	Basic Civil & Mechanical Engineering	
CO1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society, the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.	Understand

CO2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying	Remember
CO3	Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation, the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated	Understand
	Engineering Mechanics	
CO1	Understand the fundamental concepts in mechanics and determine the frictional forces for bodies in contact	Understand
CO2	Analyze different force systems such as concurrent, coplanar and spatial systems and calculate their resultant forces and moments	Analyze
CO3	Calculate the centroids, center of gravity and moment of inertia of different geometrical shapes	Evaluate
CO4	Apply the principles of work-energy and impulse-mementum to solve the problems of rectilinear and curvilinear motion of a particle	Apply
CO5	Solve the problems involving the translational and rotational motion of rigid bodies	Apply
	H/Y	
CO1	Practice yoga and sports for physical fitness and sound health	Understand
CO2	Solve some societal issues by applying acquired knowledge, facts, and techniques	Apply
CO3	Explore human relationships by analyzing social problems.	Analyze
CO4	Determine to extend their help for the fellow beings and downtrodden people.	Evaluate
CO5	Develop leadership skills and civic responsibilities.	Create
	Engineering Workshop	
CO1	Identify workshop tools and their operational capabilities.	Understand
CO2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.	Apply
CO3	Apply fitting operations in various applications.	Apply
CO4	Apply basic electrical engineering knowledge for House Wiring Practice	Apply
	Communicative English Lab	
CO1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills.	Understand
CO2	Apply communication skills through various language learning activities.	Apply
CO3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.	Analyse
CO4	Evaluate and exhibit professionalism in participating in debates and group discussions.	Evaluate
CO5	Create effective Course Objectives	Creat
	Engineering Mechanics & Building Practices Lab	

CO1	Evaluate the coefficient of friction between two Different surfaces and betweenthe inclined plane and the roller.	Evaluate
CO2	VerifyLaw of Parallelogram offorcesandLawof Moment using forcepolygonand bellcrank lever	Apply
CO3	Determine the Centre of gravity different configurations	Apply
CO4	UnderstandtheQualityTestingandAssessmentProceduresandprinciplesofNon-Destructive Testing	Understand
CO5	Exposure to safety practices in the construction industry.	Undertand
	Engineering Chemistry Lab	
CO1	Determine the cell constant and conductance ofsolutions.	Apply
CO2	Prepare advanced polymer materials.	Create
CO3	Determine the physical properties like surfacetension, adsorption and viscosity	Apply
CO4	Estimate the Iron and Calcium in cement	Apply
CO5	Calculate the hardness of water.	Apply

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CO Numbe	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Communicative English	
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CO1	Applydifferential equations to solve circuits,chemical reactions,Newton's law of cooling,natural growth and decay	Apply
CO2	Solve the differential equations related to various engineering fields	Apply
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CO4	Interpret the physical meaning of different operators such as gradient, curl and divergence.	Apply
CO5	Estimate the work done against a field, circulation and flux using vector calculus.	Apply
	Engineering Chemistry	
CO1	Develop the corrosion prevention methods and factors affecting corrosion.	Analyze
CO2	Explain the preparation, properties, and applications ofthermoplastics & thermosetting, elastomers & conducting polymers.	Understand
CO3	Explain calorific values, octane number, refining of petroleum and cracking of oils.	Understand
CO4	Explain the setting and hardening of cement.	Understand
CO5	Summarize the concepts of colloids, micelle and nanomaterials.	Understand
	Basic Civil & Mechanical Engineering	
CO1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society, the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.	Understand

CO2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying	Remember
CO3	Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation, the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated	Understand
	Engineering Mechanics	
CO1	Understand the fundamental concepts in mechanics and determine the frictional forces for bodies in contact	Understand
CO2	Analyze different force systems such as concurrent, coplanar and spatial systems and calculate their resultant forces and moments	Analyze
CO3	Calculate the centroids, center of gravity and moment of inertia of different geometrical shapes	Evaluate
CO4	Apply the principles of work-energy and impulse-mementum to solve the problems of rectilinear and curvilinear motion of a particle	Apply
CO5	Solve the problems involving the translational and rotational motion of rigid bodies	Apply
	H/Y	
CO1	Practice yoga and sports for physical fitness and sound health	Understand
CO2	Solve some societal issues by applying acquired knowledge, facts, and techniques	Apply
CO3	Explore human relationships by analyzing social problems.	Analyze
CO4	Determine to extend their help for the fellow beings and downtrodden people.	Evaluate
CO5	Develop leadership skills and civic responsibilities.	Create
	Engineering Workshop	
CO1	Identify workshop tools and their operational capabilities.	Understand
CO2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.	Apply
CO3	Apply fitting operations in various applications.	Apply
CO4	Apply basic electrical engineering knowledge for House Wiring Practice	Apply
	Communicative English Lab	
CO1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills.	Understand
CO2	Apply communication skills through various language learning activities.	Apply
CO3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.	Analyse
CO4	Evaluate and exhibit professionalism in participating in debates and group discussions.	Evaluate
CO5	Create effective Course Objectives	Creat
	Engineering Mechanics Lab	

CO1	Evaluate the coefficient of friction between two different surfaces and between the inclined plane and the roller.	EVALUATE
CO2	Verify Law of Polygon of forces and Law of Moment using force polygon and bell crank lever.	EVALUATE
CO3	Determine the Centre of gravity and Moment of Inertia of different configurations.	APPLY
CO4	Verify the equilibrium conditions of a rigid body under the action of different force systems.	EVALUATE
Engineering Chemistry Lab		
CO1	Determine the cell constant and conductance ofsolutions.	Apply
CO2	Prepareadvancedpolymermaterials.	Create
CO3	Determinethephysicalpropertieslikesurfacetension,adsorptionandviscosity	Apply
CO4	Estimate the Iron and Calcium in cement	Apply
CO5	Calculate the hardness of water.	Apply

Coordinator

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SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by NAAC & NBA (CSE, ECE, & ME)

Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada

Nandamuru-521369, Pedana Mandal, Krishna District, Andhra Pradesh,India

DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 **Branch : ECE** **Year/Sem : I B.Tech II Semester**

CO Number	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Communicative English	
CO1	Understand the context, topic, and pieces of specific information from social orTransactional dialogues.	Understand
CO2	Apply grammatical structures to formulate sentences and correct word forms.	Apply
CO3	Analyze discourse markers to speak clearly on a specific topic in informal discussions.	Analyze
CO4	Evaluate reading / listening texts and to write summaries based on global comprehension of these texts.	Evaluate
CO5	Evaluate a coherent paragraph, essay, and resume	Evaluate
	Differential Equations & Vector Calculus	
CO1	Applydifferential equations to solve circuits,chemical reactions,Newton's law of cooling,natural growth and decay	Apply
CO2	Solve the differential equations related to various engineering fields	Apply
CO3	Identify solution methods for partial differential equations that model physical proces	Understand
CO4	Interpret the physical meaning of different operators such as gradient, curl and divergence.	Apply
CO5	Estimate the work done against a field, circulation and flux using vector calculus.	Apply
	Chemistry	
CO1	Compare the materials of construction for battery and electro chemical sensors.	Analyse
CO2	Explain the preparation, properties, and applications of thermo plastics & thermo setting & elastomers,conducting polymers.	Understand
CO3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures	Understand
CO4	Apply the principle of Band diagrams in the application of conductors and semi conductors.	Apply
CO5	Summarize the concepts of Instrumental methods.	Understand
	Basic Civil & Mechanical Engineering	
CO1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society, the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.	Understand

CO2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying	Remember
CO3	Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation, the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated	Understand
	Network Analysis	
CO.1	Understand basic electrical circuits with nodal & mesh analysis and also network simplification theorems.	Understand
CO.2	Analyze Transient & Steady state response of a network and also in the Laplace domain.	Analyze
CO.3	Evaluate the parameters of a two-port network.	Evaluate
	H/Y	
CO1	Practice yoga and sports for physical fitness and sound health	Understand
CO2	Solve some societal issues by applying acquired knowledge, facts, and techniques	Apply
CO3	Explore human relationships by analyzing social problems.	Analyze
CO4	Determine to extend their help for the fellow beings and downtrodden people.	Evaluate
CO5	Develop leadership skills and civic responsibilities.	Create
	Engineering Workshop	
CO1	Identify workshop tools and their operational capabilities.	Understand
CO2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.	Apply
CO3	Apply fitting operations in various applications.	Apply
CO4	Apply basic electrical engineering knowledge for House Wiring Practice	Apply
	Communicative English Lab	
CO1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills.	Understand
CO2	Apply communication skills through various language learning activities.	Apply
CO3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.	Analyse
CO4	Evaluate and exhibit professionalism in participating in debates and group discussions.	Evaluate
CO5	Create effective Course Objectives	Creat
	Network Analysis Lab	
CO1	Verify Kirchoff's laws and network theorems	Apply
CO2	Measure time constants ofRL &RC circuits.	Apply

CO3	Analyze behaviour of RLC circuit for different cases	Analyze
CO4	Design resonant circuit for given specifications.	Create
CO5	Characterize and model the network interms of all network parameters.	Apply
	Chemistry Lab	
CO1	Determine the cell constant and conductance of solutions.	Understand
CO2	Prepare advanced polymer Bakelite materials.	Understand
CO3	Measure the strength of an acid present in secondary batteries.CO4: Analyse the IR spectra of some organic compounds.	Understand
CO4	Calculate strength of acid in Pb-Acid battery.	Create
CO5	Determine the cell constant and conductance of solutions.	Evaluate

Coordinator

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Nandamuru-521369, Pedana Mandal, Krishna District, Andhra Pradesh,India

DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 **Branch : CSE** **Year/Sem : I B.Tech II Semester**

CO	Course outcome (CO)-at the end of the course the student will be able to	Bloom's Taxonomy
	Engineering Physics	
CO.1	Analyze the intensity variation of light due to polarization, interference and diffraction.	Analyze
CO.2	Familiarize with the basics of crystals and their structures.	Understand
CO.3	Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.	Understand
CO.4	Summarize various types of polarization of dielectrics and classify the magnetic materials.	Understand
CO.5	Explain the basic concepts of Quantum Mechanics and the band theory of solids Identify the type of semiconductor using Hall effect.	Understand
	Differential Equations & Vector Calculus	
CO1	Applydifferential equations to solve circuits,chemical reactions,Newton's law of cooling,natural growth and decay	Apply
CO2	Solve the differential equations related to various engineering fields	Apply
CO3	Identify solution methods for partial differential equations that model physical proces	Understand
CO4	Interpret the physical meaning of different operators such as gradient, curl and divergence.	Apply
CO5	Estimate the work done against a field, circulation and flux using vector calculus.	Apply
	Basic Electrical & Electronics Engineering	
CO1	Describe fundamental laws, operating principles of motors/generators, MC/MI instruments	Understand
CO2	Demonstrate the working of electrical machines, measuring instruments and power generation stations	Apply
CO3	Apply mathematical tools and fundamental concepts to derive various equations related to electrical circuits and machines	Apply
CO4	Calculate electrical load and electricity bill of residential and commercial buildings	Apply
	Engineering Graphics	
CO1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.	Understand
CO2	Draw and interpret orthographic projections of points, lines and planes in front, top and side views.	Analyze

CO3	Understand and Draw projection of solids in various positions in first quadrant.	Apply
CO4	Explain principles behind development of surfaces.	Analyze
CO5	Prepare isometric and perspective sections of simple solids.	Apply
	Data Structures	
CO1	Choose the appropriate data structure and algorithm for a specified application and evaluate algorithms and data structures in terms of Time and Space complexity	Apply
CO2	Analyzeandimplementoperationsonlinkedlistsanddemonstratetheirapplications.	Analyze
CO3	Solve problems usingdata structures suchas stacks andqueues andwritingprograms for these solutions.	Apply
CO4	Invent novelsolutionstosmall scaleprogramming challenges involvingdatastructuressuchas Trees.	Create
CO5	Summarize the operations on Graphs and apply Graph Traversals Techniques and outline Hashing Techniques.	Remember
	NSS	
CO1	Understand the importance of discipline, character and service motto	Understand
CO2	Apply knowledge, facts, and techniques in solving societal issues.	Apply
CO3	Explore human relationship by analyzing social problems.	Explain
CO4	Develop leadership skills and civic responsibilities	Create
CO5	Understand the importance of discipline, character and service motto	Understand
	Engineering Physics Lab	
CO1	Operate optical instruments like travelling microscope and spectrometer, Photo Cell. Estimate the wavelengths of different colours using diffraction grating.	Apply
CO2	Plot the characteristics curve of given thermistor.	Apply
CO3	Evaluate dielectric constant and magnetic susceptibility for dielectric and magnetic materials respectively.	Apply
CO4	Identify the type of semiconductor using Hall effect.	Apply
CO5	Verification of transverse laws using sonometer Determination of regidity modulus and electrically vibrating tuning fork.	Apply
	Basic Electrical & Electronics Engineering Lab	
CO1	Measure voltage, current and power in an electrical circuit	Apply
CO2	Measure of Resistance using Wheatstone bridge	Apply
CO3	Discover critical field resistance and critical speedof DC shunt generators	Apply

CO4	Investigate the effect of reactive power and power factor in electrical loads	Apply
	Data Structures Lab	
CO1	Explain the role of linear datastructures in organizing and accessing data efficiently in algorithms.	Understand
CO2	Design, implement,and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation.	Creat
CO3	Develop programs using Stacks to handle recursive algorithms,manage program states,and solve related problems.	Creat
CO4	Apply queue-based algorithms for efficient task scheduling and breadth- first traversalingraphs and distinguish between equesand priority queues and apply them appropriately to solve data management challenges.	Apply
CO5	Recognize scenarios where hashing is advantageous, and designhash-based solutions for specific problems.	Understand

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DEPARTMENT OF SCIENCE AND HUMANITIES

A:Y 2023-24 Branch : CSE(AI&ML) Year/Sem : I B.Tech I Semester

CO	Course outcome (CO)-at the end of the course the student will be able to	Bloom's taxonomy
	Communicative English	
CO1	Understand the context, topic, and pieces of specific information from social orTransactional dialogues.	Understand
CO2	Apply grammatical structures to formulate sentences and correct word forms.	Apply
CO3	Analyze discourse markers to speak clearly on a specific topic in informal discussions.	Analyze
CO4	Evaluate reading / listening texts and to write summaries based on global comprehension of these texts.	Evaluate
CO5	Evaluate a coherent paragraph, essay, and resume.	Evaluate
	Chemistry	
CO1	Compare the materials of construction for battery and electro chemical sensors.	Analyse
CO2	Explain the preparation, properties, and applications of thermo plastics & thermo setting & elastomers,conducting polymers.	Understand
CO3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures	Understand
CO4	Apply the principle of Band diagrams in the application of conductors and semi conductors.	Apply
CO5	Summarize the concepts of Instrumental methods.	Understand
	Differential Equations & Vector Calculus	
CO1	Applydifferential equations to solve circuits,chemical reactions,Newton's law of cooling,natural growth and decay	Apply
CO2	Solve the differential equations related to various engineering fields	Apply
CO3	Identify solution methods for partial differential equations that model physical proces	Understand
CO4	Interpret the physical meaning of different operators such as gradient, curl and divergence.	Apply
CO5	Estimate the work done against a field, circulation and flux using vector calculus.	Apply
	Basic Civil & Mechanical Engineering	
CO1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society, the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.	Understand
CO2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying	Remember
CO3	Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation, the importance of Water	Understand

	Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated	
	Data Structures	
CO1	Choose the appropriate data structure and algorithm for a specified application and evaluate algorithms and data structures in terms of Time and Space complexity	Apply
CO2	Analyzeandimplementoperationsonlinkedlistsanddemonstratetheirapplications.	Analyze
CO3	Solve problems usingdata structures suchas stacks andqueues andwritingprograms for these solutions.	Apply
CO4	Invent novelsolutionstosmall scaleprogramming challenges involvingdatastructuressuchas Trees.	Create
CO5	Summarize the operations on Graphs and apply Graph Traversals Techniques and outline Hashing Techniques.	Remember
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CO3	Apply fitting operations in various applications.	Apply
CO4	Apply basic electrical engineering knowledge for House Wiring Practice	Apply
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CO1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills.	Understand
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CO3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.	Analyse
CO4	Evaluate and exhibit professionalism in participating in debates and group discussions.	Evaluate
CO5	Create effective Course Objectives	Creat
	Data Structures Lab	
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CO2	Design, implement,and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation.	Creat
CO3	Develop programs using Stacks to handle recursive algorithms,manage program states,and solve related problems.	Creat
CO4	Applyqueue-based algorithmsfor efficient taskschedulingandbreadth-firsttraversalingraphs anddistinguishbetweendequesandpriorityqueues andapply them appropriatelyto solve datamanagementchallenges.	Apply
CO5	Recognize scenarios where hashing is advantageous, and designhash-based solutions for specific problems.	Understand
	Chemistry Lab	
CO1	Determine the cell constant and conductance of olutions.	Understand
CO2	Prepare advanced polymer Bakelite materials.	Understand
CO3	Measure the strength of an acid present in secondary batteries.CO4: Analyse the IR spectra of some organic compounds.	Understand
CO4	Calculate strength of acid in Pb-Acid battery.	Create
CO5	Determine the cell constant and conductance of solutions.	Evaluate

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Nandamuru , Pedana Mandal, Krishna Dist – 521369
Department of Civil Engineering
ACADEMIC YEAR 2023-2024

CO Number	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	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.	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 – I (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

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Department of Civil Engineering
ACADEMIC YEAR 2023-2024

Skill oriented course* **(C219)**		
C219.1	The student should be able to identify different building materials and their importance in buildingconstruction.	Understand
C219.2	The student is expected to differentiate brick masonry, stone masonry construction and use of lime and cement in variousconstructions.	Analyze
C219.3	The student should have learnt the importance of building components and finishings	Remember
C219.4	Imparting the knowledge of course pattern in masonry construction and flat roofs and techniques of forming foundation, columns, beams, walls, sloped and flatroofs.	Understand
C219.5	DIFFERENTIATION OF ENGLISH AND FLEMISH BONDS	Apnalyze
Constitution of India (C2110)		
C220.1	Understand the concept of Indian constitution	Understand
C220.2	Apply the knowledge on directive principle of state policy	Apply
C220.3	Analyze the History, features of Indian constitution	Analyze
C220.4	Evaluate Preamble Fundamental Rights	Evaluate
C220.5	Evaluate Preamble Fundamental Duties	Evaluate

Coordinator **HOD_CE**

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Department of Civil Engineering
ACADEMIC YEAR 2023-2024

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	Understand

	output	
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	Evlauate
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	understandfundamental 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 identity 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.	Remeber
C229.5	investigate & determine the collective factors & remedies of accident involved	Analyze

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ACADEMIC YEAR 2023-2024

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-1 (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-1) Sustainable Energy Technology (C314)	
C314.1	Identify the main sources of renewable energy and Solve the efficiency of solar collectors	Apply
C314.2	Explain the wind turbines and biomass.	Understand

C314.3	Explain the geothermal and ocean energy.	Understand
C314.4	Compare the electrical and mechanical energy systems	Analyze
C314.5	Select the energy efficient processes	Evaluate
	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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Nandamuru , Pedana Mandal, Krishna Dist – 521369
Department of Civil Engineering
ACADEMIC YEAR 2023-2024

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 ATP(C324)	
C324.1	Distinguish architectural styles of eastern and western world.	Understand
C324.2	Understand the importance of Orders of architecture	Understand
C324.3	Compose spaces of buildings using design concepts, planning principles	Create
C324.4	Understand the town planning standards, landscaping features and regulations controlling expansion of the towns and the cities.	Remember
C324.5	To impart the concepts of town planning standards, land scaping and expansion of	Analyze

	towns	
Open Elective Course/Job oriented Elective (OE-2) Advanced Materials (C325)		
C325.1	Super Alloys	Understand
C325.2	Illustrate the polymer composites	Understand
C325.3	Describe the basic consepts of composite materials	Analyze
C325.4	Classify FGM and shape memory alloys	Understand
C325.5	Distinguish the nano materials	Analyze
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
ACADEMIC YEAR 2023-2024

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Bridge Engineering (C411)	
C411.1	Explain different types of Bridges with diagrams and Loading standards.	Understand
C411.2	Carryout analysis and design of Slab bridges suggest structural detailing	Create
C411.3	Carryout analysis and design of T Beam bridges suggest structural detailing	Create
C411.4	Carryout analysis and design of Plate girder bridges	Create
C411.5	Organize for attending inspections and maintenance of bridges and prepare reports.	Analyze
	Ground Improvement Techniques (C412)	
C412.1	possess the knowledge of various methods of ground improvement and their suitability to different field situations.	remember
C412.2	design a reinforced earth embankment and check its stability	create
C412.3	understand vthe various functions of Geosynthetics and their applications in Civil Engineering practice	understand
C412.4	understand the concepts and applications of grouting.	understand
C412.5	understand how the reinforced earth technology and soil nailing can obviate the problems posed by the conventional retaining walls.	understand
	Design & Drawing of Steel Structures (C413)	
C413.1	Understand the different types of connections & their design as per IS codes	Understand
C413.2	Analysis & Design of flexural members like beams and detailing	Create
C413.3	Design tension members like roof trusses with connection detailing	Create
C413.4	Design of columns with connection detailing	Create
C413.5	Design of column bases with connection detailing	Create
	Program Elective – III Additive Manufacturing (C414)	
C414.1	Interpret the principles of prototyping, classification of RP processes and liquid-based RP systems.	Apply
C414.2	Describe different types of solid-based RP systems.	Understand
C414.3	Describe different powder-based RP systems.	Understand

C414.4	Analyze and apply various rapid tooling techniques.	Analyze
C414.5	Interpret different types of data formats and explore the applications of AM processes in various fields.	Apply
	Open Elective – III Operational Management (C415)	
C415.1	Apply appropriate forecasting techniques & Aggregate planning methods	Apply
C415.2	discribe Materials management analysis and scheduling policies	Understand
C415.3	discribe about the inventory control techniques, MRP and contemporary management techniques	Understand
C415.4	Apply quality management principles proposed by Taguachi, Juran & Demigs	Apply
C415.5	Apply optimization to LP model & transportation and assignment problems	Apply
	Universal Human Values (C416)	
C416.1	Define the terms like Natural Acceptance, Happiness and Prosperity and Identify one's self, and one's surroundings (family, society nature)	Remember, Understand
C416.2	Apply what they have learnt to their own self in different day-to-day settings in real life	Apply
C416.3	Relate human values with human relationship and human society.	Analyze
C416.4	Justify the need for universal human values and harmonious existence	Evaluate
C416.5	Develop as socially and ecologically responsible engineers	Create
	Skill Advanced Course (C417)	
C417.1	Introducing the important codes and by-laws that will benefit young professionals	understand
C417.2	Introducing practical knowledge in planning of smart city	understand
C417.3	Equipping students with the professional knowledge in the design and construction procedures of various Civil Engineering projects	apply
C417.4	Introducing the Knowledge about the existing cities including roads and metros	understand
	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

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ACADEMIC YEAR 2023-2024

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
	Project Work Phase-II (C421)	
C421.1	Describe the abstract and information of the project	understand
C421.2	Identify the time duration and cost required to develop the project	understand
C421.3	Implement and test the project which is useful to the society	evaluate
C421.4	Describe the summary of the project and identify the impact of the project in the society	evaluate
C421.5	Demonstrate the project individual and in a group	apply

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Department of Mechanical Engineering

COURSE OUTCOMES

Academic year-2023-2024 **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 appropriate type of welding process for joining of metals.	Understand
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 CAD	Apply
	FLUID MECHANICS & HYDRAULIC MACHINES LAB (C217)	
C217.1	Explain properties of fluids and measure pressure of the flowing fluid	Evaluate
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	Evaluate
	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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Department of Mechanical Engineering

COURSE OUTCOMES

Academic year-2023-2024 **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.	Remember
C222.2	Understand the basic principles of Line integrals. And solving the Residue theorem	Understand
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	Understand
	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	Explain principles of Industrial engineering and scientific management	Understand
C225.2	Design a system, component, or process, and synthesize solutions to achieve	Analyse

	desired needs	
C225.3	Explain principles of work study, method study, time study, motion study ad work sampling	Understand
C225.4	Explain principles of SQC and TQM	Understand
C225.5	Function effectively within multi-disciplinary teams and understand the fundamental precepts of effective project management	Apply
	MECHANICS OF SOLIDS AND METALLURGY LAB (C226)	
C226.1	Determine the impact strength and hardness of materials	Apply
C226.2	Perform tension, torsion test and bending tests in beams	Apply
C226.3	Determine the stiffness of spring,compression on cube	Apply
C226.4	Prepare and study microstructures of different materials	Apply
C226.5	Determine the hardenibility of steels by Jominy end quench test	Apply
	MACHINE DRAWING PRACTICE (C227)	
C227.1	Represent standard dimensions of different mechanical fasteners and joints and Couplings.	Remember
C227.2	Sketch different types of bearings showing different components	Apply
C227.3	Assemble components of a machine part and Sketch the sectional assembly drawing showing the dimensions of all the components of the assembly as per bill of materials	Apply
C227.4	Select and represent fits and geometrical form of different mating parts in assembly drawings.	Understand
C227.5	Sketch manufacturing drawings indicating fits, tolerances, surface finish and surface treatment requirements.	Apply
	THEORY OF MACHINES LAB(C228)	
C228.1	Study the working of screwjack,slider crank mechanism and gears	Understand
C228.2	Apply cam-follower mechanism to get desired motion of follower and determine friction developed in belts and pulleys	Apply
C228.3	Determine the centrifugal forces of Governor and gyroscopic couple using motorised gyroscope	Apply
C228.4	Perform Static and dynamic Balancing on a rotating masses and determine moment of inertia of flywheel	Apply
C228.5	Determine the whirling speed of shafts and frequencies of free, forced vibrations.	Apply
	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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COURSE OUTCOMES

Academic year: 2023-2024 **Year/sem- III-I (R20)**

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	Understand
C311.2	Analyze steam nozzles & steam turbines	Analyze
C311.3	Demonstrate working of reaction turbines and steam condenser	Analyze
C311.4	Differentiate the working of reciprocating ,rotary air compressors	Analyze
C311.5	Differentiate the working of centrifugal and axial flow compressors	Analyze
	Design of Machine Members-I(R2031032)	
C312.1	To understand the materials and their properties along with manufacturing considerations.	Understand
C312.2	To gain knowledge about the strength of machine elements	Understand
C312.3	To understand and apply the knowledge in designing the riveted and welded joints, keys, cotters and knuckle joints	Analyze
C312.4	To understand and apply the knowledge in designing the shafts and shaft couplings..	Analyze
C312.5	To understand and apply the knowledge in designing the mechanical springs.	Analyze
	Machining_Machine Tools & Metrology(R2031033)	
C313.1	Discuss the concepts of machining processes	Understand
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	To gain knowledge about the metals and alloys and their utility in different environments	Understand
C314.2	To acquire knowledge about polymers and ceramics and their applications	Understand
C314.3	To analyze composite materials along with reinforcements and their applications	Analyze
C314.4	To understand the basics of shape memory alloys and functionally graded materials	Understand
C314.5	To gain knowledge about the nanomaterials and their applications	Analyze
Renewable Energy Sources (C315)		
C315.1	Analyze solar radiation data, extra-terrestrial radiation, radiation on earth's surface and solar Energy Storage.	Analyze
C315.2	Explain the wind turbines	Understand
C315.3	Explain the biomass and geothermal energy.	Understand
C315.4	Explain the principle of Energy production from OTEC, Tidal and Waves.	Understand
C315.5	Evaluate the concept and working of Fuel cells & MHD power generation.	Evaluate
Machine Tools Lab(R2031034)		
C316.1	Understand working principle,mechanisms and various operations on general purpose machines.	Understand
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	Explain the concept of Human values	understand
C319.2	Explain the knowledge about the principles of engineering ethics	understand
C319.3	Explain the concept of engineering as social experimentation.	understand
C319.4	Explain the concept of engineers' responsibility for safety and risk	understand
C319.5	Explain the knowledge about the engineers' rights and responsibilities	understand
COMMUNITY SERVICE PROJECT(R2031019)		
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-2023-2024 **Year/sem- III-II**

SNO	QUESTIONNAIRE	Blooms Taxonomy
	Heat Transfer(R2032031)C321	
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	
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.	Apply
C322.4	Justify power transmission systems and to design pulleys and gear drives.	Analyse
C322.5	Apply the concepts in designing various machine tool elements.	Apply
	Introduction to Artificial Intelligence and Machine Learning(R2032033)C323	
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	
C324.1	Explain the function of various components of four wheeler Automobile	Understand
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	Explain the concepts about engine specifications and service, safety and electronic system used in automobiles.	Understand
	Environmental Engineering (R203201F)C325	
C325.1	Plan & Design the water distribution networks and sewerage systems	Apply
C325.2	Identify the water source and select proper intake structure	Evaluate
C325.3	Design & estimate the water supply system of an apartment	Apply
C325.4	Select the appropriate appurtenances in the water supply	Apply
C325.5	Select suitable treatment flow for raw water treatments	Evaluate
	Heat Transfer Lab(R2032034)	
C326.1	Determine the heat transfer rate and coefficient.	Apply
C326.2	Determine the thermal conductivity, efficiency and effectiveness.	Apply
C326.3	Determine the emissivity and Stefan-Boltzman constant.	Apply
C326.4	Determine critical heat flux	Apply
C326.5	Enhance knowledge in virtual labs in conduction process	Understand
	CAE&CAM Lab(R2032035)	

C327.1	Determine the stresses and deflections in trusses and beams	Apply
C327.2	Determine the natural frequencies and perform buckling analysis on columns	Apply
C327.3	Perform Part Programming using FANUC controller.	Apply
C327.4	Apply G-codes for automated tool path using CAM software.	Apply
C327.5	Enhance knowledge in virtual 3D printing simulation using Vlabs.	Understand
	Measurements & Metrology Lab(R2032036)	
C328.1	Explain the Principle of measurement and measurement of displacement	Understand
C328.2	Analyze measurement of parameters like temperature ,Speed and pressure.	Analyze
C328.3	Apply the principles of drilling, milling and boring processes.	Apply
C328.4	Analyze the concepts of finishing processes and the system of limits and fits.	Analyze
C328.5	Learn the concepts of surface roughness and optical measuring instruments.	Understand
	Artificial Intelligence and Machine Learning Lab(R2032037)	
C329.1	Apply data pre- processing techniqùes	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 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 IPR.	Learn
C3210.5	Understand the new developments in IPR.	Understand

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Nandamuru, Pedana Mandal, Krishna Dist – 521369.
Department of Mechanical Engineering

COURSE OUTCOMES

Academic year-2023-2024

Year/sem- IV-I (R20)

CO NUMBER	COURSE OUTCOME(CO)STATEMENT –AT THE END OF THE COURSE ,THE STUDENTS WILL BE ABLE TO	BLOOMS TAXONOMY
	Unconventional Machining Processes (C411)	
C411.1	Understand the concepts of modern machining processes	Understand
C411.2	Sketch and select the process parameters of USM which will effect the MRR	Evaluate
C411.3	Apply the principles and procedure of electro chemical and chemical machining processes	Apply
C411.4	Apply the principles and procedure of thermal metal removal processes	Apply
C411.5	Compare EBM & LBM along with process parameters	Analyze
	Production Planning and Control (C412)	
C412.1	To understand the different types of production systems and the internal organization of production planning and control	Understand
C412.2	To estimate forecasts in the manufacturing and service sectors using selected quantitative and qualitative techniques	Apply
C412.3	To understands the importance and function of inventory and to be able to apply for its control and management	Apply
C412.4	To apply routing procedures and differentiate schedule and loading and interpret scheduling policies and aggregate planning	Analyze
C412.5	To understand dispatching procedure and applications of computers in production planning and control	Apply
	Refrigeration & Air-Conditioning (C413)	
C413.1	Demonstrate the fundamental principle of RAC	Apply
C413.2	Examine the performance of VCR system and cryogenics	Analyze
C413.3	Describe refrigerants ,vapor absorption system and steam jet refrigeration system	Understand
C413.4	Analyze the cooling and heating loads in an Air Conditioning systems	Analyze
C413.5	Identify Air Conditioning system components	Understand
	Environmental Management (C414)	
C414.1	Plan and design the water and wastewater systems	Evaluate
C414.2	Identify the source of emissions and select proper control systems	Remember
C414.3	Design & estimation of water supply system for a city	Create
C414.4	Acquire knowledge about various environmental aspects	Remember
C414.5	Choose of suitable treatment flow for raw water treatments	Apply
	Disaster Management (C415)	
C415.1	State that usefulness of integrating management principles in disaster mitigation work	Remember
C415.2	Distinguish between the different approaches needed to manage pre- during and post- disaster periods	Understand
C415.3	Explain the process of risk management	Understand
C415.4	Describe the three planning strategies useful in mitigation	Remember

C415.5	Relate to risk transfer.	Remember
	Universal Human Values: Understanding Harmony C416)	
C416.1	Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence	Understand
C416.2	Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence	Understand
C416.3	Strengthening of self-reflection	Understand
C416.4	Development of commitment and courage to act	Understand
C416.5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work	Understand
	Mechatronics Lab (C417)	
C417.1	Understand the Characteristics of LVDT	Understand
C417.2	Measure load, displacement and temperature using analogue and digital sensors	Understand
C417.3	Develop PLC programs for control of traffic lights, water level, lifts and conveyor belts	Apply
C417.4	Simulate simple programmes using Matlab	Apply
C417.5	Simulate and analyze PID controllers for a physical system using MATLAB	Analyze

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Department of Mechanical Engineering

COURSE OUTCOMES

Academic year-2023-2024

Year/sem- IV-II (R20)

CO NUMBER	COURSE OUTCOME(CO)STATEMENT –AT THE END OF THE COURSE ,THE STUDENTS WILL BE ABLE TO	BLOOMS TAXONOMY
	Project work (C421)	
C421.1	Describe the abstract and information of the project	Understand
C421.2	Identify the time duration and cost required to develop the project	Understand
C421.3	Implement and test the project which is useful to the society	Evaluate
C421.4	Describe the summary of the project and identify the impact of the project in the society	Evaluate
C421.5	Demonstrate the project individual and in a group	Apply

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

AY:2023-24

Regulation 20

COURSE OUTCOMES SUMMARY

Year/Sem: II/I

CO Number	Course Outcome(CO) Statement- At the end of the Course, the students will be able to	Blooms Taxonomy
EDC-Electronic Devices and Circuits(C211) Mr. D. Sridhar		
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) Mr. Y.R.K.Parama Hamsa		
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) Mr. C.Pakkiraiah		
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) Ms. Mounika/Mr. Naresh		
C214.1	Apply scalar ,vector fields ,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) Mr.N.Nagaraju		
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 Lab Mrs.Annapurna		
C216.1	Identify classes, objects, members of a class and the relationship among the m needed for a specific problem	Apply
C216.2	Implement programs to distinguish different forms of inheritance	**Analyze**
C216.3	Create packages and to reuse them	Apply
C216.4	Develop programs using Exception Handling mechanism	Apply
C216.5	Develop multithreaded application using synchronization concept and Design GUI based applications using Swings and AWT.	**Create**
Electronic Devices and Circuits Lab Mr.D.Sridhar		
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
STLD LAB Mr. Y.R.K.Parama Hamsa		
C218.1	Able to implement all the basic gates and its truth tables.	Applying & Evaluating
C218.2	Designing and implementation of full adder, BCD adder, Excess-3 to 9-Complement convertor using different IC's in combinational logic design.	Applying & Evaluating

C218.3	Designing and implementation of decoders, multiplexers, de multiplexers and comparators using different IC's in combinational logic design.	Applying & Evaluating
C218.4	Able to design and implement flip-flops and counters with relevant to the digital IC's in sequential logic design.	Applying & Evaluating
C218.5	Designing and implementation of shift registers and universal shift registers with relevant to the digital IC's in sequential logic design.	Applying & Evaluating
PYTHON LAB (SKILL ORIENTED COURSE) Mr.N.Nagaraju		
C219.1	Know comprehensions, generators in python	Remember
C219.2	Know exception handling in python	Remember
C219.3	Know file I/O	Remember
C219.4	Understand various data types like lists, tuples, strings etc	Understand
C219.5	Know the usage of various pre-defined functions on the above data types	Remember

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

AY:2023-24

Regulation 20

COURSE OUTCOMES SUMMARY

Year/Sem: III/I

AICA-Analog ICs and Applications(C311) Mr. M. Suneel		
C311.1	Understand the characteristics of operational amplifier ,analyze the parameters of op-amp and observe the frequency response of operational amplifier	**Analyze**
C311.2	Design circuits using operational amplifiers for various applications.	**Create**
C311.3	Design the active filters using Operational Amplifier	**Create**
C311.4	Implement various Timers and PLLs Using ICs such as 555 IC, 565PLL, 566 VCO.	**Analyze**
C311.5	Demonstrate and compare the performance of various types of ADC and DAC using Op-Amp	**Apply**
EMWTL-Electromagnetic Waves and Transmission Lines(C312) Mrs. B. Sujatha		
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-Digital Communication(C313) Dr.N.Vijaya Ratnam		
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	Analyze

	channels..	
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 & Design different error correcting codes for the given application.	Analyze
Open Elective Course/Job oriented elective **COA-Computer Organization & Architecture(C314)(Ms. K. N. Divya Bharghavi)**		
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
PE1 Professional Elective courses **EMI-Electronic Measurements and Instrumentation(C315) Mrs. K. Sai Sudheer**		
C315.1	Select the instrument to be used based on the requirements.	Apply
C315.2	Understand and analyze different signal generators and analyzers.	Understand
C315.3	Understand the design of oscilloscopes for different applications.	Understand
C315.4	Measurements using Bridge circuits	Evaluate
C315.5	Design different transducers for measurement of different parameters.	Create
AICA (Analog ICs and Applications)LAB(C316) Mr. M. Suneel		
C316.1	Study of anolog 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	Create
DC(Digital Communications)Lab(C317) Dr. N. Vijaya Ratnam		
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	Create

	and Decoder Convolution Code –Encoder and Decoder BCH Codes and verify the result.	
DS(Data Structures) using Java Lab (C318) Mrs.T.Veena/ Mrs. B. Indira Devi		
C318.1	Write Java programs that use both recursive and non-recursive functions for implementing Linear search , Binary search, Stack ADT , Queue ADT	Create
C318.2	Write Java programs to implement the deque (double ended queue) ADT using Array, Doubly linked list.	Create
C318.3	Write Java programs that use recursive and non-recursive functions to traverse the given binary tree in Preorder , In order and Post order.	Create
C318.4	Write Java programs for the implementation of bfs and dfs for a given graph	Create
C318.5	Write a Java program that uses recursive functions,for implementing the following sorting methods , KMP pattern matching algorithm .	Create

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

AY:2023-24

Regulation 20

COURSE OUTCOMES SUMMARY

Year/Sem: IV/I

OC-Optical Communication(C411) Mr. J. Jyothi Swaroop		
C411.1	Define the basic elements of optical fiber communication link, structure, Propagation and transmission properties of an optical fiber.	Remember
C411.2	Describe 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.	Apply
C411.4	Describe the principles of optical sources, optical detector	Apply
C411.5	Analyze the power launching, coupling methods & characteristics of optical fiber receivers Design a optical fiber communication link and estimation of performance of optical link	Create
SC-Satellite Communication(C412) Mrs. Karuna Gone		
C412.1	Understand the concepts of Satellite Communications, applications. Derive the equations for orbital mechanics.	Apply
C412.2	Understand the Satellite subsystems.	Understand
C412.3	Derive the expression for G/T ratio and to solve some analytical problems on satellite link design.	Apply
C412.4	Understand the various types of multiple access techniques and architecture of earth station design.	Understand
C412.5	Understand the concepts of GPS and its architecture.	Understand
RE-Radar Engineering(C413) Mrs. S.Rajeswari		
C413.1	Derive and apply range performance of the radar	Apply
C413.2	Understand CW and FMCW types of radars and its applications.	Understand
C413.3	Understand MTI and Pulse Doppler radars and its Limitations.	Understand
C413.4	Understand and Apply different tracking techniques.	Apply
C413.5	Remember the various components of radar receiver and its	Remember

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Department of Electronics and Communication Engineering

COURSE OUTCOMES SUMMARY

A.Y: 2023-24 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.	Analyze
C221.5	Analyze different types of power amplifiers and compare them in terms of efficiency	Analyze
	DICD(222)	
C222.1	Build the concept of IEEE Standard 1076 Hardware Description Language VHDL & VERILOG	Understand
C222.2	Develop the structure of combinational logic circuits, digital integrated circuit families design.	Apply
C222.3	Develop the structure of sequential logic circuits, digital integrated circuit families design.	Apply
C222.4	Analyze and design the basic Combinational MOS Logic Circuits.	Analyze
C222.5	Analyze and design the basic Sequential MOS Logic Circuits	Analyze
	Analog Communications (C223)	
C223.1	Demonstrate the basic concepts of Analog Communication Systems Using Amplitude Modulation	Understand
C223.2	Demonstrate the basic concepts of Analog Communication Systems Using DSB,SSB,VSB Modulation	Apply
C223.3	Demonstrate the basic concepts of Angle Modulation	Apply
C223.4	Illustrate the fundamental blocks of Transmitter & Receiver Section.	Understand
C223.5	Analyze the impact of noise in various analog communication systems & Demonstrate the basic concepts of Pulse Modulation Techniques.	Analyse
	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	To familiarize with the process of management, principles, leadership styles andbasic concepts on Organization.	UNDERSTAND
C225.2	To provide conceptual knowledge on functional management that is on Human resource management and Marketing management.	UNDERSTAND
C225.3	To provide basic insight into select contemporary management practices and Strategic Management.	UNDERSTAND
C225.4	To learn theories of motivationand also deals with individual behavior, their personality and perception of individuals.	REMEMBER
C225.5	To understand about organizations groups that affect the climate of anentire organizations which helps employees in stress management.	UNDERSTAND
	ECA Lab (C226)	
C226.1	The ability to analyze and design single and multistage amplifiers at low, mid and high frequencies.	Analyze
C226.2	Designing and analyzing the transistor at high frequencies.	Analyze
C226.3	Designing the Oscillators using transistors	Analyze
C226.4	Determine the efficiencies of power amplifiers.	Analyze
C226.5	Able to Analyze all the circuits using simulation software and Hardware.	Analyze
	AC LAB (C227)	
C227.1	Demonstrate the basic concepts of Analog Communication Systems Using Amplitude Modulation	Understand
C227.2	Demonstrate the basic concepts of Analog Communication Systems Using DSB,SSB,VSB Modulation	Apply
C227.3	Demonstrate the basic concepts of Angle Modulation	Apply
C227.4	Illustrate the fundamental blocks of Transmitter & Receiver Section.	Understand
C227.5	Analyze the impact of noise in various analog communication systems & Demonstrate the basic concepts of Pulse Modulation Techniques.	Analyse

	DICD LAB (C228)	
C228.1	Demonstrate the IEEE Standard 1076 Hardware Description Languages VHDL & VERILOG.	Apply
C228.2	Design and Modeling of Combinational Logic Circuits by using the available Digital Integrated Circuit Families	Create
C228.3	Design and Modeling of Sequential Logic Circuits by using the available Digital Integrated Circuit Families.	Create
C228.4	Analyze and design the basic Combinational MOS Logic Circuits.	Analyze
C228.5	Analyze and design the basic Combinational MOS Logic Circuits.	Analyze
	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
	C22A (COI)	
C22A.1	Understand historical background of the constitution making and its importance for building a democratic India	Understand
C22A.2	Understand the functioning of three wings of the government ie., executive, legislative and judiciary.	Understand
C22A.3	Understand the value of the fundamental rights and duties for becoming good citizen of India.	Understand
C22A.4	Analyze the decentralization of power between central, state and local self-government.	Analyze
C22A.5	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.	Apply

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Department of Electronics and Communication Engineering

COURSE OUTCOMES

A.Y: 2023-24 **Year: III/II (R20)**

	MPMC(321)	
C321.1	Understand 8086 microprocessor architecture and its functionalities and Illustrate Minimum and maximum mode operations for 8086 Microprocessor	Understand
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 functionalities. Demonstrate programming skills in ALP and interfacing techniques.	Understand
C321.5	Understand ARM architecture and different ARM processors. Programming techniques	Apply
	VLSI Design (C322)	
C322.1	Demonstrate the IC Fabrication process and Design layouts of CMOS circuits.	Apply
C322.2	Apply basic circuit concepts and scaling techniques on CMOS.	Apply
C322.3	Illustrate the basic building blocks of Analog IC design.	Apply
C322.4	Descibe various CMOS logic circuits for design of Combinational logic circuits.	Apply
C322.5	Illustrate with different families of FPGA design and synthesis techniques	Analyze
	Digital Signal Processing(C323)	
C323.1	Illustrate the concepts of the discrete time signals & systems, representation in frequency domain and the properties of LTI systems in terms of Z-transforms	Apply
C323.2	Compute and analyze signal spectra using DFT/FFT algorithms.	Analyze
C323.3	Estimate IIR filters to suit specific requirements for specific applications and basic structures of IIR Systems.	Evaluate
C323.4	Estimate FIR filters to suit specific requirements for specific applications and basic structures of FIR Systems.	Evaluate
C323.5	Discuss the architecture of a digital signal processor and some programming	Understand

	issues in floating-point digital signal processor.	10

	ES (C324)	
C324.1	Describe the differences between the general computing system and the embedded system	Remember
C324.2	Discuss the I/O types and examples, Serial Communication devices.	Understand
C324.3	Develop an application using embedded software design	Create
C324.4	Design real time embedded systems using the concepts of RTOS	Create
C324.5	Illustrate the Embedded Software Development Process	Create
	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	Understand 8086 microprocessor architecture and its functionalities and Illustrate Minimum and maximum mode operations for 8086 Microprocessor	Understand
C326.2	Demonstrate programming skills in assembly language for 8086.	Apply
C326.3	Analyze various interfacing techniques and apply them for the design of processor based system.	Analyze
C326.4	Understand the 8051 Microcontroller architectures and its functionalities. Demonstrate programming skills in ALP and interfacing techniques.	Understand
C326.5	Understand ARM architecture and different ARM processors. Programming techniques	Understand
	VLSI LAB (C327)	
C327.1	Develop Verilog /VHDL code Source Code Perform simulation using and analyze the obtained Simulation results using necessary synthesizer of 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
	RM (C32A)	
C32A.1	Explain objectives and characteristics of a research problem	Understand
C32A.2	Explain sources and scope of a research problem	Understand
C32A.3	Explain the concept of data collection	Understand
C32A.4	Explain the concept of research proposal	Understand
C32A.5	Discuss the research related information and to follow research ethics	Understand

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SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 CSE Year/Sem: II-I

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	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	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	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.	Apply
	Oops through C++ (C212)	
C212.1	List the key concepts of Object Oriented Programming and Identify the benefits of object oriented design.	**Remember**
C212.2	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**
C212.5	Design and implement a program to solve any given problem using STL Programming model	**Create**
	Operating Systems(C213)	
C213.1	Describe various generations of Operating System and functions of Operating System	**Understand**
C213.2	Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance. Solve Inter Process Communication problems using Mathematical Equations by various methods	**Apply**
C213.3	Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques	**Analyze**
C213.4	Demonstrate various page replacement algorithms and frame allocation concept. Implement Various Deadlock prevention and	**Apply**

	avoidance algorithms	
C213.5	Outline File Systems in Operating System like UNIX/Linux and Windows	**Analyze**
C213.6		
	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 Foundation of Computer ScienceC215)	
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
	(C216)	
C216.1	Define ,implement and compare 2D Output primitives	Analyze
C216.2	Describe the importance of viewing and projections in 3D	Understand
C216.3	Write various color models,3D Properties and OpenGL software	Understand
C216.4	Explain various shading models	Understand
C216.5	Describe Fractals and self similarity	Understand
C216.6	Explain Ray tracing methods and Design an application program with OPENGL	Create

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 CSE Year/Sem: III-I

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	Computer Networks(C311)	
C311.1	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**
C311.2	Discuss different transmission media and different switching networks.	**Understand**
C311.3	Analyze data link layer services, functions and protocols like HDLC and PPP.	**Analyze**
C311.4	Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD,CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols	**Analyze**
C311.5	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**
	Design and Analysis of Algorithms(C312)	
C312.1	List and describe various algorithmic approaches and Solve problems using divide and conquer &greedy Method	**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	**Understand**

III - I

Data Warehouse and Data Mining(C313)		
C313.1	Illustrate the importance of Data Warehousing, Data Mining and its functionalities and Design schema for real time data warehousing applications	**Understand**
C313.2	Demonstrate on various Data Preprocessing Techniques viz. data cleaning, data integration, data transformation and data reduction and Process raw data to make it suitable for various data mining algorithms	**Understand**
C313.3	Choose appropriate classification technique to perform classification, model building and evaluation	**Apply**
C313.4	Make use of association rule mining techniques viz. Apriori and FP Growth algorithms and analyze on frequent itemsets generation	**Analyze**
C313.5	Identify and apply various clustering algorithm (with open source tools), interpret, evaluate and report the result.	**Understand**
Renewable Energy Sources (C314)		
C314.1	Analyze solar radiation data, extraterritorial radiation, radiation on earth's surface and solar energy storage	Analyze
C314.2	Illustrate the components of wind energy systems	Evaluate
C314.3	Illustrate the working of biomass, digesters and Geothermal plants.	Evaluate
C314.4	Demonstrate the principle of Energy production from OTEC, Tidal and Waves.	Apply
C314.5	Evaluate the concept and working of Fuel cells & MHD power generation	Evaluate
Software Project Management(C315)		
C315.1	Apply the process to be followed in the software development life-cycle models	Apply
C315.2	Explain the concepts of project management & planning	Understand
C315.3	Implement the project plans through managing people, communications and change	Analyze
C315.4	Conduct activities necessary to successfully complete and close the Software projects	Analyze
C315.5	Implement communication, modeling, and construction & deployment practices in software development	Apply

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 CSE Year/Sem: IV-I

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	Cloud Computing(C411)	
C411.1	Illustrate the key dimensions of the challenge of Cloud Computing	**Analyze**
C411.2	Classify the Levels of Virtualization and mechanism of tools.	**Understand**
C411.3	Analyze Cloud infrastructure including Google Cloud and Amazon Cloud	**Analyze**
C411.4	Create Combinatorial Auctions for cloud resource and design scheduling algorithms for computing cloud	**Create**
C411.5	Assess control storage systems and cloud security, the risks involved its impact and develop cloud application	**Evaluate**
	Deep Learning Techniques (C412)	
C412.1	Demonstrate the fundamental concepts learning techniques of Artificial Intelligence, Machine Learning and Deep Learning.	**Understand**
C412.2	Discuss the Neural Network training, various random models	**Understand**
C412.3	Explain the Techniques of Keras, TensorFlow, Theano and CNTK	**Understand**
C412.4	Classify the Concepts of CNN and RNN	**Apply**
C412.5	Implement Interactive Applications of Deep Learning.	**Apply**
	BLOCK-CHAIN TECHNOLOGIES (C413)	
C413.1	Demonstrate the block chain basics, Crypto currency	**Understand**
C413.2	compare and contrast the use of different private vs. public block chain and use cases	**Apply**
C413.3	Design an innovative Bit coin Block chain and scripts, Block chain Science on varies coins	**Analysis**
C413.4	Classify Permission Block chain and use cases – Hyper ledger, Corda	**Analysis**
C413.5	Make Use of Block-chain in E-Governance, Land Registration, Medical Information Systems and others	**Analysis**
	Python Programming(C414)	
C414.1	Know the Categories and functions of various Data communication Networks.	**Analyze**

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C414.2	Design and analyze various error detection techniques.	**Analyze**
C414.3	Demonstrate the mechanism of routing the data in network layer.	**Understand**
C414.4	Know the significance of various Flow control and Congestion control Mechanisms.	**Analyze**
C414.5	Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and STMP ,DNS etc.	**Evaluate**
	Consumer ElectronicsC415)	
C415.1	Understand the various type of microphones and loud speakers	**Understand**
C415.2	To identify the various digital and analog signal.	**Understand**
C415.3	Describe the basis of television, composite video signal and differentiate various kind of color TV standards and system.	**Analyze**
C415.4	Compare the various types of digital TV system.	**Analyze**
C415.5	Understand the various type of consumer goods.	**Evaluate**
	Universal Human Values(C416)	
C416.1	Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence	**Understand**
C416.2	Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence	**Understand**
C416.3	Strengthening of self-reflection	**Understand**
C416.4	: Development of commitment and courage to act.	**Understand**
C416.5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	**Understand**

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 AIML Year/Sem: II-I

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	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	**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.	**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.	**Apply**
	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	Understand
C213.2	Apply the basic principles of AI in problem solving	Apply
C213.3	Choose the appropriate representation of Knowledge	Remembering

II-I AIML

C213.4	Enumerate the Perspectives and Issues in Machine Learning	Understand
C213.5	Identify issues in Decision Tree Learning	Remembering
	OOPS Through Java Programming (C214)	
C214.1	Able to realize the concept of Object Oriented Programming & Java Programming Constructs	**Remember**
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	**Apply**
C214.4	Able to design the applications of Java & Java applet	**Apply**
C214.5	Able to Analyze & Design the concept of Event Handling and Abstract Window Toolkit	**Create**
	Database Management SystemsC215)	
C215.1	Describe a relational database and object-oriented database.	Understand
C215.2	Construct, maintain and manipulate a relational database using SQL.	Create
C215.3	Describe ER model and normalization for database design.	Understand
C215.4	Examine issues in data storage and query processing and can formulate appropriate solutions.	Analyze
C215.5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage.	Remembering
	Introduction to Artificial Intelligence and Machine Learning Lab(C216)	
C216.1	Apply the basic principles of AI in problem solving using LISP/PROLOG	Apply
C216.2	Implement different algorithms in AI using LISP/PROLOG	Apply
C216.3	Develop an Expert System using JESS/PROLOG in AI	Create
C216.4	Apply the basic principles of ML in problem solving using LISP/PROLOG	Apply
C216.5	Implement different algorithms in ML using LISP/PROLOG	Analyze
C216.6	Develop an Expert System using JESS/PROLOG IN ML	Create

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 AIML Year/Sem: III-I

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	Compiler Design(C311)	
C311.1	Define the basic concepts of compiler and its phases, Recognize tokens.	**Remember**
C311.2	Classify the various Types of Grammars and parsers	**Understand**
C311.3	Translate and Interpret the Different types of Grammars	**Apply**
C311.4	Explain various storage organization methods and target code generation strategies	**Understand**
C311.5	select different code optimization techniques	**Evaluate**
	Operating Systems (C312)	
C312.1	Describe various generations of Operating System and functions of Operating System	**Understand**
C312.2	Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance. Solve Inter Process Communication problems using Mathematical Equations by various methods	**Apply**
C312.3	Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques	**Analyze**
C312.4	Demonstrate various page replacement algorithms and frame allocation concept. Implement Various Deadlock prevention and avoidance algorithms	**Apply**
C312.5	Outline File Systems in Operating System like UNIX/Linux and Windows	**Analyze**
	Machine Learning (C313)	
C313.1	Explain the fundamental usage of the concept Machine Learning	**Understand**

III-I AIML

	system	
C313.2	Demonstrate on various regression Technique	Apply
C313.3	Analyze the Ensemble Learning Methods	Analyze
C313.4	Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning	Analyze
C313.5	Discuss the Neural Network Models and Fundamentals concepts of Deep Learning	Understand
	Renewable Energy Source (C314)	
C314.1	Analyze solar radiation data, extraterritorial radiation, radiation on earth's surface and solar energy storage	Analyze
C314.2	Illustrate the components of wind energy systems	Evaluate
C314.3	Illustrate the working of biomass, digesters and Geothermal plants.	Evaluate
C314.4	Demonstrate the principle of Energy production from OTEC, Tidal and Waves.	Apply
C314.5	Evaluate the concept and working of Fuel cells & MHD power generation	Evaluate
	DevopsC315)	
C315.1	Enumerate the principles of continuous development and deployment, automation of configuration management, inter-team collaboration, and IT service agility.	UNDERSTANDING
C315.2	Describe DevOps & DevSecOps methodologies and their key concepts	APPLYING
C315.3	Illustrate the types of version control systems, continuous integration tools, continuous monitoring tools, and cloud models	APPLYING
C315.4	Set up complete private infrastructure using version control systems and CI/CD tools	APPLYING
C315.5	Acquire the knowledge of maturity model, Maturity Assessment	APPLYING

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COURSE OUTCOMES

A.Y:2023-24 AIML Year/Sem: IV-I

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	Cryptography and Network Security(C411)	
C411.1	Describe the Principles of Cryptography for Information Security	**Understand**
C411.2	Use Substitution and transposition transformations in Symmetric Encryption Algorithms.	**Apply**
C411.3	Use number theory knowledge in Asymmetric Encryption algorithms.	**Apply**
C411.4	Illustrate Hash Algorithms and digital signatures for online authentication.	**Understand**
C411.5	Describe various Network Security Protocols.	**Understand**
	Cloud Computing(C412)	
C412.1	Illustrate the key dimensions of the challenge of Cloud Computing	**Analyze**
C412.2	Classify the Levels of Virtualization and mechanism of tools.	**Understand**
C412.3	Analyze Cloud infrastructure including Google Cloud and Amazon Cloud	**Analyze**
C412.4	Create Combinatorial Auctions for cloud resource and design scheduling algorithms for computing cloud	**Create**
C412.5	Assess control storage systems and cloud security, the risks involved its impact and develop cloud application	**Evaluate**
	Object Oriented Analysis and Design (C413)	
C413.1	Analyze the nature of complex system and its solutions	**Remember**
C413.2	Illustrate & relate the conceptual model of the UML, identify & design the classes and relationships	**Understand**
C413.3	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	**Understand**
C413.4	Analyze & Design behavioral aspects of a Software System using Use Case, Interaction and Activity Diagrams	**Apply**
C413.5	Analyze & Apply techniques of State Chart Diagrams and Implementation Diagrams to model behavioral aspects and Runtime environment of s.s	**Understand**

IV-I AIML

	Data Communications (C414)	
C414.1	Know the Categories and functions of various Data communication Networks.	**Analyze**
C414.2	Design and analyze various error detection techniques.	**Analyze**
C414.3	Demonstrate the mechanism of routing the data in network layer.	**Understand**
C414.4	Know the significance of various Flow control and Congestion control Mechanisms.	**Analyze**
C414.5	Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and STMP ,DNS etc.	**Evaluate**
	Consumer ElectronicsC415)	
C415.1	Understand the various type of microphones and loud speakers	**Understand**
C415.2	To identify the various digital and analog signal.	**Understand**
C415.3	Describe the basis of television, composite video signal and differentiate various kind of color TV standards and system.	**Analyze**
C415.4	Compare the various types of digital TV system.	**Analyze**
C415.5	Understand the various type of consumer goods.	**Evaluate**
	Universal Human Values-2 (C416)	
C416.1	Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence	**Understand**
C416.2	Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence	**Understand**
C416.3	. Strengthening of self-reflection	**Understand**
C416.4	Development of commitment and courage to act.	**Understand**
C416.5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	**Understand**

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 **CSE** Year/Sem: II-II

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	P&S C221	
C221.1	Classify the concepts of data science and its importance	Understand
C221.2	Interpret the association of the characteristics and through correlation and regression tools	Apply
C221.3	Make use of the concepts of probability and their applications	Apply
C221.4	Infer the statistical inferential methods based on small and large sampling tests	Apply
C221.5	Analyze the components of a classical hypothesis test	Analyze
	Data Base Management System (C222)	
C222.1	Describe a relational database and object-oriented database.	Understand
C222.2	Implement, maintain and manipulate a relational database using SQL.	Apply
C222.3	Describe ER model and normalization for database design.	Understand
C222.4	Examine issues in data storage and query processing and can formulate appropriate solutions.	Analyze
C222.5	Demonstrate the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage.	Apply
	Formal Languages and Automata Theory (C223)	
C223.1	Design the DFA and NFA after understanding the core concepts in automata theory and formal languages.	Apply
C223.2	Analyze the equivalence of regular expression and Finite automata and different types of grammars	Analyze
C223.3	Demonstrate the concept of context free grammar and normal forms	Apply
C223.4	Design pushdown automata and the equivalent context free grammars	Apply
C223.5	Analyze Turing Machine computational model and concepts such as decidability and intractability.	Analyze
	Java Programming (C224)	
C224.1	Describe the concept of Object Oriented Programming & Java Programming Constructs	Understand
C224.2	Use the OOP's concepts such as classes, objects and overloading in solving real world problems.	Apply

C224.3	Apply the concept of Arrays and Implement a solution using Inheritance for a given problem.	**Apply**
C224.4	Implement packages and Exception handling concepts	**Apply**
C224.5	Implement Multiple Threads for concurrent programming.	**Apply**
	Managerial Economics and 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*	**Understand**
C225.4	*Analyze the financial statements.*	**Analyze**
C225.5	*Evaluate the investment proposal in projects*	**Evaluate**
	Data Base Management System 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**
	Java programming Lab (C228)	
C228.1	Evaluate default value of all primitive data type, Operations, Expressions, Control flow, Strings	**Evaluate**
C228.2	Determine Class, Objects, Methods, Inheritance, Exception, Runtime Polymorphism, User defined Exception handling mechanism	**Apply**
C228.3	Determine simple inheritance, multi-level inheritance, Exception handling mechanism	**Apply**
C228.4	Construct Threads, Event Handling, implement packages, developing applets	**Apply**
	R lab (C227)	
C227.1	Access online resources for R and import new function packages into the R workspace	**Evaluate**

C227.2	Import, review, manipulate and summarize data-sets in R	**Apply**
C227.3	Explore data-sets to create testable hypotheses and identify appropriate statistical tests	**Apply**
C227.4	Perform appropriate statistical tests using R	**Apply**
C227.5	Create and edit visualizations with R	**Apply**

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SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOMES

A.Y:2023-24 AIML Year/Sem: II-II

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	P&S (C221)	
C221.1	Classify the concepts of data science and its importance	Understand
C221.2	Interpret the association of the characteristics and through correlation and regression tools	Apply
C221.3	Make use of the concepts of probability and their applications	Apply
C221.4	Infer the statistical inferential methods based on small and large sampling tests	Apply
C221.5	Analyze the components of a classical hypothesis test	Analyze
	CO (C222)	
C222.1	Develop a detailed understanding of computer systems and representation of data in various formats.	Apply
C222.2	To have knowledge of different number systems and micro operations.	Remember
C222.3	Develop a detailed understanding of architecture and functionality of central processing Unit.	Apply
C222.4	To represent the I/O processors, modes and memory organization.	Understand
C222.5	Demonstrate the concept of parallel processing, pipelining and inter process communication.	Understand
	DWDM (C223)	
C223.1	Summarize the architecture of data warehouse	ANALYZE
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 over fitting	CREATE
C223.4	Compare Apriori and FP-growth association rule mining algorithms for frequent item set generation.	ANALYZE
C223.5	Apply suitable clustering algorithm for the given data set	APPLY
	FLAT (C224)	
C224.1	Design the DFA and NFA after understanding the core concepts in automata theory and formal languages.	Apply
C224.2	Analyze the equivalence of regular expression and Finite automata and different types of grammars	Analyze

C224.3	Demonstrate the concept of context free grammar and normal forms	Apply
C224.4	Design pushdown automata and the equivalent context free grammars	Apply
C224.5	Analyze Turing Machine computational model and concepts such as decidability and intractability.	Analyze
Managerial Economics and 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	Understand
C225.4	Analyze the financial statements.	Analyze
C225.5	Evaluate the investment proposal in projects	Evaluate
R lab (C226)		
C226.1	Access online resources for R and import new function packages into the R workspace	**Evaluate**
C226.2	Import, review, manipulate and summarize data-sets in R	**Apply**
C226.3	Explore data-sets to create testable hypotheses and identify appropriate statistical tests	**Apply**
C226.4	Perform appropriate statistical tests using R	**Apply**
C226.5	Create and edit visualizations with R	**Apply**
DM Lab (C228)		
C228.1	Apply preprocessing techniques on real world datasets	**APPLY**
C228.2	Apply apriori algorithm to generate frequent item sets	**APPLY**
	Apply Classification and clustering algorithms on different datasets	**APPLY**
C228.3	Build a classification model using Decision Tree algorithm on iris dataset	**APPLY**
C228.4	Apply Naïve Bayes Classification algorithm on any dataset	**APPLY**
WAD lab (C228)		
C228.1	Develop Single Page Applications	**CREATE**

C228.2	Develop Node.JS & React.JS Reusable Service	CREATE
C228.3	Store the data in MySQL	CREATE
C228.4	Get acquainted with the latest web application development trends in the IT industry	CREATE

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COURSE OUTCOMES

A.Y:2023-24 **CSE** Year/Sem: **III-II**

CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	ML (C321)	
C321.1	Describe the basic application of the machine learning system concept.	Understand
C321.2	Demonstrate on various regression techniques	Apply
C321.3	Differentiate the Ensemble Learning Methods	Analyze
C321.4	Distinguish the Clustering Techniques and Dimensionality Reduction Models in Machine Learning	Analyze
C321.5	Implement the MLPs (Multi-Layer Perceptron) Classifier with Keras and TensorFlow	Apply
	CD (C322)	
C322.1	Explain the Functions of Lexical and Syntax Analysis phases of compiler	**Understand**
C322.2	Execute various Top-Down and Bottom-Up parsers	**Apply**
C322.3	Examine different Syntax Directed Translations and different Intermediate code generation methods	**Analyze**
C322.4	Use different code optimization Techniques	**Apply**
C322.5	Explain various storage organization methods and target code generation strategies	**Understand**
	CNS (C323)	
C323.1	Describe the Principles of Cryptography for Information Security	**Understand**
C323.2	Use Substitution and transposition transformations in Symmetric Encryption Algorithms.	**Apply**
C323.3	Use number theory knowledge in Asymmetric Encryption algorithms.	**Apply**
C323.4	Illustrate Hash Algorithms and digital signatures for online authentication.	**Understand**
C323.5	Describe various Network Security Protocols.	**Understand**
	BDA (C324)	
C324.1	Describe big data challenges in different domains including social media, transportation, finance and medicine.	Understand
C324.2	Use various techniques for mining data stream	Apply
C324.3	Discuss Components of Hadoop Analysing the Data with Hadoop	Understand

C324.4	Identify the characteristics of datasets and compare the trivial data and big data for various applications	Understand
C324.5	Demonstrate the various search methods and visualization techniques	Apply
	IOT(C325)	
C325.1	Demonstration about basics of Internet of Things and its hardware and software components.	**Understand**
C325.2	Execution of IoT devices by using Interface I/O devices, sensors & communication modules.	**Apply**
C325.3	Relations of Remotely monitor data and control devices, and Implementation of device integration	**Analyze**
C325.4	Summarize the real time IOT based applications and Case studies	**Evaluate**
	ML LAB (C326)	
C326.1	Implement procedures for the machine learning algorithms	understand
C326.2	Design and Develop Python programs for various Learning algorithms	Analyze
C326.3	Apply appropriate data sets to the Machine Learning algorithms	Apply
C326.4	Develop Machine Learning algorithms to solve real world problems	Analyse
	CD LAB(C327)	
C327.1	Design simple lexical analyzers	**Understand**
C327.2	Determine predictive parsing table for a CFG	**Apply**
C327.3	Apply Lex and Yacc tools	**Create**
C327.4	Examine LR parser and generating SLR Parsing table	**Apply**
C327.5	Relate Intermediate code generation for subset C language	**Apply**
	CNS LAB (C328)	
C328.1	Apply the knowledge of symmetric cryptography to implement encryption and decryption using Ceaser Cipher, Substitution Cipher, Hill Cipher	**Evaluate**
C328.2	Demonstrate the different algorithms like DES, BlowFish, and Rijndael, encrypt the text "Hello world" using Blowfish Algorithm.	**Apply**
C328.3	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 LAB(CC329)	
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.	**Create**

C329.2	Utilize JavaScript for developing interactive HTML web pages and validate form data.	**Create**
C329.3	Build a basic web server using Node.js and also working with Node Package Manager (NPM).	**Apply**
C329.4	Build a web server using Express.js	**Apply**
C329.5	Make use of Typescript to optimize JavaScript code by using the concept of strict type checking.	**Apply**

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CO Number	Course Outcome(CO) Statement-At the end of the Course/Subject, the students will be able to	Blooms Taxonomy
	CN (C321)	
C321.1	Discuss different Network Models and Transmission Media	**Understand**
C321.2	Analyze Data Link Layer Services and Protocols like HDLC and PPP	**Analyze**
C321.3	Compare and Classify Medium Access Control Protocols and Channelization	**Analyze**
C321.4	Use the Routing Algorithms and Congestion Control Algorithms	**Analyze**
C321.5	Demonstrate Application Layer Services and Transport Layer Services.	**Apply**
	DL (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.	Apply
C322.3	Explain the Techniques of Keras, TensorFlow, Theano and CNTK	**Apply**
C322.4	Classify the Concepts of CNN and RNN	**Analyse**
C322.5	Implement Interactive Applications of Deep Learning	**Analyse**
	DAA (C323)	
C323.1	Analyze the performance of a given algorithm, denote its time complexity using the asymptotic notation.	**Apply**
C323.2	Implement various algorithmic approaches using divide and conquer, greedy Method	**Analyze**
C323.3	Correlating different algorithms with dynamic programming approaches.	**Analyze**
C323.4	Apply backtracking techniques to solve the problem.	**Apply**
C323.5	Explain NP- Completeness theory ,lower bound theory and String Matching.	**Understand**
	SPM (C324)	
C324.1	Apply the process to be followed in the software development life-cycle models and also learn different in software Economics	**Apply**

C324.2	Illustrate the basic concept of life cycle phases and focus on different indicators to improve the software quality.	**Analyze**
C324.3	Apply Model Based Software Architecture and place different mile stones to reduce the complexity of the project.	**Apply**
C324.4	Demonstrate the project plans through managing people, communications, change management and focus on scope	**Apply**
C324.5	Develop the software by using Agile model and learn the fundamental concepts in DevOps.	**Analyze**
	IOT(C325)	
C325.1	Demonstration about basics of Internet of Things and its hardware and software components.	**Understand**
C325.2	Execution of IoT devices by using Interface I/O devices, sensors & communication modules.	**Apply**
C325.3	Relations of Remotely monitor data and control devices, and Implementation of device integration	**Analyze**
C325.4	Summarize the real time IOT based applications and Case studies	**Evaluate**
	CN LaAB (C326)	
C326.1	Know how reliable data communication is achieved through data link layer.	**Evaluate**
C326.2	Suggest appropriate routing algorithm for the network.	**Apply**
C326.3	Provide internet connection to the system and its installation.	**Apply**
C326.4	Work on various network management tools	**Apply**
	AEC LAB(C327)	
C327.1	Develop and measure the time complexity of different algorithms using Divide and Conquer technique	**Evaluate**
C327.2	Develop and measure the time complexity of different algorithms using greedy technique	**Apply**
C327.3	Develop and measure the time complexity of different algorithms using dynamic programming technique	**Apply**
C327.4	Develop and measure the time complexity of different algorithms using backtracking technique	**Apply**
	DL LAB (C328)	
C328.1	Implement deep neural networks to solve real world problems	**Evaluate**
C328.2	Choose appropriate pre-trained model to solve real time problem	**Apply**
C328.3	Interpret the results of two different deep learning models	**Apply**

MEAN STACK LAB(CC329)		
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.	**Create**
C329.2	Utilize JavaScript for developing interactive HTML web pages and validate form data.	**Create**
C329.3	Build a basic web server using Node.js and also working with Node Package Manager (NPM).	**Apply**
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