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SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)
(Sponsored by Sri Vasavi Educational Society)
Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada
Pedatadepalli, **TADEPALLIGUDEM – 534 101,** W.G. Dist, (A.P.)

Department of Civil Engineering

PROGRAMME OUTCOMES (POs)

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of Mathematics, Science, Engineering Fundamentals and an Engineering specialization to the solution of complex Civil Engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex Civil Engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences and Engineering Sciences.

3. **Design/development of solutions:** Design solutions for complex civil engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern Engineering and IT tools including prediction and modeling to complex Civil Engineering activities with an understanding of the limitations.

6. **The Engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional Civil Engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex Civil Engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the Engineering and Management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Out Comes (PSO'S)

Engineering Graduates will be able to:

1. Apply the knowledge of basic sciences along with Engineering knowledge to exhibit the process involved in planning, analysis and design for Civil Engineering Problems

2. Conduct laboratory experiments / field investigations to tackle Civil Engineering problems with a significant perspective of economy, society and environment.

3. Create awareness on sustainable environment and societal concerns with ethical human values among the students.

Name of the Programme	Regulation	Link from the Website for Course outcomes
B.Tech in Civil Engineering	V20	http://srivasaviengg.ac.in/uploads/civil/V20%20B.TECH%20COURSE%20OUTCOMES.pdf
	V18	http://srivasaviengg.ac.in/uploads/civil/V18%20B%20TECH%20COURSE%20OUTCOMES.pdf
M.Tech in Structural Engineering	V21	http://srivasaviengg.ac.in/uploads/civil/V21%20M.TECH%20COURSE%20OUTCOMES.pdf
	V18	http://srivasaviengg.ac.in/uploads/civil/V18%20M.TECH%20COURSE%20OUTCOMES.pdf

COURSE OUTCOMES
B.Tech
V20

Semester	I SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20MAT01
Name of the Course	Linear Algebra and Differential Equations					
Branches	Common to All Branches					
Course Outcomes	CO1 Apply matrix technique to solve system of linear equationsK3 CO2 Find Eigen values and Eigen vectors K3 C03 Solve the ordinary differential equations of first order & first degreeK3 C04 Solve the linear Differential equations of higher order with constant coefficients K3 CO5 Apply Laplace Transformation to given function K3 CO6 Find maxima and minima of functions of two variablesK3					

Semester	I/II SEM	L	T	P	C	COURSE CODE
Regulation	V20	-	-	3	1.5	V20PHL01
Name of theCourse	ENGINEERING PHYSICS LAB					
Branches	Common to All Branches					
Course Outcomes	CO1Analyze the physical principle involved in the various Instruments also relate the principle to new application.K4 CO2Demonstrate the various experiments in the areas of optics, Mechanics and Electronics in all branches of engineering.K3 CO3Think innovatively and also apply the creative skills that areessential for engineering.K4					

Semester	II SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	**V20EET02**
Name of the Course	**Basic Electrical & Electronics Engineering**					
Branches	**Common to ME & CE**					
Course Outcomes	Understand and compute electrical quantities in DCexcited circuits K3					
	Understand and compute electrical quantities in AC excited circuitsK3					
	Study the working principles of DC machinesK2					
	Study the working principles of transformersK2					
	Understand construction details and explain the working principles of AC machinesK2					
	Understand the basic operation of uninterrupted powersuppliesK2					

Semester	II SEM	L	T	P	C	COURSE CODE
Regulation	V20	-	-	3	1.5	**V20EEL02**
Name of the Course	**Basic Electrical & Electronics Engineering Lab**					
Branches	**Common to CE & ME**					
Course Outcomes	Determine the load currents by applying various laws and theorems K3					
	Analyze the steady state performance of series circuits K3					
	Plot the speed control characteristics of DC shunt motor K3					
	Find the losses and efficiency of a transformer K3					
	Calculate the energy bill for Domestic loads K3					
	Plot characteristics of full wave rectifier K3					

Year/Sem	III Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	3	0	0	3	V20CET01
Name of the Course	**STRENGTH OF MATERIALS**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Understand the basic materials behavior under the influence of different externalloading conditions and the support conditions (K2) • Draw the diagrams indicating the variation of the key performance features like bending moment and shear forces (K3) • Understand bending concepts and calculation of section modulus and fordetermination of stresses developed in the beams and torsion (K3) • Understand the basic concepts of Principal stresses developed in a member when it issubjected to stresses along different axes and design the sections (K2) • Asses stresses in different engineering applications like columns and struts subjectedto different loading conditions (K3)					

Year/Sem	III Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	0	0	3	1.5	V20CEL01
Name of the Course	**STRENGTH OF MATERIALS LAB**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Identify the engineering properties of materials in the laboratory • Assess torsion test to determine elastic constants • Assess spring test to determine elastic constants • Assess flexural test to determine elastic constants • Determine hardness of metals • Determine Impact strength of metals					

Year/Sem	IV Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	3	0	0	3	V20CET05
Name of the Course	ENGINEERING GEOLOGY					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Relate the features of geological agents (K3) • Employ different techniques to identify different types of minerals and rocks (K3) • Interpret hazard zonaation with reference to secondary structures (K3) • Review earthquakes and landslides and their resulting subsidence (K3) • Examine the engineering geological conditions of the strata and its suitability to majorprojects like Dams, Tunnels and Reservoirs etc. (K3)					

Year/Sem	IV Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	0	0	3	1.5	V20CEL04
Name of the Course	ENGINEERING GEOLOGY LAB					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Understand the importance of geology in civil engineering • Identify the geological process of any region to carry civil engineering works • Evaluate the formation and properties of minerals, rocks and soil • Develop the ability to prepare geological maps and sections to interpret siteconditions					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET09
Name of the Course	STRUCTURAL ANALYSIS – II					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Compute the moments and reactions for two hinged and three hinged arches (K3) • Analyze the continuous beams using Moment distribution and Kani's methods (K4) • Assess the load distribution in different components of Suspension bridges (K3) • Analyze the structure for Lateral loads using different methods (K4) • Compute the moments and forces using matrix methods (K3)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	0	0	3	1.5	V20CEL07
Name of the Course	GEOTECHNICAL ENGINEERING LAB					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ index properties required for classification of soils (K3) • Find the permeability of different soils using different tests (K3) • Predict the compaction, consolidation and swelling characteristics of the soils (K3) • Compute the strength properties of soils (K3)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET17
Name of the Course	DESIGN OF STEEL STRUCURES					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Design the riveted, bolted and welded connection (K5) • Design the beams against deflection, shear, buckling, and bearing (K5) • Design of tension, compression and roof trusses for different loadingconditions (K5) • Design the compression members and column foundations (K5) • Design the plate girder and gantry girder (K5)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	0	0	3	1.5	V20CEL09
Name of the Course	ENVIRONMENTAL ENGINEERING LAB					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Illustrate the characteristics of water and waste water (K3) • Predict the portability of water (K3) • Examine the condition of water based on the tested parameters (K3) • Determine the dissolved oxygen, BOD and COD of water (K4)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET25
Name of theCourse	PRESTRESSED CONCRETE (Professional Elective – III)					
Branch	CIVIL ENGINEERING					
Course Outcomes	- Discuss the basic concepts of prestressing system (K2) - Analyze the effective prestress and bending stresses (K4) - Analyze the deflections and flexural strength of prestressed concrete beams(K4) - Analyze the prestressed concrete beams under Shear and torsion (K4) - Design the end zone of prestressed concrete members (K5)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CETJOC01
Name of theCourse	CSI SAP 2000					
Branch	CIVIL ENGINEERING					
Course Outcomes	- Analysis and design of determinate and indeterminate structures using SAP 2000 (K4) - Design the Multistoried building using SAP 2000 (K6) - Design of trusses with relevant loading conditions using SAP 2000 (K6) - Design of bridge components using SAP 2000 (K6) - Design of grid slab using SAP 2000 (K6)					

COURSE OUTCOMES

M.Tech
V21

Year/Sem	I Sem	L	T	P	C	COURSE CODE
Regulation/Year	V21 / 2021-2022	3 0	0		3	V21STET01
Name of the Course	THEORY OF ELASTICITY					
Course Outcomes:	• Relate the stress and deformation and how to determine the components of the stress and strain tensors (K3) • Apply the conditions of compatibility and equations of equilibrium (K3) • Employ the mechanical characteristics of materials, constitutive equations and generalized Hook law (K3) • Use the equilibrium equations stated by the displacements and compatibility conditions stated by stresses (K3) • Develop index notation of equations, tensor and matrix notation and define state of plane stress, state of plane strain (K3)					

Year/Sem	I Sem	L	T	P	C	COURSE CODE
Regulation	V21	0	0	4	2	V21SEL01
Name of the Course	ADVANCED CONCRETE TECHNOLOGY LABORATORY					
Course Outcomes	• Develop relation between Water / Cement Ratios Vs Workability, Water / Cement Ratios Vs Strength in concrete. • Develop strength and workability relation between fine aggregate, coarse aggregates. • Calculate Strain measurement in concrete. • Assess concrete properties by using Non destructive testing methods. • Find properties of Self compaction concrete by using L Box , J Box ,U box and Slump tests					

Year/Sem	II Sem	L	T	P	C	COURSE CODE
Regulation	V21	3	0	0	3	V21STET09
Name of the Course	**FINITE ELEMENT METHODS IN STRUCTURAL ENGINEERING**					
Course Outcomes	• Compute principle of potential energy of an elastic body (K3) • Calculate the stiffness matrices of truss element (K3) • Calculate the stiffness matrices of beam elements (K3) • Interpret displacements, strains and stress resultants (K3) • Formulate the shape functions for element (K3)					

Year/Sem	II Sem	L	T	P	C	COURSE CODE
Regulation	V21	0	0	4	2	V21SEL03
Name of the Course	**STRUCTURAL DESIGN LABORATORY**					
Course Outcomes	• Develop Computer Programs for Analysis and Design of variousStructural Elements • Use different Structural Engineering software's to solve various civil Engineering programs					

Year/Sem	III Sem	L	T	P	C	COURSE CODE
Regulation	V21	3	0	0	3	V21STET19
Name of the Course	STRUCTURAL HEALTH MONITORING					
Course Outcomes	□ Assess the structural health by investigation and regular maintenance (K3) □ Employ various measures for monitoring structural health (K3) □ Employ various Investigations for monitoring structural audit (K3) □ Discover the dynamic field testing (K3) □ Apply the knowledge of Repairing and rehabilitation of structures (K3)					

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Pedatadepalli, **TADEPALLIGUDEM–534 101.**W.G.Dist**. (A.P)**

Department of Electrical & Electronics Engineering (NBA Accredited)

Program Outcomes (POs)

Electrical and Electronics Engineering Graduates will be able to:

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and concepts of electrical engineering to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and electrical.

PO3: Design/development of solutions: Design solutions for complex Electrical Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern Electrical Engineering and IT tools including prediction and modelling to complex electrical engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the electrical engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex Electrical Engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the Electrical Engineering and management principles and apply these to ones own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1 : To contribute for the Development of green energy technologies to meet future energy demands.

PSO2 : To identify, formulate, design, investigate and operate various electrical systems.

Course Outcomes (Cos)

B. Tech	Link
Course Outcomes (V20 Regulation)	http://srivasaviengg.ac.in/uploads/eee/V20%20 Regulation%20Course%20Outcomes.pdf
Course Outcomes (V18 Regulation)	http://srivasaviengg.ac.in/uploads/eee/V18%20 Regulation%20Course%20Outcomes.pdf

M. Tech	Link
Course Outcomes (V21 Regulation)	http://srivasaviengg.ac.in/uploads/eee/Course%20 Outcomes_M.Tech_V21%20Regulation.pdf

B.Tech (V20 Regulation)

Name of the Course: Programming Lab in 'C' for problem Solving
Course Code: V20CSL01
Course Outcomes:

After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Demonstrate problem solving techniques using Control Structures	K3
CO2	Construct Programmes using the concepts of Arrays, Strings and Pointers	K3
CO3	Apply the concepts of Functions, Structures and Unions	K3
CO4	Use various file processing operations to develop real-time applications	K4

Name of the Course: Electrical Circuit Analysis-I

Course Code: V20EET03

Course Outcomes:

After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Apply various network reduction techniques for solving electrical DC circuits.	K3
CO2	Calculate different parameters of single phase alternating quantities.	K3
CO3	Understand the concepts of different powers and apply network reduction techniques for solving electrical AC circuits.	K3
CO4	Determine various parameters in series and parallel resonant circuits.	K3
CO5	Apply the network theorems for solving electrical DC and AC circuits.	K3
CO6	Compute electrical parameters for 3-phase balanced systems	K3

Name of the Course: Electrical Circuit Analysis –II

Course Code: V20EET04

Course Outcomes:

After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Determine electrical parameters for 3-phase unbalanced systems	K3
CO2	Apply the network theorems for solving electrical circuits.	K3
CO3	Analyze circuit parameters under transient conditions	K3
CO4	Calculate two-port network parameters for any type of electrical networks	K3
CO5	Understand the concept of filters	K2

IV Semester

Name of the Course: Signals and Systems

Course Code: V20EET07

Course Outcomes

After Successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Understand and estimate various types of signals and systems.	K2
CO2	Understand the basic principles of Sampling Theorem.	K2
CO3	Understand the characteristics of LTI Systems	K2
CO4	Understand the concepts of Cross-Correlation and Auto-Correlation of Functions	K2
CO5	Apply the concept of ROC for Laplace Transform and Z transform, Inverse Z transforms.	K3

V Semester

Name of the Course: Switchgear & Protection

Course Code: V20EET12

Course Outcomes

After Successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Understand the arc interruption phenomenon in oil, air, vacuum, SF6 gas type circuit breakers.	(K2)
CO2	Extract the constructional features and working of different types of electromagnetic relays.	(K2)
CO3	Choose suitable relay for different type of protective schemes.	(K3)
CO4	Apply suitable protective scheme for generators and transformers against different faults.	(K3)
CO5	Choose suitable protective scheme for the protection of feeders & bus bars, digital relays and the concept of grounding.	(K3)

Name of the Course: Power System Analysis
Course Code: V20EET18
Course Outcomes

After Successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Compute Y_{BUS} matrix for a power system network.	(K3)
CO2	Find the load flow solution of a power system network using load flow methods.	(K3)
CO3	Develop the Z_{BUS} for a power system network and calculate the fault currents for symmetrical faults.	(K3)
CO4	Compute the sequence components of currents for unbalanced power system network.	(K3)
CO5	Understand the concepts of power system stability.	(K2)

VII Semester

Name of the Course: Extra High Voltage AC Transmission (Professional Elective –III)

Course Code: V20EET25

Course Outcomes:
After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Calculate the parameters of EHV line modeling.	(K3)
CO2	Find electric field and interference characteristics of EHVAC system.	(K3)
CO3	Understand the corona loss formulation and radio interference to 3-φ Induction machines.	(K2)
CO4	Understand the Lightning phenomenon and methods of Lightning Protection	(K2)
CO5	Understand the over-voltage phenomenon and methods to limit over-voltage EHVAC systems.	(K2)

B. Tech (V18 Regulation)

NAME OF THE COURSE: ENGINEERING CHEMISTRY

COURSE CODE   : V18CHT01

Course Outcomes:
At the end of the course, the student should be able to:
CO1: Apply different plastics and rubbers for various engineering applications.
CO2: Assess the quality of fuels and apply the knowledge of fuels for the preservation of natural fuels.
CO3: Understand relevant concepts of Electro Chemistry to apply them in designing electrochemical energy systems.
CO4: Analyze boiler troubles arising due to poor water quality and suggest suitable water treatment methods for different industrial applications.
CO5: Analyze the causes for practical corrosion problems and apply corrosion principles for protection of metallic structures from corrosion.
CO6: Identify the important applications of advanced engineering materials.

II SEMESTER

NAME OF THE COURSE: ENGLISH-II

COURSE CODE   : V18ENT02

Course Outcomes

CO-1: Understand the real import of education and work of noble men, use nouns, verbs and adjectives appropriately, identify and correct common errors in usage and write of icial letters.

CO-2: Derive inspiration from real life samples, interpret and speak on them, use synonyms and antonyms of words properly and do E-correspondence with required netiquette.

CO-3: Assimilate and adjust to new cultural environments, write on life-sketches, make the right use of tense and aspect and concord in sentences and plan and develop speech-writing.

CO-4: Imbibe ideas from the lives and works of successful men, use adverbs, develop view-points and topics and write different types of essays.

CO-5: Emulate personality-development inputs, elaborate on inspiring scientists use one-word substitutes, develop précis writing and write for the media.

CO-6: Learn from the paradigm of great contributors, use collocations and write professional and technical reports in standard formats.

III-SEMESTER

NAME OF THE COURSE: ELECTRICAL CIRCUIT ANALYSIS-I

COURSE CODE   : V18EET03

Course Outcomes

After successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
C201.1	Apply various network reduction techniques for solving electrical circuits.	K3
C201.2	Apply the principles of magnetism for solving different kind of magnetic circuits with and without dot conventions.	K3
C201.3	Calculate different parameters of single phase alternating quantities.	K3
C201.4	Determine various parameters in series and parallel resonant circuits.	K3
C201.5	Apply the network theorems for solving electrical circuits.	K3
C201.6	Calculate two-port network parameters for any type of electrical networks	K3

IV-SEMESTER

NAME OF THE COURSE: ELECTRICAL CIRCUIT ANALYSIS-II

COURSE CODE   : V18EET07

Course Outcomes

After successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
C210.1	Compute electrical parameters for 3-phase balanced systems	K3
C210.2	Determine electrical parameters for 3-phase unbalanced systems	K3
C210.3	Analyse circuit parameters under transient conditions	K3
C210.4	Apply Foster and Cauer methods for Network Synthesis	K3
C210.5	Apply Fourier Series and Transforms for analysing electrical circuits	K3
C210.6		K3

V-SEMESTER

NAME OF THE COUSE: SWITCH GEAR & PROTECTION

COURSE CODE   : V18EET12

Course Outcomes

After Successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
C301.1	Understand the arc interruption phenomenon in circuit breakers of oil, air, vacuum, SF6 gas type.	(K2)
C301.2	Extract the constructional features and working of different types of electromagnetic relays	(K2)
C301.3	Use suitable relay for different types of protection	(K3)
C301.4	Relate protective schemes of generators and transformers against different faults	(K3)
C301.5	Apply suitable protective scheme for the protection of feeders & bus bars	(K3)
C301.6	Illustrate the operation of static & digital relays and the concept of grounding	(K2)

VI-SEMESTER

NAME OF THE COURSE: ELECTRICAL DRIVES

COURSE CODE   : V18EET17

Course Outcomes

After Successful completion of this course, students will be able to

CO No.	Course Outcome	Knowledge Level
C311.1	Understand the fundamentals concept about an electric drive and different electric braking methods	(K2)
C311.2	Operate Chopper fed DC motor drives in various quadrants	(K4)
C311.3	Understand the closed loop operation of chopper fed dc motor drives	(K2)
C311.4	Compute the change in speed of three phase induction motor using solid state converters	(K3)
C311.5	Illustrate the speed control of induction motor using scalar control methods	(K3)
C311.6	Analyze the speed control of induction motor using rotor resistance control and various slip power recovery schemes	(K4)

VII-SEMESTER

NAME OF THE COURSE: POWER SYSTEM OPERATION & CONTROL

COURSE CODE : V18EET26

Course Outcomes:
After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Analyze the optimal scheduling of power generating thermal units	K4
CO2	Compute optimal hydro and thermal scheduling.	K3
CO3	Predict the optimal unit commitment problem	K3
CO4	Calculate the transfer function of single area and two area load frequency control.	K4
CO5	Evaluate the steady state response of single area load control with PI controller.	K5
CO6	Assess the reactive power control and compensation of transmission lines.	K3

VIII-SEMESTER

NAME OF THE COURSE: ELECTRICAL DISTRIBUTION SYSTEMS

COURSE CODE : V18EET36

Course Outcomes:

After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Understand various factors of distribution system	K2
CO2	Construct the distribution substation and feeders	K3
CO3	Calculate the voltage drop and power loss calculations on Distribution System	K3
CO4	Understand the distribution system protection and its coordination.	K2
CO5	Understand the effect of compensation for power factor improvement.	K2
CO6	Understand the effect of voltage control on distribution system.	K2

Course Outcomes

Semester	I SEM	L	T	P	C	COURSE CODE
Regulation	V21	3	0	0	3	V21PET01
Name of the Course	Analysis of Power Electronic Converters					
Specialization	Power Electronics & Power systems					

Course Outcomes:
After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Explain the Static and Dynamic Characteristics of power switching devices.	K2
CO2	Analyze the parameters of AC-DC converters	K4
CO3	Explain the operation of power factor correction converters	K2
CO4	Analyze the operation of three phase inverters with PWM control.	K4
CO5	Understand the principles of operation of multi- level inverters and their applications	K2

Semester	II SEM	L	T	P	C	COURSE CODE
Regulation	V21	3	0	0	3	V21PET09
Name of the Course	Switched Mode Power Conversion					
Specialization	Power Electronics & Power systems					

Course Outcomes:
After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Explain operation and control of non-isolated switch mode converters.	K2
CO2	Describe operation and control of isolated switch mode converters.	K2
CO3	Understand the operation and control of resonant converters	K2
CO4	Compute control strategies of switching converters	K3
CO5	Explain the operation of switch mode converters based on linearization and small-signal analysis.	K3

Semester	III SEM	L	T	P	C	COURSE CODE
Regulation	V21	3	0	0	3	V21PET17
Name of the Course	Hybrid Electric Vehicles (Elective–V)					
Specialization	Power Electronics & Power systems					

Course Outcomes:

After successful completion of this course, the students will be able to

CO No.	Course Outcome	Knowledge Level
CO1	Explain various configurations and basics of HEVs	K2
CO2	Distinguish the concepts and components of various hybrid technologies	K2
CO3	Review the architectures, range extension mechanisms and grid support of PHEVs	K2
CO4	Discuss the PE converters for battery charging and speed control of HEVs	K2
CO5	Illustrate various Energy Storage Technologies	K2

Head of the Department

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(Permanently affiliated to JNTUK, Kakinada, Accredited by NBA and NAAC with 'A' Grade)
Pedatadepalli, **TADEPALLIGUDEM–534 101.**W.G.Dist**. (A.P)**
Department of Mechanical Engineering

Program Outcomes (POs)

Mechanical Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and concepts of mechanical engineering to solve the complex engineering problems.

2. Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using mathematics, natural sciences and mechanical engineering principles.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques and resources including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for the sustainable development

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

10. Communication:: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

The Mechanical Engineering Graduates will be able to:

PSO1 : Apply thermal, fluid and design concepts/principles in mechanical engineering applications.

PSO2 : Apply the concepts of process planning and cost estimation in the manufacture of different products.

Course Outcomes (Cos)

UG

B.Tech V20 Regulation	http://srivasaviengg.ac.in/uploads/syllabus/V20_Course_Structure&Syllabus.pdf
B.Tech V18 Regulation	http://srivasaviengg.ac.in/uploads/syllabus/V18_Course_Structure&Syllabus.pdf

PG

M. Tech V21 Regulation	http://srivasaviengg.ac.in/uploads/V21_M.Tech._TE_Course_Structure&Syllabus.pdf
M. Tech V18 Regulation	http://srivasaviengg.ac.in/uploads/M.Tech.Machine%20Design_Course%20structure&Syllabi_V18.pdf

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SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)

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Pedatadepalli, **TADEPALLIGUDEM – 534 101.**W.G.Dist**. (A.P)**

Department of Electronics and Communication Engineering

Program Outcomes:

Electronics & Communication Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and concepts of Electronics & Communication engineering to solve the complex engineering problems.[K3]

2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using mathematics, natural sciences, and electronics and communication engineering principles. [K4]

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.[K5]

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. [K5]

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and Electronic Design Automation tools including prediction and modeling to complex engineering activities with an understanding of the limitations. [K3]

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. [K3]

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for the sustainable development. [K3]

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. [K3]

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings. [K6]

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and

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Department of Electronics and Communication Engineering

write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [K2]

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [K6]

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.[K1] .

Program Specific Outcomes:

A graduate of the Electronics and Communication Engineering Program will be able to:

PSO 1: use modern tools to design subsystems for simple applications in Embedded Systems and VLSI. [K3]

PSO 2: apply engineering concepts to find solutions in the fields of Communications, Signal/ Image Processing. [K3]

Name of the Program	Regulation	Link form the website for Course Outcomes
B. Tech in ECE	V20	http://srivasaviengg.ac.in/uploads/ece/Course%20Outcomes%20-V20%20Regulation.pdf
	V18	http://srivasaviengg.ac.in/uploads/ece/Course%20Outcomes%20-V18%20Regulation.pdf
M. Tech in Embedded System & VLSI	V21	http://srivasaviengg.ac.in/uploads/ece/M.%20Tech%20Course%20Outcomes%20-V21%20Regulation.pdf
M. Tech in VLSI & Embedded System	V18	http://srivasaviengg.ac.in/uploads/ece/M.%20Tech%20Course%20Outcomes%20-V18%20Regulation.pdf

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Pedatadepalli, **TADEPALLIGUDEM – 534 101.**W.G.Dist**. (A.P)**

Department of Electronics and Communication Engineering

B. Tech (V20)

1st semester V20

Subject: Linear Algebra and Differential Equations (V20MAT01)

Course Outcomes:

CO1: Apply matrix technique to solve system of linear equations (K3)

CO2: Find Eigen values and Eigen vectors (K3)

CO3: Solve the ordinary differential equations of first order & first degree (K3)

CO4: Solve the linear differential equations of higher order with constant coefficients (K3)

CO5: Find maxima and minima of functions of two variables (K3)

2nd semester V20

Subject: Switching Theory and Logic Design (V20ECT01)

Course Outcomes:

CO1: Explain the different types of number Systems, number conversions, codes and logic Gates. **(K2)**

CO2: Apply the concepts of Boolean algebra and use the knowledge of K-maps and tabular method for minimization of Boolean expressions. **(K3)**

CO3: Construct the higher order modules from their lower order structures of various combinational logic circuits. **(K3)**

CO4: Explain the concept of various flip flops **(K2)**

CO5: Develop various sequential circuits like registers, counters and various Finite State Machine Models **(K3)**

3rd semester V20

Subject: SIGNALS AND SYSTEMS (V20ECT05)

Course Outcomes:

CO1: Classify the signals and various operations on signals. **[K2]**

CO2: Determine the response of LTI system to any arbitrary input signal using convolution. **[K2]**

CO3: Analyze the spectral characteristics of signals using Fourier series and Fourier transforms. **[K3]**

CO4: Apply the various sampling techniques on continuous time signals. **[K3]**

CO5: ApplytheconceptsofLaplacetransform/Z-transformtoanalyzecontinuous-time/discrete-timesignalsincomplexplane. **[K3]**

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Department of Electronics and Communication Engineering

4th semester V20

Subject: Electromagnetic Waves &Transmission lines (V20ECT09)

Course outcomes:

CO1: Find static electric field intensity by using various laws of electrostatics. **[K3]**

CO2: Find static magnetic field intensity by using various laws of magneto statics and develop the Maxwell's equations for time varying fields. **[K3**]

CO3: Calculate the Propagation Characteristics of the EM Waves in different mediums and find Brewster angle, critical angle and total internal reflection. **[K3**]

CO4: Compute Primary and Secondary constants for a given transmission line. **[K3]**

CO5: Calculate reflection coefficient, VSWR etc. using smith chart. **[K3]**

5th Semester V20
VLSI DESIGN (V20ECT10)

Course Outcomes:

CO-1: Understand different IC technologies. **(K2)**

CO-2: Explain basic electrical properties of MOS, CMOS and Bi-CMOS Circuits. **(K2)**

CO-3: Develop layouts for MOS & Bi-CMOS circuits using design rules. **(K3)**

CO-4: Compute the parameters of MOS circuits and assess the effects of scaling. **(K3)**

CO-5: Design Combinational circuits and Subsystems. **(K4)**

6th Semester V20
IoT USE CASE'S (V20ECT17)

Course Outcomes:

CO1: Describe M2M and IOT Technologies. **[K2]**

CO2: Explain the layers and protocols in IOT. **[K2]**

CO3: Describe various communication technologies used in IOT. **[K2]**

CO4: Illustrate various hardware components required for IOT applications. **[K2]**

CO5: Discuss the cloud technologies and their services & explain the IoT Applications. **[K2]**

7th Semester V20
Subject: Digital ImageProcessing (V20ECT20)

Course Outcomes:

CO1. Explain image fundamNental and the different image Transforms Techniques **(K2)**

CO2. Describe Spatial and frequency domain filtering like smoothing and sharpening Operationson Images **(K2)**

CO3. Describe Restoration operations/techniques on Images **(K3)**

CO4. Describe the Image compression Techniques and Image segmentation **(K3)**

CO5. Explain the different color models and color image processing techniques **(K2)**

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Department of Electronics and Communication Engineering

M. Tech (V21)- Specialization : Embedded Systems & VLSI

1st Semester V21
Subject: SYSTEM DESIGN THROUGH VERILOG (V21ESVT01)

Course outcomes:

CO1: Outline basic concepts of RTL code for digital circuits [K2]
CO2: Model RTL codes for digital circuit at gate and data flow level [K3
CO3: Model RTL codes for digital circuit at behavioral level [K3]
CO4: Model RTL codes for digital circuit at switch level modeling and outline the concepts of task, function and complier directives [K3]
CO5: Analyze Synthesize of Combinational and Sequential Circuits [K4]

LAB: System Design through Verilog Lab (V21ESVL01)
Course outcomes:
CO1: Develop the simulation of combinational and sequential circuits using HDL Language.[K3]
CO2: Develop the synthesis of combinational and sequential circuits using HDL Language.[K3]
CO3: Analyze the implemented of digital logics with hardware module kit FPGA [K4]

2nd Semester V21
Subject: Analog and Digital CMOS VLSI Design (V21ESVT09)
Course Outcome:
CO1: Describe the concept of MOS structure and physical design of CMOS (K2)
CO2: Design the CMOS Inverters and various CMOS combinational logic circuits (K4)
CO3: Design the CMOS different Sequential logic circuits (K4)
CO4: Describe the concept of modeling of MOS and Analog CMOS Sub-Circuits (K2)
CO5: Describe the CMOS Op-Amps & it's Applications. (K2)

LAB: Analog and Digital CMOS VLSI Design Lab (V21ESVL03)
Course Outcomes:
CO1 -Analyse the Characteristics of MOS Device (K3)
CO2 -Analyse the basic MOS Amplifiers and current mirrors (K3)
CO3 -Design the various MOS Amplifiers. (K4)
CO4 -Demonstrate various CMOS combinational Digital circuits (K2)
CO5- Demonstrate various CMOS Sequential Digital circuits (K2)

Project:
Course outcomes
CO1: Demonstrate good verbal presentation and technical report writing skills. (K2)
CO2: Conceptualize, design and implement solutions for specific problems.(K3)
CO3: Apply engineering and management principals while executing the project. (K3)
CO4: Identify and solve complex engineering problems using professionally prescribed standards. (K3)

Programme Outcomes (POs)

Computer Science Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of Mathematics, Science, Engineering Fundamentals and Concepts of Computer Science Engineering to the solution of complex Engineering problems. **[K3]**

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences and Computer Science. **[K4]**

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations. **[K5]**

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **[K5]**

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations**. [K3]**

6. **The Engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice. **[K3]**

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **[K3]**

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice. **[K3]**

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **[K6]**

10. **Communication**: Communicate effectively on complex Engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **[K2]**

11. **Project management and finance**: Demonstrate knowledge and understanding of the Engineering and Management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **[K6]**

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **[K1]**

Programme Specific Outcomes (PSOs)

A graduate of the Computer Science and Engineering Program will be able to:

PSO 1: Use Mathematical Abstractions and Algorithmic Design along with Open Source Programming tools to solve complexities involved in Programming. **[K3]**

PSO 2: Use Professional engineering practices and strategies for development and maintenance of Software. **[K3]**

Name of the Program	Regulation	Link form the website for Course Outcomes
B. Tech in CSE &CST	V20	http://www.srivasaviengg.ac.in/uploads/cse_extra_activities/Course%20Outcomes%20-V20%20Regulation.pdf
	V18	http://www.srivasaviengg.ac.in/uploads/cse_extra_activities/Course%20Outcomes%20-V18%20Regulation.pdf
M.Tech in CS	V21	http://www.srivasaviengg.ac.in/uploads/cse_extra_activities/PG%20Course%20Outcomes%20-V21%20Regulation.pdf
M.Tech in CSE	V18	http://www.srivasaviengg.ac.in/uploads/cse_extra_activities/PG%20Course%20Outcomes%20-V18%20Regulation.pdf

SRI VASAVI ENGINEERING COLLEGE (Autonomous)

PEDATADEPALLI, TADEPALLIGUDEM-534 101, W.G.Dist.
Department of Computer Science & Engineering (Accredited by NBA)
and
Department of Computer Science & Technology

Sample Course Outcomes B.Tech(CSE) & B.Tech(CST)-V20 Regulation

Semester	Course Code & Name	Course Outcomes
I Semester	V20MAT01 **Linear Algebra and Differential Equations**	**After Successful completion of the Course, the student will be able to:** 1. Apply matrix technique to solve system of linear equations 2. Find Eigen values and Eigen vectors 3. Solve the ordinary differential equations of first order & first degree 4. Solve the linear differential equations of higher order with constant coefficients. 5. Find maxima and minima of functions of two variables.
II Semester	V20PHT01 **Engineering Physics**	**After Successful completion of the Course, the student will be able to:** 1. Associate the basic principles of structure of materials, crystallography and X-raydiffraction. 2. Prepare the students to the basic concepts of Lasers and their applications in opticalfiber communication link 3. Indicate the applications of sound waves in various fields 4. Interpret wave and particle behavior of matter and relate it to electron theory ofmetals 5. Examine the advanced concepts of engineering materials like Semiconductors,Superconductors and Dielectrics
III Sem	V20CST03 **OOPs Through C++**	**After Successful completion of the Course, the student will be able to:** 1. Differentiate Procedural Oriented Programming and Object-Oriented Programming. 2. Develop programs using Classes and Objects. 3. Demonstrate Constructors, destructors & Operator-Overloading. 4. Construct Classes using inheritance and Exceptions. 5. Demonstrate Files and Generic Programming.
III Sem	V20CSL03 **OOPs Through C++Lab**	**After Successful completion of the Course, the student will be able to:** **1.** Develop Programs on Classes and Objects**.** 2. Demonstrate Constructors, Destructors and Operator-Overloading, Inheritance andPolymorphism. 3. Develop programs to handle Exceptions & Files. **4.** Demonstrate Generic Programming**.**
IV Semester	V20CST06 **Design and Analysis of Algorithms**	**After Successful completion of the Course, the student will be able to:** 1. Demonstrate asymptotic notation and divide and conquer technique. 2. Use greedy technique to solve various problems. 3. Demonstrate dynamic programming technique to various problems. 4. Develop algorithms using backtracking technique. 5. Demonstrate branch and bound technique to various problems.
IV Semester	V20CSL06 **Statistical Visualization using R Lab**	**After Successful completion of the Course, the student will be able to:** 1. Employ math and simulation in R. 2. Demonstrate various types of data structures in R. 3. Apply appropriate control structures to solve a particular Programming problem. 4. Use R to graphically visualize data and results of statistical calculations.

V Semester	**V20CST10** **Operating Systems**	**After Successful completion of the Course, the student will be able to:** 1. Describe Operating System Services and System Calls 2. Illustrate Process Management Concepts and CPU Scheduling Algorithms 3. Demonstrate Process Synchronization primitives and Process Deadlocks 4. Illustrate Memory Management Techniques and Page Replacement Algorithms 5. Describe File System Concepts and Mass Storage Structures
V Semester	**V20CSL09** **Data Mining Lab**	**After Successful completion of the Course, the student will be able to:** 1. Demonstrate Data Pre-processing techniques 2. Demonstrate Association Rule Mining techniques. 3. Demonstrate Classification techniques. **4.** Demonstrate the Clustering techniques.
VI Semester	**V20CST13** **Computer Networks**	**After Successful completion of the Course, the student will be able to:** 1. Discuss fundamentals of network concepts and Reference Models 2. Discuss Communication media and switching techniques 3. Demonstrate Error control and Data link layer protocols 4. Apply Routing algorithms and congestion control algorithms 5. Discuss Transport layer protocols and Application layer protocols
VI Semester	V20CSL12 **Machine Learning using Python Lab**	**After Successful completion of the Course, the student will be able to:** 1. Identify various Python libraries used in Machine Learning 2. Implement probabilistic classifiers using Python Programming 3. Construct non-probabilistic classifiers using Python Programming 4. Demonstrate the process of clustering using the K-Means algorithm 5. Illustrate the working of a Multi-layer perceptron network
VII Semester	V20CSTPE12 **Human Computer Interaction(Elective-III)**	**After Successful completion of the Course, the student will be able to:** 1. Describe the principles and characteristics of GUI. 2. Describe how a computer system may be modified to include human diversity. 3. Select an effective style and screen design for a specific business application. 4. Discuss System Menus & Navigation Schemes**.** 5. Select Device and Screen based controls.

Sample Course Outcomes M.Tech(CS) -V21 Regulation

Semester	Course Code & Name	Course Outcomes
I Semester	V21CTT01 **Mathematical Foundations of Computer Science**	**After Successful completion of the Course, the student will be able to:** 1. Demonstrate skills in solving mathematical problems, mathematical principles and logic. 2. Demonstrate the basic concepts associated with set theory, relations, functions and their applications. 3. Illustrate algebraic structures and concepts associated with Number Theory and their applications in Computer Science. 4. Manipulate and consider data numerically by using combinatorics. 5. Solve recurrence relations using various methods apply techniques of graphs for real-time problems.
I Semester	V21CTL04 **Advanced Computer Networks Lab**	**After Successful completion of the Course, the student will be able to:** 1. Demonstrate various routing protocols. 2. Develop sub netting and addressing IP. 3. Develop emerging trends and security issues in computer Networks.
II Semester	V21CTT09 **Web Technologies**	**After Successful completion of the Course, the student will be able to:** 1. Demonstrate the basics of JavaScript. 2. Illustrate the concepts of XML and AJAX. 3. Produce Dynamic web pages with PHP and My SQL. 4. Use PERL to retrieve documents from the web. 5. Describe the fundamentals of RUBY Programming.
II Semester	V21CTL06 **Advanced Web Technologies Lab**	**After Successful completion of the Course, the student will be able to:** 1. Develop static web pages using HTML, CSS. 2. Demonstrate the concepts of JavaScript and DHTML. 3. Demonstrate the basic concepts of PHP and JSP. 4. Demonstrate the concepts of Extensible markup language & AJAX. 5. Develop dynamic Web Applications using PHP & My SQL.
III Sem	V21CTT18 **Mobile Applications and Development (Elective-V)**	**After Successful completion of the Course, the student will be able to:** 1. Describe Installation and configuration of Android application development tools. 2. Develop applications using services and publishing android applications. 3. Demonstrate Android software development tools. 4. Illustrate debugging programs running on mobile devices. 5. Develop Android applications using server-less database like SQLite.
Audit Course 1 &2	V21PGENT51 **Pedagogy Studies**	**After Successful completion of the Course, the student will be able to:** 1. Identify various theories of learning and recognize Research questions with an overview of methodology. 2. Review Pedagogical practices used by teacher in both formal and informal class room and design Curriculum. 3. Examine how teacher education and the school curriculum support effective pedagogy along with various pedagogical approaches and theories. 4. Show peer support for professional development and support from head teacher to develop curriculum and assessment. Find out the barriers involved in learning. 5. Find out the gaps and give directions for research design as per context.

CSE (Artificial Intelligence) Department

Programme Outcomes (POs):

CSE (Artificial Intelligence) Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of Mathematics, Science, Engineering Fundamentals and Concepts of CSE (Artificial Intelligence) Engineering to the solution of complex Engineering problems. [K3]

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences, CSE (Artificial Intelligence). [K4]

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations. [K5]

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. [K5]

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations. [K3]

6. The Engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice. [K3]

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. [K3]

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice. [K3]

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.[K6]

10. Communication: Communicate effectively on complex Engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [K2]

11. Project management and finance: Demonstrate knowledge and understanding of the Engineering and Management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [K6]

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. [K1]

Programme Specific Outcomes (PSOs):

A graduate of the CSE(Artificial Intelligence) Programme will be able to:

PSO1: Use Mathematical Abstractions and Algorithmic Design along with Open Source Programming tools to solve complexities involved in Programming. [K3]

PSO2: Use Professional Engineering practices and strategies for development and maintenance of software. [K3]

Name of the Program	Regulation	Link from the website for Course Outcomes
B. Tech in CSE(AI)	V20	http://srivasaviengg.ac.in/cai.php#parentVerticalTab1

Sample Course Outcomes (V20 Regulation)

Semester	Course Code & Name	Course Outcomes
I Semester	V20MAT01 **Linear Algebra and Differential Equations**	**After Successful completion of the Course, the student will be able to:** 1. Apply matrix technique to solve system of linear equations 2. Find Eigen values and Eigenvectors 3. Solve the ordinary differential equations of first order & first degree 4. Solve the linear differential equations of higher order with constant coefficients. 5. Find maxima and minima of functions of two variables.

		After Successful completion of the Course, the student will be able to:
II Semester	V20MAT10 **Integral Transformations and Vector Calculus**	1. Find the Fourier series of periodic signals 2. Find the Fourier transforms of given function 3. Find multiple integrals and improper integrals 4. Calculate gradient of a scalar function, divergence and curl of a vector function 5. Apply the knowledge of vector integral concepts to find characteristics of vector fields
III Semester	V20MBT51 **Managerial Economics and Financial Analysis**	1. Understand the basic concepts of managerial economics, demand, elasticity of demand and methods of demand forecasting. 2. Interpret production concept, least cost combinations and various costs concepts in decision making. 3. Differentiate various Markets and Pricing methods along with Business Cycles 4. Prepare financial statements and its analysis. 5. Assess various investment project proposals with the help of Capital Budgeting techniques for decision making.
IV Semester	V20AIT04 **Computer Organization and Architecture**	1. Illustrate Basic structure of Computers, Instruction types and their addressing modes. 2. Describe the different modes of Input / Output transfer. 3. Illustrate different types of Memory. 4. Describe the different types of Control Unit techniques. 5. Explain the Concepts of Pipelining and Parallel Processing
V Semester	V20AIT09 **Data Engineering**	1. Describe Data Engineering lifecycle. 2. Explain Data architecture and data generation. 3. Explain Data Engineering storage abstractions. 4. Illustrate Data ingestion process. 5. Discuss queries, modeling, transformation and serving.(K2)

VI Semester	V20AIT12 **Computer Networks**	**After Successful completion of the Course, the student will be able to:** 1. Discuss fundamentals of network concepts and Reference Models. 2. Discuss Communication media and switching techniques. 3. Demonstrate Error control and Data link layer protocols. 4. Apply Routing algorithms and congestion control algorithms. 5. Discuss Transport layer protocols and Application layer protocols.
VII Semester	**V20AITPE09 Ethical Hacking (Professional Elective-III)**	**After Successful completion of the Course, the student will be able to:** 1. Discuss ethical considerations of Hacking. 2. Assess an environment using Foot printing and Social Engineering methods. 3. Discuss various techniques and tools used in Network Scanning and characteristics in Enumeration phase. 4. Demonstrate techniques and tools used in System Hacking and different Malwares. 5. Illustrate counter measures to Denial-Of-Service, Session Hijacking.

Artificial Intelligence & Machine Learning Department

Programme Outcomes (POs):

Artificial Intelligence and Machine Learning Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of Mathematics, Science, Engineering Fundamentals and Concepts of Artificial Intelligence and Machine Learning Engineering to the solution of complex Engineering problems. [K3]

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences, Artificial Intelligence and Machine Learning. [K4]

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations. [K5]

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. [K5]

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations. [K3]

6. The Engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice. [K3]

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. [K3]

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice. [K3]

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.[K6]

10. Communication: Communicate effectively on complex Engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [K2]

11. Project management and finance: Demonstrate knowledge and understanding of the Engineering and Management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [K6]

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. [K1]

Programme Specific Outcomes (PSOs):

A graduate of the Artificial Intelligence and Machine Learning Programme will be able to:

PSO1: Use Mathematical Abstractions and Algorithmic Design along with Open Source Programming tools to solve complexities involved in Programming. [K3]

PSO2: Use Professional Engineering practices and strategies for development and maintenance of software. [K3]

Name of the Program	Regulation	Link from the website for Course Outcomes
B. Tech in AI&ML	V20	http://srivasaviengg.ac.in/aiml.php#parentVerticalTab1

Sample Course Outcomes (V20 Regulation)

Semester	Course Code & Name	Course Outcomes
I Semester	V20MAT01 **Linear Algebra and Differential Equations**	**After Successful completion of the Course, the student will be able to:** 1. Apply matrix technique to solve system of linear equations 2. Find Eigen values and Eigenvectors 3. Solve the ordinary differential equations of first order & first degree 4. Solve the linear differential equations of higher order with constant coefficients. 5. Find maxima and minima of functions of two variables.

II Semester	V20MAT10 **Integral Transformations and Vector Calculus**	**After Successful completion of the Course, the student will be able to:** 1. Find the Fourier series of periodic signals 2. Find the Fourier transforms of given function 3. Find multiple integrals and improper integrals 4. Calculate gradient of a scalar function, divergence and curl of a vector function 5. Apply the knowledge of vector integral concepts to find characteristics of vector fields
III Semester	V20MBT51 **Managerial Economics and Financial Analysis**	**After Successful completion of the Course, the student will be able to:** 1. Understand the basic concepts of managerial economics, demand, elasticity of demand and methods of demand forecasting. 2. Interpret production concept, least cost combinations and various costs concepts in decision making. 3. Differentiate various Markets and Pricing methods along with Business Cycles 4. Prepare financial statements and its analysis. 5. Assess various investment project proposals with the help of Capital Budgeting techniques for decision making.
IV Semester	V20AIT04 **Computer Organization and Architecture**	**After Successful completion of the Course, the student will be able to:** 1. Illustrate Basic structure of Computers, Instruction types and their addressing modes. 2. Describe the different modes of Input / Output transfer. 3. Illustrate different types of Memory. 4. Describe the different types of Control Unit techniques. 5. Explain the Concepts of Pipelining and Parallel Processing
V Semester	V20AIT09 **Data Engineering**	**After Successful completion of the Course, the student will be able to:** 1. Describe Data Engineering lifecycle. 2. Explain Data architecture and data generation. 3. Explain Data Engineering storage abstractions. 4. Illustrate Data ingestion process. 5. Discuss queries, modeling, transformation and serving.(K2)

VI Semester	V20AIT12 **Computer Networks**	**After Successful completion of the Course, the student will be able to:** 1. Discuss fundamentals of network concepts and Reference Models. 2. Discuss Communication media and switching techniques. 3. Demonstrate Error control and Data link layer protocols. 4. Apply Routing algorithms and congestion control algorithms. 5. Discuss Transport layer protocols and Application layer protocols.
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SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)
(Sponsored by Sri Vasavi Educational Society)
Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada
Pedatadepalli, TADEPALLIGUDEM – 534 101, W.G. Dist, (A.P.)

DEPARTMENT OF MANAGEMENT STUDIES

Program Outcomes:

1. Apply knowledge of management theories and practices to solve business problems – **K3**

2. Foster Analytical and critical thinking abilities for data-based decision making – **K4**

3. Ability to develop Value based Leadership ability – **K2**

4. Ability to understand, analyze and communicate global, economic, legal and ethical aspects of business – **K4**

5. Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment – **K2**

6. An Ability to communicate effectively – **K1**

7. Generate business Ideas, develop business plans, understand regulatory requirements, and locate sources of finance and other resources to start new business ventures – **K4**

8. An ability to engage in continuous learning and professional development – **K1**

Program Specific Outcomes:

1. Present their knowledge in the areas of General Management, Finance, Marketing and Human resource Management. **(K1)**

2. Apply Business knowledge and Management techniques in solving the business problems. **(K3)**

3. Employ their skills as entrepreneurs by gaining necessary management skills and Leadership qualities. **(K3)**

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DEPARTMENT OF MANAGEMENT STUDIES

Name of the Program	Regulation	Link from the website for Course Outcomes
MBA	V21	http://srivasaviengg.ac.in/mba.php
	V21	http://srivasaviengg.ac.in/mba.php
	V21	http://srivasaviengg.ac.in/mba.php
	V21	http://srivasaviengg.ac.in/mba.php

SEMESTER - I

V21MBT01: MANAGEMENT THEORY & ORGANIZATIONAL BEHAVIOUR
(Effective for the students admitted into first year from the Academic Year 2021-2022)

1. Understand the fundamentals of management and develop holistic perspective towards an organization. (K1)
2. Construct the models of decision making and controlling in an organizational context. (K2)
3. Describe various dimensions of individual behavior. (K1)
4. Identify the dynamics of group and also emerge as a good team member.(K2)
5. Demonstrate their leadership qualities and understand the culture of an organization. (K3)
6. Apply Managerial concepts for solving Business Management problems.(K3)

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DEPARTMENT OF MANAGEMENT STUDIES
SEMESTER - II

V21MBT07: FINANCIAL MANAGEMENT
(Effective for the students admitted into first year from the Academic Year 2021-2022)

1. Understood the fundamental concepts of financial Management. (K2)
2. Construct optimal capital structure by identification of financial sources and evaluating cost of capital. (K2)
3. Identify long term investment projects by applying capital budgeting techniques. (K2)
4. Understood the concept of dividend decisions and able to measure the dividend. (K2)
5. Apply the concepts of working capital, cash, and receivables management. (K3)
6. Interpret problems related to Business Finance by studying practical cases.(K3)

SEMESTER - III

V21MBT16: RETAIL MANAGEMENT
(Effective for the students admitted into Second year from the Academic Year 2022-23)

1: Understand the basic structure of Retail business in India. (K2)

2: Understand various retail strategies in practice. (K2)

3: Interpret the importance of location in making a retail business successful. (K2)

4: Apply basic operations in retail business in real life environment. (K3)

5: Examine the technical and financial aspects of retail business besides report preparation. (K3)

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DEPARTMENT OF MANAGEMENT STUDIES

SEMESTER - IV

V21MBT28: FINANCIAL DERIVATIVES
(Effective for the students admitted into Second year from the Academic Year 2022-23)

1. Understand the nature of derivatives and derivative markets. (K2)

2. Operate the trading of futures in BSE &NSE. (K3)

3. Develop fundamental knowledge of options market. (K3)

4. Apply pricing mechanism on various derivative options. (K4)

5. Understand swaps and economic functions of swap transactions. (K2)

DEPARTMENT OF MANAGEMENT STUDIES