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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

COURSE STRUCTURE
B.Tech V20 Regulation

I SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20MAT01	Linear Algebra and Differential Equations	3	0	0	3
2	V20PHT01	Engineering Physics	3	0	0	3
3	V20ENT01	English for Professional Enhancement	3	0	0	3
4	V20MEL01	Engineering Graphics	1	0	4	3
5	V20CST01	Programming in C for problem solving	3	0	0	3
6	V20ENL01	Hone Your Communications Skills Lab-I	0	0	3	1.5
7	V20PHL01	Engineering Physics Lab	0	0	3	1.5
8	V20CSL01	Programming lab in C for problem solving	0	0	3	1.5
9	V20CHT02	Environmental Studies	2	0	0	-
		Total	15	0	13	19.5

Total Contact Hours : 28 Total Credits : 19.5

II SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20MAT02	Numerical Methods and Vector Calculus	3	0	0	3
2	V20CHT01	Engineering Chemistry	3	0	0	3
3	V20MET01	Engineering Mechanics	3	0	0	3
4	V20EET02	Basic Electrical and Electronics Engineering	3	0	0	3
5	V20MEL02	Engineering Workshop	1	0	4	3
6	V20EEL02	Basic Electrical and Electronics Engineering Lab	0	0	3	1.5
7	V20CHL01	Engineering Chemistry Lab	0	0	3	1.5
8	V20ENL02	Hone Your Communications Skills Lab-II	0	0	3	1.5
		Total	13	0	13	19.5

Total Contact Hours : 26 Total Credits : 19.5

COURSE STRUCTURE APPROVED IN 4TH BOS MEETING (28/08/2021)

III SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20MAT04	Probability & Statistics (BOS of Maths)	3	0	0	3
2	V20CET01	Strength of Materials	3	0	0	3
3	V20CET02	Fluid Mechanics & Hydraulics	3	0	0	3
4	V20CET03	Surveying and Geomatics	3	0	0	3
5	V20CET04	Building Materials & Concrete Technology	3	0	0	3
6	V20CEL01	Strength of Materials Lab	0	0	3	1.5
7	V20CEL02	Surveying Lab	0	0	3	1.5
8	V20CEL03	Concrete Technology Lab	0	0	3	1.5
9	V20SOC01	Skill Oriented Course (Certificate course offered by Industries/Professional Bodies/APSSDC or any other accredited bodies)	1	0	2	2
10	V20ENT02	Professional Communication Skills-I (MNC) (BOS of Eng)	2	0	0	0
		Total	18	0	11	21.5

Total Contact Hours : 29 Total Credits : 21.5

IV SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20CET05	Engineering Geology	3	0	0	3
2	V20CET06	Structural Analysis - I	3	0	0	3
3	V20CET07	Water Resources Engineering	3	0	0	3
4	V20CET08	Transportation Engineering	3	0	0	3
5	V20MBT51	Managerial Economics Financial Analysis (BOS of MBA)	3	0	0	3
6	V20CEL04	Engineering Geology Lab	0	0	3	1.5
7	V20CEL05	FM & Hydraulic Machinery Lab	0	0	3	1.5
8	V20CEL06	Transportation Engineering Lab	0	0	3	1.5
9	V20SOC02	Skill Oriented Course (Certificate course offered by Industries/Professional Bodies/APSSDC or any other accredited bodies)	1	0	2	2
10	V20ENT03	Professional Communication Skills-II (MNC) (BOS of Eng)	2	0	0	0
Total			18	0	11	21.5

Total Contact Hours : 29 Total Credits : 21.5

Internship for 2 months/Mini Project is mandatory during summer vacation and is evaluated in V semester.

COURSE STRUCTURE PROPOSED FOR APPROVAL IN 5TH BOS MEETING

V SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20CET09	Structural Analysis - II	3	0	0	3
2	V20CET10	Geotechnical Engineering	3	0	0	3
3	V20CET11	Design of Reinforced Concrete Structures	3	0	0	3
4	V20CET12 V20CET13 V20CET14 V20CET15 V20CET16	Professional Elective Course I 1. Advanced Concrete Technology 2. Irrigation Engineering 3. Traffic Engineering & Management 4. Air Pollution and Control 5. Geo Environmental Engineering	3	0	0	3
5		Open Elective Course I / Job Oriented Elective	0	0	6	3
6	V20CEL07	Geotechnical Engineering Lab	0	0	3	1.5
7	V20CEL08	Structural detailing using Auto CAD Lab	0	0	3	1.5
8	V20SOC03	Skill Advanced Course /Soft Skills Course	1	0	2	2
9	V20ENT04	Professional Communication Skills-III (MNC) (BOS of English)	2	0	0	0
10	V20CESI1	Summer Internship / Mini Project	0	0	0	1.5
		Total	15	0	14	21.5

Total Contact Hours : 27 Total Credits : 21.5

VI SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20CET17	Design of Steel Structures	3	0	0	3
2	V20CET18	Foundation Engineering	3	0	0	3
3	V20CET19	Environmental Engineering	3	0	0	3
4	V20CET20 V20CET21 V20CET22 V20CET23 V20CET24	Professional Elective Course – II 1. Bridge Engineering 2. Earth Retaining structures 3. Urban Hydrology and Hydraulics 4. Pavement Analysis and Design 5. Remote sensing and GIS	3	0	0	3
5		Open Elective Course – II/Job Oriented Elective	3	0	0	3
6	V20CEL09	Environmental Engineering Lab	0	0	3	1.5
7	V20CEL10	CAD & GIS Lab	0	0	3	1.5
8	V20CEL11	Estimation, Contracts and Construction Management Lab	0	0	3	1.5
9	V20SOC04	Skill Advanced Course /Soft Skills Course	1	0	2	2
10	V20CEMC 01	Intellectual Property Rights & Patents (MNC)	2	0	0	0
		Total	18	0	11	21.5

Total Contact Hours: 30 Total Credits : 21.5

Internship 2 months / Mini Project is mandatory during summer vacation and is evaluated in VII semester.

VII SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	V20CET25 V20CET26 V20CET27 V20CET28 V20CET29	Professional Elective Course III 1. Pre stressed Concrete 2. Advanced Foundation Engineering 3. Ground Water Development 4. Highway Construction and Management 5. Environmental Impact Assessment and Management	3	0	0	3
2	V20CET30 V20CET31 V20CET32 V20CET33 V20CET34	Professional Elective Course IV 1. Finite Element Methods 2. Engineering with Geo-synthetics 3. Urban Transportation Planning 4. Solid Waste Management 5. Prefabricated Structures	3	0	0	3
3	V20CET35 V20CET36 V20CET37 V20CET38 V20CET39	Professional Elective Course V 1. Earthquake Engineering 2. Ground Improvement Techniques 3. Rural Water Supply and onsite sanitation Systems 4. Metro Systems and Engineering 5. Architecture and Town Planning	3	0	0	3
4		Open Elective Course III / Job oriented	3	0	0	3
5		Open Elective Course IV / Job oriented	3	0	0	3
6	V20MBT54	Humanities and Social Science Elective Universal Human Values-II (BOS of MBA)	3	0	0	3
7	V20SOC05	Skill Advanced Course	1	0	2	2
8	V20CESI2	Summer Internship / Mini Project	0	0	0	3
		Total	19	0	2	23

Total Contact Hours : 23 Total Credits : 23

VIII SEMESTER

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1		Project work, seminar and internship in industry	0	0	24	12
		Total	0	0	24	12

Total Contact Hours: 0 Total Credits: 12

Skill Oriented Courses
1. Total Station 2. 2D Drafting & 3D Modeling 3. Building Planning and Drawing 4. Building Information Modeling 5. Revit Architecture Software 6. Advanced C 7. ETABS Software 8. Primavera Software

COURSE OUTCOMES

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	-	-	3	V20PHT01
Name of the Course	ENGINEERING PHYSICS					
Branches	Common to All Branches					
Course Outcomes	**CO1**Grap the basic principles of structure of Crystallography and X-ray diffraction K2 **CO2** Expose the students to the basic concepts of Lasers and their applications in optical fiber communication link K3 **CO3** Classify the applications of sound waves in various fields.K2 **CO4** Interpret wavelike behavior of matter and motivates the needof fundamental physical laws for better understanding of materials.K3 **CO5** Describe the properties of semiconducting materials K2 **CO6** Illustrate the fundamental concepts of dielectrics and Superconductors.K4					

Semester	I SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20ENT01
Name of the Course	English for Professional Enhancement					
Branches	**Common to All Branches**					
Course Outcomes	CO1 Identify the central theme of the text, use cohesive items forcoherence in a paragraph, recognize nouns and basic Sentence structures. K2 CO2 Restate the central idea of the letter by using appropriate Vocabulary. Gain mastery over articles and prepositions K2 CO3 Find the success formula after reading the text in detail to answer questions. Use appropriate tense and concord, find suitable vocabulary and format to draft letters and e-mails.K3 CO4Employ reading skills to comprehend the given biography. Interpret visual information .Use quantifiers appropriatelyand get acquainted with writing for media and statement ofpurposK3 CO5 Appraise the delivered lecture and text, recognize the contextual vocabulary, write error free academic proposals and prepare poster presentations.K4 CO6 Infer the real meaning of the text, listen for global comprehension and identify foreign phrases, use active and passive voice, practise note making.K4					

Semester	I/ II SEM	L	T	P	C	COURSE CODE
Regulation	V20	1	-	4	3	**V20MEL01**
Name of the Course	**ENGINEERING GRAPHICS**					
Branches	**Common to All Branches**					
Course Outcomes	**CO1** Understand the basic commands in CAD Software and draw the conic sectionsK3					
	CO2 Construct different types of scales and special curvesK3					
	CO3Draw the projections of the points and linesK3					
	CO4Develop the projections of planes and surfaces ofregular solidsK3					
	CO5Draw the Isometric projections and conversion of viewsK3					

Semester	I SEM	L	T	P	C	COURSE CODE
Regulation	V20	-	-	3	1.5	V20ENL01
Name of the Course	Hone your Communication Skills, Lab-I					
Branches	**Common to All Branches**					
Course Outcomes	CO1Identify suitable expressions to greet people, say good bye tothem, introduce one another, listen to consonantsK3					
	CO2Select suitable words to invite someone, accept or decline invitations, listen to…, identify and produce vowel soundsK3					
	CO3Choose suitable expressions to seek/refuse permissions, toapologize and listen to word accentK3					
	CO4Find apt expressions to give suggestions, express opinionsand identify tone groups.K3					
	CO4Use appropriate words to give commands, requests and identify pauses and prominent syllablesK3					
	CO5Practice listening to dialogues, role-plays using common vocabulary used in dialoguesK3					

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	I/II SEM	L	T	P	C	COURSE CODE
Regulation	V20	-	-	3	1.5	V20CSL01
Name of theCourse	**Programming Lab in „C" for problem Solving**					
Branches	**Common to All**					
Course Outcomes	CO1Demonstrateproblemsolving techniques using Control Structures K3					
	CO2Construct Programmers using the concepts of Arrays, Strings and PointersK3					
	CO3Apply the concepts of Functions, Structures and UnionsK3					
	CO4 Use various file processing operations to develop real-time ApplicationsK4					

Semester	I/II SEM	L	T	P	C	COURSE CODE
Regulation	V20	-	-	3	1.5	V20CSL01
Name of the Course	**Programming Lab in „C" for problem Solving**					
Branches	**Common to All**					
Course Outcomes	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					
	CO4Use various file processing operations to develop real-time applications K4					

Semester	I SEM & II SEM	L	T	P	C	COURSE CODE
Regulation	V20	2	-	-	0	V20CHT02
Name of the Course	ENVIRONMENTAL STUDIES					
Branches	**Common to All Branches**					
Course Outcomes	CO1Recognize the importance of environment and ecosystem Services K2					
	CO2 Identify the characteristic features, uses and impact overutilization of natural resourcesK2					
	CO3Explain biodiversity, biodiversity services and conservation of biodiversityK2					
	CO4Report the causes and impacts of various pollutionsK2					
	CO5Illustrate social and global environmental issues; sustainable development practices K2					
	CO6Describe environmental management legislations in India K2					

Semester	II SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20MAT02
Name of the Course	**Numerical Methods and Vector Calculus**					
Branches	**Common to All Branches**					
Course Outcomes	CO1Compute approximate roots of algebraic and transcendental equations and interpolating polynomial for the given data K3					
	CO2Solve ordinary differential equations with initial conditions using numerical methods K3					
	CO3Find multiple integrals and improper integrals K3					
	CO4Calculate gradient of a scalar function, divergence and curl of a vector function K3					
	CO5Apply the knowledge of vector integral concepts to find characteristics of vector fields K3					
	CO6Find Fourier series of a periodic functions K3					

Semester	I/II SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20CHT01
Name of theCourse	ENGINEERING CHEMISTRY					
Branches	**Common to All Branches**					
Course Outcomes	CO1 Solve boiler troubles originated due to poor water quality and suggest suitable water treatment methods. K3					
	CO2 Choose plastics and rubbers for engineering applications K3					
	CO3Associate concepts of Electro Chemistry in designing electrochemical energy systems K3					
	CO4 Assess the quality of fuels					
	CO5 Apply corrosion principles for protection of metallic structures K3					
	CO6 Interpret important applications of engineering materials K3					

Semester	I/II SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	**V20MET01**
Name of the Course	**ENGINEERING MECHANICS**					
Branches	**Common to CE & ME**					
Course Outcomes	CO1Compute the resultant force of a given system of forces and understanding of concepts on friction. K3					
	CO2 Calculate the forces in the different types of plane trusses K3					
	CO3Find the Centroid, Center of Gravity and Moment ofInertia for plane figures and bodies K3					
	CO4 Illustrate the different types of plane motions of a particle to compute its velocity, acceleration and force. K3					
	CO 5 Illustrate the concept of Work and Energy K3					
	CO6 Apply the principle of Virtual Work to stability of equilibrium of Ladder K3					

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					

Semester	**I / II SEM**	**L**	**T**	**P**	**C**	**COURSE CODE**
Regulation	V20	-	-	3	1.5	V20CHL02
Name of theCourse	ENGINEERING CHEMISTRY LABORATORY					
Branches	**Common to All Branches**					
Course Outcomes	Analyze quantitatively a variety of samples using volumetric methods and instrumental methods K4					
	Apply volumetric and instrumental methods for the determination of water quality parameters namely Alkalinity, Hardness and Ph k3					
	Prepare polymeric materials, nanoparticles and analyzethe given coal samples k3					

Semester	**I/II SEM**	**L**	**T**	**P**	**C**	**COURSE CODE**
Regulation	V20	1	-	4	3	**V20MEL02**
Name of theCourse	**ENGINEERING WORKSHOP**					
Branches	**Common to All Branches**					
Course Outcomes	Prepare different models in thecarpentry trade andunderstand basic concepts of carpentry K3					
	Develop various basic prototypes in the trade of Tin smithyand understand basic concepts of Tin smithy. K3					
	Prepare various basic prototypes in the trade of fitting and understand basic concepts of fitting.					
	Prepare different models in the Black smithy and understand basic concepts of Black smithy. K3					
	Develop various basic House Wiring techniques, Electricalwiring circuits K3					
	Develop various basic prototype models in Welding andFoundry shop. K3					

Semester	II SEM	L	T	P	C	COURSE CODE
Regulation	V20	-	-	3	1.5	V20ENL02
Name of theCourse	Hone your Communication Skills, Lab-II					
Branches	**Common to All Branches**					
Course Outcomes	CO1Collect suitable expressions and vocabulary to participate inJAM.K1					
	CO2Prepare, face and perform well in interviews with required etiquette.K3					
	CO3Use appropriate telephone etiquette to succeed in telephonic interviews.K3					
	CO4Show team spirit and communicative skills in group discussion.K3					
	CO5ideas and prepare to give presentations in a professional manner.K4					
	CO6Debate rationally and cogently while putting forth the ideas.K4					

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 for determination 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	3	0	0	3	V20CET02
Name of the Course	**FLUID MECHANICS & HYDRAULICS**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Understand the physical properties of fluids and their influences on fluid motion (K2) • Calculate the forces acting on plane and curved surfaces and solve fluid flow problems in kinematics and dynamics (K3) • Solve various laminar and turbulent flow problems (K2) • Solve uniform and non uniform open channel flow problems (K2) • Estimate the impact of jet on plane and curved surfaces using momentum Principle(K2)					

Year/Sem	III Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	3	0	0	3	V20CET03
Name of the Course	**SURVEYING AND GEOMATICS**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Demonstrate the basic surveying skills (K2) • Computation of bearings by various surveying instruments (K3) • Perform different methods of leveling (K3) • Compute various data required for various methods of surveying (K3) • Compute area and volume quantities by different methods (K3)					

Year/Sem	III Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	3	0	0	3	V20CET04
Name of the Course	**BUILDING MATERIALS & CONCRETE TECHNOLOGY**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Discuss the basic concepts of building materials (K2) • Distinguish the basic ingredients of concrete and their role in the production of concrete and its behavior in the field (K2) • Apply fundamental knowledge in the fresh concrete (K3) • Apply fundamental knowledge in the hardened properties of concrete and factors(K3) • Find test on hardened concrete and properties, evaluate the ingredients of concretethrough lab test results and design the concrete mix by BIS method (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	III Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	0	0	3	1.5	V20CEL02
Name of the Course	**SURVEYING LAB**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Use different Survey instruments to collect filed data • Calculate distances, levels and angles from collected data • Transfer points on ground to drawing sheet • Interpret survey data to compute areas and volumes by using different methods • Prepare profile of land from the collected survey data					

Year/Sem	III Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	0	0	3	1.5	V20CEL03
Name of the Course	**CONCRETE TECHNOLOGY LAB**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Find some properties of cement by consistency, fineness, setting times, specificgravity, soundness and compressive strength. • Determine the workability of cement concrete by compaction factor, slump and Vee –Bee tests. • Determine properties of self-compacting concrete by Slump cone, V funnel, L Box • Determine the specific gravity of coarse aggregate and fine aggregate by Sieveanalysis. • Determine the flakiness and elongation index of coarse aggregates. • Determine the bulking of sand. • Understand the non-destructive testing procedures on concrete					

IV-SEMESTER

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	3	0	0	3	V20CET06
Name of the Course	**STRUCTURAL ANALYSIS-I**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Illustrate Shear Force, Bending Moment and Deflection of Propped Cantilevers fordifferent fixity conditions (K3) • Calculate Shear Force, Bending Moment and Deflections of fixed beams for different fixity conditions (K3) • Calculate Shear Force, Bending Moment and Deflections of Continuous beams fordifferent fixity conditions (K3) • Understand the concepts of Energy Theorems (K2) • Assess Maximum Shear Force, Bending Moment and Deflections at a given sectionwhen loads of varying spans are passing over truss (K3)					

Year/Sem	IV Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	3	0	0	3	V20CET07
Name of the Course	**WATER RESOURCES ENGINEERING**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Calculate average rainfall and check consistency, continuity of rainfall (K3) • Estimate the different components of the hydrologic cycle (K2) • Compute the runoff of a catchment using Hydrographs (K3) • Compute the flood frequency, design flood, flood routing (K3) • Discuss the concepts of groundwater movement and well hydraulics (K2)					

Year/Sem	IV Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2020-2021	3	0	0	3	V20CET08
Name of the Course	**TRANSPORTATION ENGINEERING**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Design highway geometric elements for the decided alignment through engineeringsurveys (K3) • Analyze and design of flexible, rigid pavements and examine pavement constructionactivities and also conduct quality control at site (K3) • Analyze and design of traffic infrastructure facilities and evaluate pavement conditionto suggest remedial measures (K3) • Analyze the Railway Track Geometric Elements (K3) • Analyze and design geometric elements of Airport Runway and Taxiway and classifythe various components of Dock & Harbors (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					

Year/Sem	IV Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	0	0	3	1.5	V20CEL05
Name of the Course	**FLUID MECHANICS & HYDRAULIC MACHINERY LAB**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ the basic principles of Fluid mechanics to assess discharge with differentdevices and different losses in a pipe line (K3) • Calculate the performance parameters of Reciprocating and Centrifugal pumps (K3) • Calculate the performance parameters of different types of turbines (K3)					

Year/Sem	IV Sem	L	T	P	C	COURSE CODE
Regulation / Year	V20 / 2021-2022	0	0	3	1.5	V20CEL06
Name of the Course	**TRANSPORTATION ENGINEERING LAB**					
Course Outcomes	• Assess the suitability of different materials for the road construction • Examine the given bitumen samples and judge their suitability for road construction(K3) • Find the Optimum Bitumen content for the Bituminous mix (K3) • Develop the gradation of Bituminous mix for stability and flow properties (K3)					

V SEMESTER

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 hingedarches (K3) • Analyze the continuous beams using Moment distribution and Kani'smethods (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	3	0	0	3	V20CET10
Name of the Course	**GEOTECHNICAL ENGINEERING**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Develop the inter-relationships between various parameters of the soils (K3) • Assess the permeability of soils having different properties (K3) • Employ different methods to know the stress distribution in soils (K3) • Interpret different parameters related to compaction and consolidation ofsoils (K3) • Examine the stress strain behavior of soils under various drainage conditions(K3)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET11
Name of the Course	**DESIGN OF REINFORCED CONCRETE STRUCTURES**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Design the beams in working stress and limit state methods (K5) • Design the doubly reinforced and flanged (T and L) beam sections for flexure(K5) • Design the continuous beams for shear and bond (K5) • Design the one way, two way slabs and stair case of buildings (K5) • Design the columns and footings of the structures (K5)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET12
Name of the Course	**ADVANCED CONCRETE TECHNOLOGY (Professional Elective -1)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Relate the material characteristics and their influence on concrete (K3) • Predict concrete behavior based on its durability properties (K3) • Illustrate mix proportioning of different types of concretes and their testing(K3) • Select the suitable concrete based on their specific application (K3) • Employ suitable concreting methods to place the					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET13
Name of the Course	**IRRIGATION ENGINEERING (Professional Elective -1)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Interpret the quality of irrigation water and water requirements (K2) • Design the erodible and non-erodible canals using different theories (K5) • Asses different irrigation canal structures (K3) • Relate the diversion head works and their components (K3) • Analyze the stability of Gravity and Earth dams (K3)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET14
Name of the Course	**TRAFFIC ENGINEERING AND MANAGEMENT (Professional Elective –I)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Understand basics principles of Traffic Engineering (K2) • Analyze parking data and model accidents (K3) • Determine traffic capacity and level of service (K3) • Design of Signalized systems and Rotary Intersections (K5) • Employ engineering techniques to achieve safe and efficient movement ofpeople and goods on roadways (K3)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET15
Name of the Course	**AIR POLLUTION AND CONTROL (Professional Elective –I)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Asses the pollutants and ambient quality of air (K3) • Illustrate the plume behavior in a prevailing environmental condition (K3) • Examine carbon credits for various day to day activities(K3) • Select proper technique to control the air particulates • Choose appropriate in plant control measures for different emissions (K3)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET16
Name of the Course	**GEO-ENVIRONMENTAL ENGINEERING (Professional Elective –I)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Identify the Geo-environmental pollutants and their governing factors (K2) • Employ the techniques for safe disposal of waste (K3) • Relate the sub surface contamination transport (K3) • Practice the utilization of solid waste for soil stabilization (K3) • Select different remediation techniques to improve contaminated soil (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 thesoils (K3) • Compute the strength properties of soils (K3)					

Sem	V Sem	L	T	P	C	COURSE CODE
Regulation Year	V203	0	0	3	1.5	V20CEL08
Name of the Course	**STRUCTURAL DETAILING USING AUTO CAD**					
Course Outcomes	• Employ detailing of different building components • Employ detailing of retaining walls (K3) • Employ detailing of water tanks (K3) • Employ detailing of septic tank (K3)					

VI SEMESTER

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	3	0	0	3	V20CET18
Name of the Course	**FOUNDATION ENGINEERING**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ the soil exploration and carryout the field testing (K3) • Examine the slope stability and earth pressures using different theories (K3) • Determine the bearing capacity of shallow foundations using bearingcapacity criteria (K4) • Determine the bearing capacity of shallow foundations using settlementcriteria (K4) • Design the deep foundations for different loading and soil conditions (K5)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET19
Name of the Course	**ENVIRONMENTAL ENGINEERING**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Clarify the protected water supply systems and their importance (K2) • Assess different sources of water and proper intake structures (K3) • Select suitable primary treatment process based on the quality of raw water(K3) • Select suitable secondary treatment process (K3) • Employ proper distribution system (K3)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET20
Name of the Course	**BRIDGE ENGINEERING (Professional Elective - II)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Generalize different types of bridges, loading standards and endconditions (K2) • Assess different reactions and moments in the T beam bridge (K3) • Design of pier and abutment caps of bridges (K5) • Design of well foundation with different parameters of sub soil (K5) • Outline the effectiveness of different bearings of a bridge (K4					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET21
Name of the Course	**EARTH RETAINING STRUCTURES (Professional Elective – II)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Compute the lateral earth pressures associated with different earth systems(K3) • Assess the failure criterion and stability requirements of retaining wall (K3) • Analyze the sheet pile structure for both external and internal stability (K4) • Apply the knowledge of reinforced earth in designing earth retainingsystems (K3) • Relate different methods for the stability of braced cuts and cofferdams (K3)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET22
Name of the Course	**URBAN HYDROLOGY & HYDRAULICS (Professional Elective – II)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Develop the drainage systems corresponding to the trends in urbanization(K3) • Assess the urban drainage flow pattern (K3) • Select suitable elements of drainage system (K3) • Relate the detention and retention facilities of storm water (K3) • Prepare typical drainage master plan for an urbanized area (K3)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET23
Name of the Course	**PAVEMENT ANALYSIS AND DESIGN (Professional Elective – II)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ different factors influencing the flexible pavement design (K3) • Employ different factors influencing the rigid pavement design (K3) • Analyze stresses and strains in flexible and rigid pavement using differenttheories (K3) • Design a flexible pavement using Asphalt Institute, and AASHTO methods(K5) • Design a rigid pavement using AASHTO methods (K5)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET24
Name of the Course	**REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM (Professional Elective – II)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Generalize the basic principles of Remote Sensing and GIS,including ground, air and satellite based sensor platforms (K2) • Interpret the aerial photographs and satellite imageries (K2) • Relate the process of data entry and preparation (K3) • Examine the Spatial Data for a variety of applications (K3) • Employ RS and GIS for diverse applications (K3)					

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	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	0	0	3	1.5	V20CEL10
Name of the Course	**CAD & GIS LAB**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Design 2D and 3D frames using STAAD PRO (K3) • Design the retaining wall and simple towers using STAAD PRO (K3) • Create thematic maps with relevant features (K5) • Develop digital elevation models using GIS software (K3)					

Sem	VI Sem	L	T	P	C	COURSECODE
Regulation	V20	0	0	3	1.5	V20CEL11
Name of the Course	**ESTIMATION, CONTRACTS & CONSTRUCTION MANAGEMENT LAB**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Estimate the quantities of different items of construction work (K2) • Analyze the cost of different items of construction work (K3) • Compute the quantities for earth work of roads, canals (K3) • Relate the specification of different works and make contract documents(K3) • Employ different techniques in the process of construction planning and management (K3)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	2	0	0	0	V20CEMC01
Name of the Course	**INTELLECTUAL PROPERTY RIGHTS & PATENTS**					
Branch	**CIVIL ENGINEERING**					
Course Outcomes	• Describe the need of Intellectual Property Rights (K2) • Generalize different issues regarding Copy Rights (K2) • Employ the procedure for Patent registration and granting (K3) • Discuss the importance of Trademark and its related issues (K2) • Recognize the significance of Trade Secrets in Industry (K2)					

VII- SEMESTER

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	V20CET26
Name of theCourse	**ADVANCED FOUNDATION ENGINEERING (Professional Elective – III)**					
Course Outcomes	• Illustrate the safe bearing capacity and settlement of footings subjected todifferent types of loading (K3) • Employ suitable techniques for proportioning the foundations laid on different soils strata (K3) • Assess the forces acting on Earth Retaining Structures using differentearth pressure theories (K3) • Predict the load carrying capacity, pull-out capacity, negative skin frictionof piles and their settlements (K3) • Interpret different foundation practices in expansive soils (K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET27
Name of theCourse	**GROUND WATER DEVELOPMENT (Professional Elective – III)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Estimate aquifer parameters and its yield (K2) • Design the wells and its associated components (K5) • Generalize the well construction, development and its maintenance(K3) • Organize the process of artificial recharge for increasing ground waterpotential (K3) • Interpret geophysical exploration data for aquifers and their sources(K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET28
Name of the Course	**HIGHWAY CONSTRUCTION AND MANAGEMENT (Professional Elective – III)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ techniques in the planning of Base, Subbase and Shoulders ofpavement (K2) • Prepare a methodology in the laying of bituminous pavements (K3) • Relate different concepts in the construction of Cement Concrete Pavements(K3) • Prepare a procedure for the maintenance of Cement Concrete Pavements(K3) • Develop proper Pavement Management Systems (K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET29
Name of the Course	**ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT (Professional Elective – III)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Prepare different reports related to EMP, EIS, and EIA (K3) • Select an appropriate EIA methodology (K2) • Assess the Impact of development activities and land use (K3) • Employ in procuring the natural resources and assessment of Eco system(K3) • Develop the EIA notifications and reports (K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET30
Name of the Course	**FINITE ELEMENT METHOD (Professional Elective – IV)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Generalize the concept of Finite Element Method (K2) • Employ different formulation techniques of FEM to the engineering problems(K3) • Assess one dimensional solid elements of various practical problems (K3) • Analyze different components of framed structure (K4) • Analyze the two and three dimensional solids using FEM (K4)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET31
Name of the Course	**ENGINEERING WITH GEO-SYNTHETICS (Professional Elective – IV)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Relate the need and demand of geo-synthetic materials in the field of geotechnical related works (K3) • Apply the Geotextile and geogrids to practical problems (K3) • Interpret the functions and applications of Geomembranes and Geocomposites (K3) • Assess the internal and external stability of Reinforced Earth Retaining Wall(K3) • Examine the applications of geo-synthetics in road construction (K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET32
Name of the Course	**URBAN TRANSPORTATION PLANNING (Professional Elective – IV)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ the Urban Transportation Problems & Travel Demand (K3) • Relate the techniques in the data collection for planning the network (K3) • Develop various models for trip generation, trip distribution and trafficassignment (K3) • Prepare various alternative transportation proposals (K3) • Solve the traffic assignment for transport network (K5)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET33
Name of the Course	**SOLID WASTE MANAGEMENT (Professional Elective – IV)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Relate the factors influencing generation of solid waste and its management(K3) • Assess the basic elements for managing the Solid Waste (K3) • Develop different methods for transportation and transformation of solid waste(K3) • Prepare different methods for processing and treatment of municipal solidwaste (K3) • Find suitable disposal methods with respect to solid waste (K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET34
Name of the Course	**PREFABIRCATED STURCTURES (Professional Elective – IV)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Relate the principles of prefabrication, production and erectionprocesses (K3) • Practice different ways to utilize prefabricated components (K3) • Design the prefabricated components to mount on the precastconcrete system (K5) • Prepare types of joints and connections to accommodate in precastsystem (K3) • Use codal provisions to avoid progressive collapse to abnormal loads(K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET35
Name of theCourse	**EARTHQUAKE ENGINEERING (Professional Elective – V)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Discuss the basic concept and characteristics of earth quakes (K2) • Examine the ground motion and seismic hazard (K3) • Assess the frequency of wave propagation in different mediums (K3) • Illustrate the behavior and resistive forces generated in the structureduring earthquake (K3) • Relate the possibility of liquefaction and ground improvement forremediation of seismic hazards (K3)					

Sem	VII	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET36
Name of theCourse	**GROUND IMPROVEMENT TECHNIQUES (Professional Elective – V)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Employ the in-situ densification methods at ground surface and atdepth (K3) • Relate the importance of dewatering and different methods ofstabilization (K3) • Illustrate the reinforced earth technology and soil nailing to obviate theproblems posed by conventional retaining walls (K3) • Use the geosynthetics to improve the engineering performance of soils(K3) • Select different techniques of grouting to solve the ground problems(K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET37
Name of theCourse	**RURAL WATER SUPPLY AND ONSITE SANITATION SYSTEMS (Professional Elective – V)**					
Branch	CIVIL ENGINEERING					
Course Outcomes	• Generalize the concept and scope of sanitation in rural areas (K2) • Apply suitable methods of water treatment for rural areas (K3) • Develop the water distribution system in rural areas (K3) • Relate the different public sanitation methods in rural areas andindustrial zones (K3) • Relate different methods of solid waste management in rural areas (K3)					

Sem	VIISem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET38
Name of the Course	**METRO SYSTEMS AND ENGINEERING (Professional Elective – V)**					
Course Outcomes	• Generalize different Metro Systems and their planning (K2) • Relate construction methods of elevated and under groundstations (K3) • Employ the construction quality and safety systems (K3) • Illustrate the methods to utilize electronic signaling systems andautomatic fare collection systems (K3) • Organize the mechanical and electrical work of different systems(K3)					

Sem	VII Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CET39
Name of theCourse	**ARCHITECTURE AND TOWN PLANNING (Professional Elective – V)**					
Course Outcomes	• Distinguish architectural styles of eastern and western world(K2) • Understand the importance of Orders of architecture (K2) • Develop spaces of buildings using design concepts, planningprinciples (K3) • Relate the present town planning from ancient times to moderntimes. • Interpret the town planning standards, landscaping features andregulations controlling expansion of the towns and the cities (K3)					

COURSES OFFERED UNDER OPEN ELECTIVE IN V, VI & VII SEMESTERTO OTHER BRANCHE

Open Elective -I

Sem	**V/VI/VII**	**L**	**T**	**P**	**C**	**COURSE CODE**
Regulation	V20	3	0	0	3	V20CEOE01
Name of the Course	**REPAIR AND REHABILITATION OF STRUCTURES**					
Branch	EXCEPT CE					
Course Outcomes	• Develop various maintenance and repair strategies (K2) • Evaluate the existing buildings through field investigations (K2) • Understand and use the different techniques for structural rehabilitation and various techniques of repair (K2) • Understand the importance of advanced concretes mixes(K2)Understand the importance of high performance concretes(K2)					

Sem	**V/VI/VII**	**L**	**T**	**P**	**C**	**COURSE CODE**
Regulation	V20	3	0	0	3	V20CEOE02
Name of the Course	**GROUND IMPROVEMENT TECHNIQUES**					
Branch	EXCEPT CE					
Course Outcomes	• Employ the in-situ densification methods at ground surface and atdepth (K3) • Relate the importance of dewatering and different methods ofstabilization • Illustrate the reinforced earth technology and soil nailing to obviate theproblems posed by conventional retaining walls (K3) • Use the geosynthetics to improve the engineering performance of soils(K3) • Select different techniques of grouting to solve the ground problems(K3)					

Sem	**V/VI/VII**	**L**	**T**	**P**	**C**	**COURSE CODE**
Regulation	V20	3	0	0	3	V20CEOE03
Name of the Course	**ENVIRONMENTAL POLLUTION AND CONTROL**					
Branch	EXCEPT CE NG					
Course Outcomes	• Describe the air pollution and its control methods (K2) • Explain industrial waste water and ways to control it (K3) • Generalize the solid, hazardous waste and control methods (K2) • Illustrate the importance of Environmental sanitation methods (K2) • Illustrate the importance of Sustainable development (K3)					

Sem	V/VI/VII	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CEOE07
Name of the Course	**DISASTER MANAGEMENT**					
Branch	EXCEPT CE					
Course Outcomes	• Describe different natural hazards and disaster management (K2) • Generalize the risk and vulnerability of disaster (K2) • Illustrate the role of technology in disaster management (K3) • Relate the importance of education and community preparedness todisaster recovery (K3) • Organize the multi-sectional issues created by disaster (K2)					

Sem	V/VI/VII	L	T	P	C	COURSE CODE
Regulation	V20	3	0	0	3	V20CEOE08
Name of the Course	**WATER QUALITY AND CONSERVATION SYSTEMS**					
Branch	EXCEPT CE					
Course Outcomes	• Describe different parameters of Engineering Hydrology (K2) • Relate different sources of surface and ground water (K3) • Assess the importance of water supply systems and quality of water inreference to IS and WHO standards (K3) • Develop different systems of plumbing (K3) • Employ different conservation techniques (K3)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	2	0	0	0	V20CEMC01
Name of the Course	**INTELLECTUAL PROPERTY RIGHTS & PATENTS**					
Branch	**Common to All Branches**					
Course Outcomes	• Describe the need of Intellectual Property Rights (K2) • Generalize different issues regarding Copy Rights (K2) • Employ the procedure for Patent registration and granting (K3) • Discuss the importance of Trademark and its related issues (K2) • Recognize the significance of Trade Secrets in Industry (K2)					

Sem	VI Sem	L	T	P	C	COURSE CODE
Regulation	V20	2	0	0	0	V20CEMC02
Name of the Course	**PROFESSIONAL ETHICS AND HUMAN VALUES**					
Branch	**Common to All Branches**					
Course Outcomes	• Discuss the importance of human values and their context (K2) • Generalize the professional ethics and norms of engineering practice(K2) • Review the contextual knowledge of engineering as social experimentation (K2) • Identify the engineer's responsibility for Safety & Risks (K2) • Clarify the professional rights & responsibilities at global level (K2)					