



## DEPARTMENT OF CIVIL ENGINEERING

### PROGRAMME: B. E. CIVIL ENGINEERING

#### COURSE OUTCOMES (COs)

<b>Semester</b>	01
<b>Subject Code</b>	HS3152
<b>Subject Name</b>	PROFESSIONAL ENGLISH I
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>To use appropriate words in a professional context</li><li>To gain understanding of basic grammatical structures and use them in right context.</li><li>To read and infer the denotative and connotative meanings of technical texts</li><li>To read and interpret information presented in tables, charts and other graphic forms</li><li>To write definitions, descriptions, narrations and essays on various topics</li></ul>

#### CO's-PO's & PSO's MAPPING

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	1	1	1	3	3	3	1	3	-	3	-	-	-
2	1	1	1	1	1	3	3	3	1	3	-	3	-	-	-
3	2	3	2	3	2	3	3	3	2	3	3	3	-	-	-
4	2	3	2	3	2	3	3	3	2	3	3	3	-	-	-
5	2	3	3	3	-	3	3	3	2	3	-	3	-	-	-
AVg.	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-	-

1 - low, 2 - medium, 3 - high, '-' - no correlation



# SUDHARSAN ENGINEERING COLLEGE

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<b>Semester</b>	01
<b>Subject Code</b>	MA3151
<b>Subject Name</b>	MATRICES AND CALCULUS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use the matrix algebra methods for solving practical problems.</li><li>• Apply differential calculus tools in solving various application problems.</li><li>• Able to use differential calculus ideas on several variable functions.</li><li>• Apply different methods of integration in solving practical problems.</li><li>• Apply multiple integral ideas in solving areas, volumes and other practical problems</li></ul>

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO2	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO3	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO4	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
CO5	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
Avg	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-



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<b>Semester</b>	01
<b>Subject Code</b>	PH3151
<b>Subject Name</b>	ENGINEERING PHYSICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand the importance of mechanics.</li><li>• Express their knowledge in electromagnetic waves.</li><li>• Demonstrate a strong foundational knowledge in oscillations, optics and lasers.</li><li>• Understand the importance of quantum physics.</li><li>• Comprehend and apply quantum mechanical principles towards the formation of energy bands</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	2	1	1	1	-	-	-	-	-	-	-	-	-
<b>2</b>	3	3	2	1	2	1	-	-	-	-	-	-	-	-	-
<b>3</b>	3	3	2	2	2	1	-	-	-	-	-	1	-	-	-
<b>4</b>	3	3	1	1	2	1	-	-	-	-	-	-	-	-	-
<b>5</b>	3	3	1	1	2	1	-	-	-	-	-	-	-	-	-
<b>AVG</b>	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-	-



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<b>Sem</b>	01
<b>Subject Code</b>	CY3151
<b>Subject Name</b>	ENGINEERING CHEMISTRY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.</li><li>• To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.</li><li>• To apply the knowledge of phase rule and composites for material selection requirements.</li><li>• To recommend suitable fuels for engineering processes and applications.</li><li>• To recognize different forms of energy resources and apply them for suitable applications in energy sectors.</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	2	1	-	1	1	-	-	-	-	1	-	-	-
2	2	-	-	1	-	2	2	-	-	-	-	-	-	-	-
3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
4	3	1	1	-	-	1	2	-	-	-	-	-	-	-	-
5	3	1	2	1	-	2	2	-	-	-	-	2	-	-	-
<b>Avg.</b>	<b>2.8</b>	<b>1.3</b>	<b>1.6</b>	<b>1</b>	<b>-</b>	<b>1.5</b>	<b>1.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1.5</b>	<b>-</b>	<b>-</b>	<b>-</b>



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<b>Sem</b>	01
<b>Subject Code</b>	GE3151
<b>Subject Name</b>	PROBLEM SOLVING AND PYTHON PROGRAMMING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Develop algorithmic solutions to simple computational problems.</li><li>• Develop and execute simple Python programs.</li><li>• Write simple Python programs using conditionals and looping for solving problems.</li><li>• Decompose a Python program into functions.</li><li>• Represent compound data using Python lists, tuples, dictionaries etc.</li><li>• Read and write data from/to files in Python programs.</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	-
2	3	3	3	3	2	-	-	-	-	-	2	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	2	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6.	2	2	-	-	2	-	-	-	-	-	1	-	2	-	-
Avg.	2	3	3	3	2	-	-	-	-	-	2	2	3	3	-



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<b>Sem</b>	01
<b>Subject Code</b>	GE3171
<b>Subject Name</b>	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Develop algorithmic solutions to simple computational problems</li> <li>• Develop and execute simple Python programs.</li> <li>• Implement programs in Python using conditionals and loops for solving problems..</li> <li>• Deploy functions to decompose a Python program.</li> <li>• Process compound data using Python data structures.</li> <li>• Utilize Python packages in developing software applications.</li> </ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	3	3	3	-	-	-	-	-	3	2	3	3	-
<b>2</b>	3	3	3	3	3	-	-	-	-	-	3	2	3	-	-
<b>3</b>	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
<b>4</b>	3	2	-	2	2	-	-	-	-	-	1	-	3	-	-
<b>5</b>	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
<b>6</b>	2	-	-	-	2	-	-	-	-	-	1	-	2	-	-
<b>AVg.</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	-	-	-	-	-	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	-





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<b>Sem</b>	01
<b>Subject Code</b>	BS3171
<b>Subject Name</b>	CHEMISTRY LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.</li><li>• To determine the amount of metal ions through volumetric and spectroscopic techniques</li><li>• To analyse and determine the composition of alloys.</li><li>• To learn simple method of synthesis of nanoparticles</li><li>• To quantitatively analyse the impurities in solution by electro analytical techniques</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	-	1	-	-	2	2	-	-	-	-	2	-	-	-
2	3	1	2	-	-	1	2	-	-	-	-	1	-	-	-
3	3	2	1	1	-	-	1	-	-	-	-	-	-	-	-
4	2	1	2	-	-	2	2	-	-	-	-	-	-	-	-
5	2	1	2	-	1	2	2	-	-	-	-	1	-	-	-
<b>Avg.</b>	<b>2.6</b>	<b>1.3</b>	<b>1.6</b>	<b>1</b>	<b>1</b>	<b>1.4</b>	<b>1.8</b>	-	-	-	-	<b>1.3</b>	-	-	-



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<b>Sem</b>	01
<b>Subject Code</b>	GE3172
<b>Subject Name</b>	ENGLISH LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To listen to and comprehend general as well as complex academic information</li><li>• To listen to and understand different points of view in a discussion</li><li>• To speak fluently and accurately in formal and informal communicative contexts</li><li>• To describe products and processes and explain their uses and purposes clearly and accurately</li><li>• To express their opinions effectively in both formal and informal discussions</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>2</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>3</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>4</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>5</b>	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
<b>AVg.</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>3</b>	-	-	-						



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<b>Sem</b>	02
<b>Subject Code</b>	HS3252
<b>Subject Name</b>	PROFESSIONAL ENGLISH - II
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To compare and contrast products and ideas in technical texts.</li><li>• To identify and report cause and effects in events, industrial processes through technical texts</li><li>• To analyse problems in order to arrive at feasible solutions and communicate them in the written format.</li><li>• To present their ideas and opinions in a planned and logical manner</li><li>• To draft effective resumes in the context of job search.</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
<b>2</b>	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
<b>3</b>	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
<b>4</b>	3	3	3	3	2	3	3	3	2	3	3	3	-	-	-
<b>5</b>	-	-	-	-	-	-	-	-	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	-	-	-
<b>AVg.</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2.75</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2.2</b>	<b>3</b>	<b>3</b>	<b>3</b>	-	-	-



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<b>Sem</b>	02
<b>Subject Code</b>	MA3251
<b>Subject Name</b>	STATISTICS AND NUMERICAL METHODS
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Apply the concept of testing of hypothesis for small and large samples in real life problems.</li> <li>• Apply the basic concepts of classifications of design of experiments in the field of agriculture.</li> <li>• Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.</li> <li>• Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.</li> <li>• Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.</li> </ul>

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CO1	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO2	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO3	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO4	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
CO5	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
Avg	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-





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<b>Sem</b>	02
<b>Subject Code</b>	BE3252
<b>Subject Name</b>	BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Compute the electric circuit parameters for simple problems</li><li>• Explain the concepts of domestics wiring and protective devices</li><li>• Explain the working principle and applications of electrical machines</li><li>• Analyze the characteristics of analog electronic devices</li><li>• Explain the types and operating principles of sensors and transducers</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1					1					-	-	-
2	2	1	1					1					-	-	-
3	2	1	1					1					-	-	-
4	2	1	1					1					-	-	-
5	2	1	1					1					-	-	-
Avg.	2	1	1					1					-	-	-



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<b>Sem</b>	02
<b>Subject Code</b>	GE3251
<b>Subject Name</b>	ENGINEERING GRAPHICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use BIS conventions and specifications for engineering drawing.</li><li>• Construct the conic curves, involutes and cycloid.</li><li>• Solve practical problems involving projection of lines.</li><li>• Draw the orthographic, isometric and perspective projections of simple solids.</li><li>• Draw the development of simple solids</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	2		2					3		2	2	2	
2	3	1	2		2					3		2	2	2	
3	3	1	2		2					3		2	2	2	
4	3	1	2		2					3		2	2	2	
5	3	1	2		2					3		2	2	2	
<b>Avg</b>	<b>3</b>	<b>1</b>	<b>2</b>		<b>2</b>					<b>3</b>		<b>2</b>	<b>2</b>	<b>2</b>	
Low (1); Medium (2); High (3)															



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<b>Sem</b>	02
<b>Subject Code</b>	GE3271
<b>Subject Name</b>	ENGINEERING PRACTICES LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.</li><li>• Wire various electrical joints in common household electrical wire work.</li><li>• Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.</li><li>• Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2			1	1	1					2	2	1	1
2	3	2			1	1	1					2	2	1	1
3	3	2			1	1	1					2	2	1	1
<b>Avg</b>	<b>3</b>	<b>2</b>			<b>1</b>	<b>1</b>	<b>1</b>					<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>
Low (1); Medium (2); High (3)															



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<b>Sem</b>	02
<b>Subject Code</b>	BE3272
<b>Subject Name</b>	BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use experimental methods to verify the Ohm's law and Kirchoff's Law and to measure three phase power</li><li>• Analyze experimentally the load characteristics of electrical machines</li><li>• Analyze the characteristics of basic electronic devices</li><li>• Use LVDT to measure displacement</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	1	2				1.5	2				-	-	-
2	2	3	1	2				1.5	2				-	-	-
3	2	3	1	2				1.5	2				-	-	-
4	2	3	1	2				1.5	2				-	-	-
Avg.	1.6	1.4	0.8	1.6				1.2	1.6						



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<b>Sem</b>	02
<b>Sub Code</b>	GE3272
<b>Sub Name</b>	COMMUNICATION LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Speak effectively in group discussions held in formal/semi formal contexts.</li><li>• Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions</li><li>• Write emails, letters and effective job applications.</li><li>• Write critical reports to convey data and information with clarity and precision</li><li>• Give appropriate instructions and recommendations for safe execution of tasks</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	3	3	1	3	3	3	3	3	3	3	-	-	-
2	2	3	3	3	1	3	3	3	3	3	3	3	-	-	-
3	2	2	3	3	1	3	3	3	3	3	3	3	-	-	-
4	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-
5	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-
<b>AVg.</b>	<b>2.4</b>	<b>2.8</b>	<b>3</b>	<b>3</b>	<b>1.8</b>	<b>3</b>	-	-	-						



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<b>Sem</b>	03
<b>Sub Code</b>	MA3351
<b>Sub Name</b>	TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand how to solve the given standard partial differential equations.</li><li>• Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.</li><li>• Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.</li><li>• Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.</li><li>• Use the effective mathematical tools for the solutions of partial differential equations by using Ztransform techniques for discrete time systems.</li></ul>

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CO1	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
CO2	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
CO3	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
CO4	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
CO5	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
Avg	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-



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<b>Sem</b>	03
<b>Sub Code</b>	ME3351
<b>Sub Name</b>	ENGINEERING MECHANICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Illustrate the vectorial and scalar representation of forces and moments</li><li>• Analyse the rigid body in equilibrium</li><li>• Evaluate the properties of distributed forces</li><li>• Determine the friction and the effects by the laws of friction</li><li>• Calculate dynamic forces exerted in rigid body</li></ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	2	1	2							2	3	1	1
2	3	2	2	1	2							2	3	1	1
3	3	2	3	1	2							2	3	1	2
4	3	2	3	1	2							2	3	1	2
5	3	2	3	1	2							2	3	1	2
<b>Avg</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>							<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>
Low (1); Medium (2); High (3)															



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<b>Sem</b>	03
<b>Sub Code</b>	CE3301
<b>Sub Name</b>	FLUID MECHANICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Demonstrate the difference between solid and fluid, its properties and behaviour in static conditions.</li><li>• Apply the conservation laws applicable to fluids and its application through fluid kinematics and dynamics.</li><li>• Formulate the relationship among the parameters involved in the given fluid phenomenon and to predict the performance of prototypes by model studies.</li><li>• Estimate the losses in pipelines for both laminar and turbulent conditions and analysis of pipes connected in series and parallel.</li><li>• Explain the concept of boundary layer and its application to find the drag force exerted by the fluid on the flat solid surface</li></ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	2	2	2	3	3	2
PO3	Design / development of solutions	1	1	3	3	2	3
PO4	Investigation	1	1	2	2	2	2
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	2	2	2	3	3	2
PO7	Environment and Sustainability	2	2	2	2	2	2
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	1	1	1	1	1	1
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	2	2	3	3	2



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PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	1	1	2	3	3	3

<b>Sem</b>	03
<b>Sub Code</b>	CE3302
<b>Sub Name</b>	CONSTRUCTION MATERIALS AND TECHNOLOGY
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Identify the good quality brick, stone and blocks for construction.</li><li>• Recognize the market forms of timber, steel, aluminum and applications of various composite materials.</li><li>• Identify the best construction and service practices such as thermal insulations and air conditioning of the building</li><li>• Select various equipments for construction works conditioning of building</li><li>• Understand the construction planning and scheduling techniques</li></ul>



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PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	3	3	2	2	2
PO2	Problem analysis	2				3	2
PO3	Design / development of solutions					2	1
PO4	Investigation	3	2	2		3	2
PO5	Modern Tool Usage					2	1
PO6	Engineer and Society	2				2	1
PO7	Environment and Sustainability	2	2	3			2
PO8	Ethics						
PO9	Individual and Team work					2	1
PO10	Communication						
PO11	Project Management and Finance			2	2	3	2
PO12	Life Long Learning	2	2			2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation				3	3	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues		2	2		3	2



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E-Box  
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<b>Sem</b>	03
<b>Sub Code</b>	CE3303
<b>Sub Name</b>	WATER SUPPLY AND WASTEWATER ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand the various components of water supply scheme and design of intake structure and conveyance system for water transmission</li><li>• Understand on the characteristics and composition of sewage, ability to estimate sewage generation and design sewer system including sewage pumping stations</li><li>• Understand the process of conventional treatment and design of water and wastewater treatment system and gain knowledge of selection of treatment process and biological treatment process</li><li>• Ability to design and evaluate water distribution system and water supply in buildings and understand the self-purification of streams and sludge and septage disposal methods.</li><li>• Able to understand and design the various advanced treatment system and knowledge about the recent advances in water and wastewater treatment process and reuse of sewage</li></ul>



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		CO1	CO2	CO3	CO4	CO5	Overall correlation of COs to PO s
PO1	Knowledge of Engineering Sciences	2	2	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions			3	3	3	3
PO4	Investigation	2	2			2	2
PO5	Modern Tool Usage				2	2	2
PO6	Engineer and Society			3	3	3	3
PO7	Environment and Sustainability			2	3	3	3
PO8	Ethics	1	1	2	2	2	2
PO9	Individual and Team work	1	1	2	3	3	2
PO10	Communication					2	2
PO11	Project Management and Finance			2	2	2	2
PO12	Life Long Learning					3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PSO1	Knowledge of Civil Engineering discipline						
PSO2	Critical analysis of Civil Engineering problems and innovation			2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues			2	2	3	2



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<b>Sem</b>	03
<b>Sub Code</b>	CE3351
<b>Sub Name</b>	SURVEYING AND LEVELLING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Introduce the rudiments of various surveying and its principles.</li><li>• Imparts knowledge in computation of levels of terrain and ground features</li><li>• Imparts concepts of Theodolite Surveying for complex surveying operations</li><li>• Understand the procedure for establishing horizontal and vertical control</li><li>• Imparts the knowledge on modern surveying instruments</li></ul>



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PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	3	3	3	3	3
PO2	Problem analysis	2	3	3	3	3	2
PO3	Design / development of solutions	3	2	3	3	3	3
PO4	Investigation	2	2	2	3	3	2
PO5	Modern Tool Usage	2	2	3	3	3	3
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and Sustainability				2	2	2
PO8	Ethics	2	2	2	2	3	2
PO9	Individual and Team work	2	2	2	3	2	2
PO10	Communication						
PO11	Project Management and Finance	2	2	2	2	2	2
PO12	Life Long Learning				2	2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering	3	3	3	3	3	3



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<b>Sem</b>	03
<b>Sub Code</b>	CE3361
<b>Sub Name</b>	SURVEYING AND LEVELLING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Impart knowledge on the usage of basic surveying instruments like chain/tape, compass and levelling instruments</li> <li>• Able to use levelling instrument for surveying operations</li> <li>• Able to use theodolite for various surveying operations</li> <li>• Able to carry out necessary surveys for social infrastructures</li> <li>• Able to prepare planimetric maps</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	2	2	1	3	3	2
PO3	Design / development of solutions	3	3	2	2	3	3
PO4	Investigation	3			3	2	3
PO5	Modern Tool Usage	2	3	3	2	2	3
PO6	Engineer and Society	3	3	2	3	3	3
PO7	Environment and Sustainability	2	3		3	3	3
PO8	Ethics	3	3		2	2	3
PO9	Individual and Team Work	3	3	3	3	3	3
PO10	Communication	3	3		3	3	3
PO11	Project Management and Finance	3	3		3	3	3
PO12	Life Long Learning	1	1	2	1	1	1
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	3	3	3	3	3	3



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<b>Sem</b>	03
<b>Sub Code</b>	CE3311
<b>Sub Name</b>	WATER AND WASTEWATER ANALYSIS LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Calibrate and standardize the equipment</li> <li>• Collect proper sample for analysis</li> <li>• To know the sample preservation methods</li> <li>• To perform field oriented testing of water, wastewater</li> <li>• To perform coliform analysis</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	2	1	3	2	2
PO2	Problem analysis	1	1	1	3	3	2
PO3	Design / development of solutions	1	1	1	3	3	2
PO4	Investigation	1	1	1	3	3	2
PO5	Modern Tool Usage	2	1	1	3	3	2
PO6	Engineer and Society	1	2	2	2	2	2
PO7	Environment and Sustainability	2	2	2	2	2	2
PO8	Ethics	2	2	2	3	3	3
PO9	Individual and Team work	1	1	2	3	2	2
PO10	Communication	1	1	2	2	2	2
PO11	Project Management and Finance	1	2	2	3	2	2
PO12	Life Long Learning	3	3	2	2	3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	1	2	2	3	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	3	2	2
PSO3	Conceptualization and evaluation of Engineering solutions to Civil engineering issues	2	2	2	3	2	2



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<b>Sem</b>	03
<b>Sub Code</b>	GE3361
<b>Sub Name</b>	PROFESSIONAL DEVELOPMENT
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements</li><li>• Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding</li><li>• Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects</li></ul>



<b>Sem</b>	04
<b>Sub Code</b>	CE3401
<b>Sub Name</b>	APPLIED HYDRAULICS ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Describe the basics of open channel flow, its classification and analysis of uniform flow in steady state conditions with specific energy concept and its application</li> <li>Analyse steady gradually varied flow, water surface profiles and its length calculation using direct and standard step methods with change in water surface profiles due to change in grades.</li> <li>Derive the relationship among the sequent depths of steady rapidly varied flow and estimating energy loss in hydraulic jump with exposure to positive and negative surges.</li> <li>Design turbines and explain the working principle</li> <li>Differentiate pumps and explain the working principle with characteristic curves and design centrifugal and reciprocating pumps.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions	2	2	2	3	3	2
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	2	1	1	1	1
PO6	Engineer and Society	2	2	2	2	2	2
PO7	Environment and Sustainability	2	2	2	2	2	2
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	2	2	2	2	2	2
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	3	3	3	3	3	3
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	2	2	3	3	3	3



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<b>Sem</b>	04
<b>Sub Code</b>	CE3402
<b>Sub Name</b>	STRENGTH OF MATERIALS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand the concepts of stress and strain, principal stresses and principal planes.</li><li>• Determine Shear force and bending moment in beams and understand concept of theory of simple bending.</li><li>• Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.</li><li>• Analyze propped cantilever, fixed beams and continuous beams for external loadings and support settlements.</li><li>• Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and study the various theories of failure.</li></ul>



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PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions	3	3	3	3	3	3
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	2	2	2	2	2	2
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and	1	1	1	1	1	1
PO8	Ethics	3	3	3	3	3	3
PO9	Individual and Team work	2	2	2	2	2	2
PO10	Communication	3	3	3	3	3	3
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	3	3	3	3	3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil engineering discipline	3	3	3	3	3	3
PSO2	Civil Engineering Performance Evaluation and coordination	3	3	3	3	3	3
PSO3	Conceptualization of Civil Engineering Systems	3	3	3	3	3	3



<b>Sem</b>	04
<b>Sub Code</b>	CE3403
<b>Sub Name</b>	CONCRETE TECHNOLOGY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Understand the requirements of cement, aggregates and water for concrete</li> <li>Select suitable admixtures for enhancing the properties of concrete</li> <li>Design concrete mixes as per IS method of mix design</li> <li>Determine the properties of concrete at fresh and hardened state.</li> <li>Know the importance of special concretes for specific requirements.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	1	1	2	1	1	1
PO3	Design / development of solutions	1	1	3	1	1	2
PO4	Investigation	2	1	3	1	1	2
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and Sustainability	3	3	3	3	3	3
PO8	Ethics	2	1	1	2	2	2
PO9	Individual and Team work	1	1	1	1	1	1
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	1	1	1	2	1
PO12	Life Long Learning	2	2	2	2	2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	3	3	3	3	3	3



# SUDHARSAN ENGINEERING COLLEGE

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<b>Sem</b>	04
<b>Sub Code</b>	CE3404
<b>Sub Name</b>	SOIL MECHANICS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Demonstrate an ability to identify various types of soils and its properties, formulate and solve engineering Problems</li><li>• Show the basic understanding of flow through soil medium and its impact of engineering solution</li><li>• Understand the basic concept of stress distribution in loaded soil medium and soil settlement due to consolidation</li><li>• Show the understanding of shear strength of soils and its impact of engineering solutions to the loaded soil medium and also will be aware of contemporary issues on shear strength of soils.</li><li>• Demonstrate an ability to design both finite and infinite slopes, component and process as per needs and specifications.</li></ul>



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PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	3	3	2	3	3
PO2	Problem analysis	3	2	3	3	3	3
PO3	Design / development of solutions	2	3	2	3	2	2
PO4	Investigation	2	2	2	2	2	2
PO5	Modern Tool Usage	3	3	2	2	2	2
PO6	Engineer and Society	1	1	2	1	1	1
PO7	Environment and Sustainability	1	1	1	1	1	1
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	2	2	2	1	1	2
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	2	2	2	2	1	2
PO12	Life Long Learning	3	3	3	3	3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	2	2	2	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation	3	2	2	2	3	2
PSO3	Conceptualization and evaluation of Engineering solutions to Civil engineering issues	2	3	3	3	2	3



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<b>Sem</b>	04
<b>Sub Code</b>	CE3405
<b>Sub Name</b>	HIGHWAY AND RAILWAY ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Plan a highway according to the principles and standards adopted in various institutions in India.</li><li>• Design the geometric features of road network and components of pavement.</li><li>• Test the highway materials and construction practice methods and know its properties and able to perform pavement evaluation and management.</li><li>• Understand the methods of route alignment and design elements in railway planning and constructions.</li><li>• Understand the construction techniques and maintenance of track laying and railway stations</li></ul>



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PO/PSO		Course Outcome					Over all Correlation of Cos to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	2	2	3		2
PO2	Problem analysis		3	3			3
PO3	Design / development of solutions		3	2		3	3
PO4	Investigation	2	2	2			2
PO5	Modern Tool Usage		2	2		2	2
PO6	Engineer and Society	3		3	3		3
PO7	Environment and sustainability	1	2	3			2
PO8	Ethics	3	3	3	3		3
PO9	Individual and Team work		2			2	2
PO10	Communication				1		1
PO11	Project Management and Finance		2	3			3
PO12	Life Long Learning		3	3		2	3
<b>PROGRAM SPECIFIC OUTCOMES (PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and Innovation	2	3	3	2	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues				2	3	2



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<b>Sem</b>	04
<b>Sub Code</b>	GE3451
<b>Sub Name</b>	ENVIRONMENTAL SCIENCES AND SUSTAINABILITY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.</li> <li>To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.</li> <li>To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.</li> <li>To recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.</li> <li>To demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization</li> </ul>

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	2	1	-	-	-	2	3	-	-	-	-	2	-	-	-
<b>2</b>	3	2	-	-	-	3	3	-	-	-	-	2	-	-	-
<b>3</b>	3	-	1	-	-	2	2	-	-	-	-	2	-	-	-
<b>4</b>	3	2	1	1	-	2	2	-	-	-	-	2	-	-	-
<b>5</b>	3	2	1	-	-	2	2	-	-	-	-	1	-	-	-
<b>Avg.</b>	<b>2.8</b>	<b>1.8</b>	<b>1</b>	<b>1</b>	-	<b>2.2</b>	<b>2.4</b>	-	-	-	-	<b>1.8</b>	-	-	-



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<b>Sem</b>	04
<b>Sub Code</b>	CE3411
<b>Sub Name</b>	HYDRAULIC ENGINEERING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Apply Bernoulli equation for calibration of flow measuring devices.</li> <li>• Measure friction factor in pipes and compare with Moody diagram Determine the performance characteristics of rotodynamic pumps.</li> <li>• Determine the performance characteristics of positive displacement pumps.</li> <li>• Determine the performance characteristics of turbines.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	3	3	3	3	3
PO2	Problem Analysis	2	2	3	3	3	3
PO3	Design / development of solutions	1	1	2	2	2	2
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	2	2	2	2	2	2
PO7	Environment and Sustainability	2	2	2	2	2	2
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	2	2	3	3	3	2
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	2	2	2	2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	2	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	1	1	2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	1	1	1	1	1	1



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<b>Sem</b>	04
<b>Sub Code</b>	CE3412
<b>Sub Name</b>	MATERIALS TESTING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Determine the mechanical properties of steel.</li> <li>• Determine the physical properties of cement</li> <li>• Determine the physical properties of fine and coarse aggregate.</li> <li>• Determine the workability and compressive strength of concrete.</li> <li>• Determine the strength of brick and wood.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	3	3	3	3	3
PO2	Problem analysis	2	2	3	3	3	3
PO3	Design / development of solutions	1	1	2	2	2	2
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	1	2	1
PO6	Engineer and Society	2	2	2	2	2	2
PO7	Environment and Sustainability	2	2	2	2	2	2
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	3	3	3	3	3	3
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	2	2	2	2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	2	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	2	2	2	2	2	2



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<b>Sem</b>	04
<b>Sub Code</b>	CE3413
<b>Sub Name</b>	SOIL MECHANICS LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• . Conduct tests to determine the index properties of soils</li> <li>• Determine the insitu density and compaction characteristics</li> <li>• Conduct tests to determine the compressibility, permeability and shear strength of soils</li> <li>• Understand the various tests on Geosynthetics</li> </ul>

PO/PSO		Course Outcome				Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	
<b>PROGRAM OUTCOMES(PO)</b>						
PO1	Knowledge of Engineering Sciences	2	1	3	1	1
PO2	Problem analysis	2	2	3	2	2
PO3	Design / development of solutions	3	3	3	2	3
PO4	Investigation	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	2	1
PO6	Engineer and Society	1	1	1	1	1
PO7	Environment and Sustainability	1	1	1	1	1
PO8	Ethics	1	1	1	1	1
PO9	Individual and Team work	3	3	3	3	3
PO10	Communication	1	2	1	1	1
PO11	Project Management and Finance	1	1	1	1	1
PO12	Life Long Learning	3	3	3	3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>						
PSO1	Knowledge of Civil Engineering discipline	3	2	2	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	2	3
PSO3	Conceptualization and evaluation of Engineering solutions to Civil engineering issues	3	2	3	3	3



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<b>Sem</b>	05
<b>Sub Code</b>	CE3501
<b>Sub Name</b>	DESIGN OF REINFORCED CONCRETE STRUCTURAL ELEMENTS
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Know the various design concepts and design RC rectangular beams by working stress and limit state methods</li><li>• Understand the design of flanged beams, design for shear and torsion, and anchorage and development length.</li><li>• Design a RC slabs and staircase and draw the reinforcement detailing.</li><li>• Design short columns for axial, uni-axial and bi-axial eccentric loadings</li><li>• Design wall footings, isolated footings and combined rectangular footing.</li></ul>



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PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions	3	3	3	3	3	3
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and Sustainability	1	1	1	1	1	1
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	3	3	3	3	3	3
PO10	Communication	2	2	2	2	2	2
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	2	2	2	2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to CivilEngineering Issues	3	3	3	3	3	3



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<b>Sem</b>	05
<b>Sub Code</b>	CE3502
<b>Sub Name</b>	STRUCTURAL ANALYSIS I
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Analyze the pin-jointed plane and space frames.</li> <li>Analyse the continuous beams and rigid frames by slope deflection method.</li> <li>Understand the concept of moment distribution and analysis of continuous beams and rigid frames with and without sway.</li> <li>Analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method.</li> <li>Understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design/ development of solutions	3	3	3	3	3	3
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and Sustainability	1	1	1	1	1	1
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	3	3	3	3	3	3
PO10	Communication	2	2	2	2	2	2
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	1	1	1	1	1
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	3	3	3	3	3	3



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<b>Sem</b>	05
<b>Sub Code</b>	CE3503
<b>Sub Name</b>	FOUNDATION ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Graduate will demonstrate an ability to plan and execute a detailed site investigation to select geotechnical design parameters and type of foundation</li><li>• Graduate will demonstrate an ability to design shallow foundations, its component or process as per the needs and specifications.</li><li>• Graduate will demonstrate an ability to design combined footings and raft foundations, its component or process as per the needs and specifications.</li><li>• Graduate will demonstrate an ability to design deep foundations, its component or process as per the needs and specifications.</li><li>• Graduate will demonstrate an ability to design retaining walls, its component or process as per the needs and specifications.</li></ul>



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PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	2	2	3	3	2
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions	3	3	3	3	3	3
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	2	2	2	1	2	2
PO7	Environment and Sustainability	1	2	1	1	1	1
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	1	1	1	1	1	1
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	1	2	2	2	2
PO12	Life Long Learning	3	3	3	3	3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	2	2	2	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation	2	3	3	3	3	3
PSO3	Conceptualization and evaluation of Engineering solutions to Civil engineering issues	3	2	2	3	3	3



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<b>Sem</b>	05
<b>Sub Code</b>	CE3025
<b>Sub Name</b>	AIRPORTS AND HARBOURS
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Gain an insight on the planning and site selection of Airport Planning and design.</li> <li>Knowledge on Design of various Airport components</li> <li>Analyze and design the elements for orientation of runways and passenger facility systems.</li> <li>Understand the various features in Harbours and Ports, their construction, coastal protection works</li> <li>Knowledge on various Environmental Regulations and Acts</li> </ul>

PO/PSO		Course Outcome					Over all Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences		3		3	3	3
PO2	Problem analysis	3	3	3	3	2	3
PO3	Design / development of solutions	3		3		3	3
PO4	Investigation	2	2	2	2	3	2
PO5	Modern Tool Usage	3	2	3	2		2
PO6	Engineer and Society		3		3		3
PO7	Environment and sustainability	2	2	2	2	2	2
PO8	Ethics	3	1	3	1		3
PO9	Individual and Team work		2		2		2
PO10	Communication						
PO11	Project Management and Finance	1		1		1	1
PO12	Life Long Learning	2	2	2	2		2
<b>PROGRAM SPECIFIC OUTCOMES (PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	2	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	3	3	2	2	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	2	3	2	3	3	3



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<b>Sem</b>	05
<b>Sub Code</b>	CCE331
<b>Sub Name</b>	AIR AND NOISE POLLUTION CONTROL ENGINEERING
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand various types and sources of air pollution and its effects</li><li>• Know the dispersion of air pollutants and their modeling</li><li>• Know about the principles and design of control of particulate pollutants</li><li>• Understand the principles and design of control of gaseous pollutant</li><li>• Know the sources, effects and control of vehicular, indoor air and noise pollution</li></ul>

CO's	PO's												PSO's		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
<b>1</b>	3				3			2	1	2			2		
<b>2</b>	2			3		2						2	1	2	2
<b>3</b>	2		3		3		1				2		2	2	2
<b>4</b>	2		3		3		1				2		2	2	2
<b>5</b>	3	3	2	3	2					2			2		
<b>Avg.</b>	2	3	3	3	3			2	1	2	2	2	2	2	2



# SUDHARSAN ENGINEERING COLLEGE

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Sathiyamangalam, Kulathur(TK), Pudukkottai District-622 501

Ph: 04339-240830, 240840 Fax: 04339-240205

Website: [www.sec.ac.in](http://www.sec.ac.in) Email: [principal@sec.ac.in](mailto:principal@sec.ac.in)



E-Box  
Colleges

<b>Sem</b>	05
<b>Sub Code</b>	CE3003
<b>Sub Name</b>	PREFABRICATED STRUCTURES
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand concepts about principles of prefabrication, production, transportation, erection</li><li>• Acquire knowledge about panel systems, slabs, beams, shear walls and columns used in precast construction.</li><li>• Acquire knowledge about design of cross section, joint flexibility.</li><li>• Acquire knowledge about joints and connection in precast construction.</li><li>• Acquire knowledge about structural stability.</li></ul>



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PO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	1	3	2	2	2
PO3	Design / development of solutions	3	2	3	2	3	3
PO4	Investigation	3	1	3	2	3	2
PO5	Modern Tool Usage	3	1	3	1	1	2
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and Sustainability	1	1	1	1	1	1
PO8	Ethics	3	3	3	3	3	3
PO9	Individual and Team work	3	1	2	1	1	2
PO10	Communication	2	2	2	2	2	2
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	2	2	2	2	2
<b>PROGRAM SPECIFIC OUTCOMES (PSO)</b>							
PSO1	Knowledge of Civil engineering discipline	3	3	3	3	3	3
PSO2	Civil Engineering Performance Evaluation and coordination	2	2	2	2	2	2
PSO3	Conceptualization of Civil Engineering Systems	2	2	2	2	2	2



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<b>Sem</b>	05
<b>Sub Code</b>	CE3511
<b>Sub Name</b>	HIGHWAY ENGINEERING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Characterize Pavement Aggregate through relevant test.</li> <li>• Ascertain the Quality of Bitumen.</li> <li>• Determine the Optimum Binder Content Using Marshall Method.</li> <li>• Evaluate the Consistency and Properties of Bitumen.</li> <li>• Determine the Bitumen Content in the Bituminous Mixes</li> </ul>

PROGRAM OUTCOMES(PO)PO/PSO		Course Outcome					Over all Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	1	1	1	1	1	1
PO3	Design / development of solutions	3	3	3	3	3	3
PO4	Investigation	2	2	2	2	2	2
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	1	1	1	1	1	1
PO7	Environment and sustainability	1	1	1	1	1	1
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	3	3	3	3	3	3
PO10	Communication	3	3	3	3	3	3
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	3	3	3	3	3	3
<b>PROGRAM SPECIFIC OUTCOMES (PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	2	2	2	2	2	2



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<b>Sem</b>	05
<b>Sub Code</b>	CE3512
<b>Sub Name</b>	SURVEY CAMP (2 weeks)
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Handle the modern surveying instruments like Total station and GPS</li> <li>• Apply modern surveying techniques in field to establish horizontal control.</li> <li>• Understand the surveying techniques in field to establish vertical control</li> <li>• Apply different survey adjustment techniques.</li> <li>• Carry out different setting out works in the field</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions			2	2	2	2
PO4	Investigation	3	3	3			3
PO5	Modern Tool Usage	3	3	3	3	3	3
PO8	Engineer and Society	3	3	2	2	2	2
PO10	Environment and Sustainability	2	2	2	2	2	2
PO9	Ethics	2	2	2	2		2
PO6	Individual and Team work	2	2	3	2	2	2
PO7	Communication	2	2	2	2	2	2
PO11	Project Management and Finance	2	2	2	2	2	2
PO12	Life Long Learning	3	3	3	3	3	3
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	3	3	3	3	3	3



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<b>Sem</b>	06
<b>Sub Code</b>	CE3601
<b>Sub Name</b>	Design of Steel Structural Elements
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Recognize the design philosophy of steel structures and identify the different failure modes of bolted and welded connections, and determine their design strengths</li> <li>Select the most suitable section shape and size for tension and compression members and beams according to specific design criteria</li> <li>Apply the principles, procedures and current code requirements to the analysis and design of steel tension members, columns, column bases and beams</li> <li>Identify and compute the design loads on Industrial structures, and gantry girder</li> <li>Find out ultimate load of steel beams and portal frames using plastic analysis</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	2	2	3	2	2
PO2	Problem analysis	2	2	2	2	3	2
PO3	Design / development of solutions	3	3	3	3	3	3
PO4	Investigation					2	2
PO5	Modern Tool Usage		2	2	2		2
PO6	Engineer and Society				2		2
PO7	Environment and Sustainability	2			2		2
PO8	Ethics				2		2
PO9	Individual and Team work				2		2
PO10	Communication					1	1
PO11	Project Management and Finance		2	2	2		2
PO12	Life Long Learning	2	2	2	3	3	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	2	2	2	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues				3	3	3



<b>Sem</b>	06
<b>Sub Code</b>	CE3602
<b>Sub Name</b>	STRUCTURAL ANALYSIS II
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Draw influence lines for statically determinate structures and calculate critical stress resultants.</li><li>• Understand Muller Breslau principle and draw the influence lines for statically indeterminate beams.</li><li>• Analyse three hinged, two hinged and fixed arches.</li><li>• Analyse the suspension bridges with stiffening girders</li><li>• Analyse Hyde rigid frames by approximate methods for gravity and horizontal loads.</li></ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	3	3	3	3	3	3
PO3	Design / development of solutions	3	3	3	3	3	3
PO4	Investigation	3	3	3	3	3	3
PO5	Modern Tool Usage	1	1	1	1	1	1
PO6	Engineer and Society	3	3	3	3	3	3
PO7	Environment and Sustainability	1	1	1	1	1	1
PO8	Ethics	1	1	1	1	1	1
PO9	Individual and Team work	3	3	3	3	3	3
PO10	Communication	2	2	2	2	2	2
PO11	Project Management and Finance	1	1	1	1	1	1
PO12	Life Long Learning	2	1	1	1	1	1
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	3	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	3	3	3	3	3	3



<b>Sem</b>	06
<b>Sub Code</b>	AG3601
<b>Sub Name</b>	ENGINEERING GEOLOGY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Knowing the internal structure of earth and its relation to earthquakes. Landforms created by various geological agents and their importance in civil engineering.</li> <li>• Getting knowledge on various minerals and rocks that can be used as construction materials and road aggregates. In addition, testing the suitability of rocks for foundation purposes.</li> <li>• Studying various geological structures and their impact in engineering constructions. Further, learning the geomechanical properties of rocks and their significance in engineering projects.</li> <li>• Gaining knowledge on the role of geological mapping, remote sensing and geophysics for surface and subsurface investigations. In addition, students will also gain knowledge on borehole logging techniques and their applications in civil engineering.</li> <li>• Applying geological knowledge for designing and constructing major civil engineering structures, and also mitigating various geological hazards such as earthquakes, landslides and tsunamis.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
PO1	Knowledge of Engineering Sciences	2	2	2			2
PO2	Problem analysis			2	2	3	2
PO3	Design / development of solutions			3		3	3
PO4	Investigation		2	3	3	3	3
PO5	Modern Tool Usage		2		2		2
PO6	Individual and Team work		2	2		2	2
PO7	Communication					1	1
PO8	Engineer and Society	2			2	2	2
PO9	Ethics				2	2	2
PO10	Environment and Sustainability	2			2	2	2
PO11	Project Management and Finance				2	2	2
PO12	Life Long Learning				2	2	2
PSO1	Knowledge of Civil Engineering discipline		2		2	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation				2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues			2		2	2



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<b>Sem</b>	06
<b>Sub Code</b>	CE3013
<b>Sub Name</b>	ADVANCED CONSTRUCTION TECHNIQUES
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Understand the modern construction techniques used in the sub structure construction.</li> <li>• Demonstrate knowledge and understanding of the principles and concepts relevant to super structure construction for buildings</li> <li>• Understand the concepts used in the construction of special structures</li> <li>• Knowledge on Various strengthening and repair methods for different cases.</li> <li>• Identify the suitable demolition technique for demolishing a building.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	2	1	2	2	1	2
PO2	Problem analysis	2	-	3	3	3	3
PO3	Design / development of solutions	1	-	3	3	3	3
PO4	Investigation	3	2	2	3	3	3
PO5	Modern Tool Usage	3	2	3	2	2	2
PO6	Engineer and Society	2	2	3	1	2	2
PO7	Environment and Sustainability	2	3	2	2	1	2
PO8	Ethics	-	-	1	1	1	1
PO9	Individual and Team work	1	1	2	1	2	1
PO10	Communication	1	1	2	1	2	1
PO11	Project Management and Finance	2	2	3	2	3	2
PO12	Life Long Learning	1	1	2	1	2	1
<b>PROGRAM SPECIFIC OUTCOMES (PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	2	3	3	2	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	3	3	3	3	3
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	3	2	3	3	2	3



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<b>Sem</b>	06
<b>Sub Code</b>	CE3053
<b>Sub Name</b>	RAINWATER HARVESTING
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Understand the need and importance of water conservation through global and Indian practices of rainwater harvesting</li> <li>• Understand and apply the concepts of hydrology and groundwater in the estimation of runoff and recharge potentials</li> <li>• Understand the various types of rainwater harvesting methods and apply it on the field</li> <li>• Design the various RWH structures to harvest the rainwater in surface and subsurface</li> <li>• Explain the difficulties of RWH, evaluation methods and maintenance through various case studies.</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of COs to POs
		CO1	CO2	CO3	CO4	CO5	
PO1	Knowledge of Engineering Sciences	2	3	2	3	2	2
PO2	Problem analysis	1	3	2	3	2	2
PO3	Design / development of solutions		2	2	3	2	2
PO4	Investigation		2	2	3	2	2
PO5	Modern Tool Usage	1	3	2	3	2	2
PO6	Engineer and Society	2	2	2	3	2	2
PO7	Environment and Sustainability	2	1	2	2	2	2
PO8	Ethics	2	1	1	2	2	2
PO9	Individual and Team work	1	1	1	2	2	1
PO10	Communication	1	1	1	1	1	1
PO11	Project Management and Finance	1	2	1	3	2	2
PO12	Life Long Learning	2	2	2	2	2	2
PSO1	Knowledge of Civil Engineering	2	2	2	3	3	2
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	3	3	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	1	2	2	3	3	2



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<b>Sem</b>	06
<b>Sub Code</b>	CE3038
<b>Sub Name</b>	WATERSHED CONSERVATION AND MANAGEMENT
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>Recognize and Interpret the morphological features of a watershed.</li> <li>State, design and sketch the soil conservation structures.</li> <li>Describe the micro catchment and apply the concepts to design the small water harvesting structures.</li> <li>Illustrate the application of modern tools and technology in the management of watershed.</li> <li>Classify the management activities and to develop an integrated watershed development plan.</li> </ul>

POs/PSOs		Course Outcome					Overall Correlation of COs to
		CO1	CO2	CO3	CO4	CO5	
PO1	Knowledge of Engineering Sciences	3	3	3	-	-	2
PO2	Problem analysis	-	2	2	-	2	2
PO3	Design / development of solutions	-	2	2	-	2	2
PO4	Investigation	1	2	2	-	2	2
PO5	Modern Tool Usage	1	1	1	3	-	1
PO6	Engineer and Society	-	2	2	-	2	2
PO7	Environment and Sustainability	1	2	2	-	2	2
PO8	Ethics	-	1	1	-	3	1
PO9	Individual and Team work	3	1	1	3	3	2
PO10	Communication	2	2	2	2	3	2
PO11	Project Management and Finance	-	1	1	2	2	1
PO12	Life Long Learning	2	2	2	2	2	2
PSO1	Knowledge of Civil Engineering	2	2	2	2	2	2
PSO2	Critical analysis of Civil Engineering problems and innovation	1	2	2	1	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering issues	1	2	2	2	2	2



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<b>Sem</b>	06
<b>Sub Code</b>	CE3611
<b>Sub Name</b>	BUILDING DRAWING AND DETAILING LABORATORY
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Draft the plan, elevation and sectional view of the load bearing and framed buildings</li> <li>• Draw the structural detailing of RCC elements</li> <li>• Draw the structural detailing of RCC water tanks, footings and retaining walls</li> <li>• Draw the structural detailing of steel structures</li> <li>• Draft the structural detailing of Industrial structures</li> </ul>

PO/PSO		Course Outcome					Overall Correlation of CO s to POs
		CO1	CO2	CO3	CO4	CO5	
<b>PROGRAM OUTCOMES(PO)</b>							
PO1	Knowledge of Engineering Sciences	3	3	3	3	3	3
PO2	Problem analysis	-	2	2	2	2	2
PO3	Design / development of solutions	-	-	-	-	-	-
PO4	Investigation	-	-	-	2	2	2
PO5	Modern Tool Usage	2	2	2	2	2	2
PO6	Engineer and Society	-	3	3	3	3	3
PO7	Environment and Sustainability	-	-	-	-	-	-
PO8	Ethics	1	2	2	1	2	2
PO9	Individual and Team work	-	3	3	3	3	3
PO10	Communication	-	2	2	2	2	2
PO11	Project Management and Finance	-	-	-	-	-	-
PO12	Life Long Learning	1	2	2	2	2	2
<b>PROGRAM SPECIFIC OUTCOMES(PSO)</b>							
PSO1	Knowledge of Civil Engineering discipline	3	3	3	3	3	3
PSO2	Critical analysis of Civil Engineering problems and innovation	2	2	2	2	2	2
PSO3	Conceptualization and evaluation of engineering solutions to Civil Engineering Issues	-	2	2	2	2	2