

Government College of Engineering, Salem - 11
Department of Civil Engineering
M.E. - Structural Engineering
COs - POs and PSO Mapping
Course Articulation Matrix – 22 Regulation

Semester - I																	
22STC11-Advanced Structural Analysis																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Apply the fundamental concepts in matrix method of analyzing Civil Engineering structures	2	1	1	2	-	1	-	2	1	-	-	-	1	-	-	-
2	Understand the energy concepts in structures	2	1	1	1	-	2	1	-	1	2	-	-	1	-	-	-
3	Solve the indeterminate structure using flexibility matrix	2	1	1	1	2	-	1	1	-	1	-	-	1	-	-	-
4	Solve the indeterminate structure using stiffness matrix	2	1	1	1	1	-	-	1	-	2	-	-	1	-	-	-
5	Analyze the techniques of inter- connected, complicated and very large structures by sub structuring.	2	1	1	1	1	-	-	1	-	2	-	-	1	-	-	-
Average		2	1	1	1.2	1.3	1.5	1	1.25	1	1.75	-	-	1	-	-	-

Semester - I																	
22STC12-Theory of Elasticity and Plasticity																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Have Knowledge about stress distribution in engineering structures	3	2	2	2	-	1	-	-	-	-	-	-	1	-	-	-
2	to understand of the essential facts, concepts, theories and principles underlying elasticity and plasticity theory	3	2	2	2	-	2	1	-	-	-	-	-	1	-	-	-
3	Complex methods to understand stress distribution which is not possible using elementary methods.	3	2	-	1	2	-	1	-	-	-	-	-	1	-	-	-
4	Learn application of both elasticity and plasticity to Engineering design and analysis.	3	-	-	1	2	-	1	-	-	-	-	-	-	-	-	-
Average		3	2	2	1.2	2	1.5	1	-	-	-	-	-	1	-	-	-

Semester - I																	
22STC13-Structural Design Lab																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	All the Structural Components of Frame Buildings.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
2	Multi-Storey Frame Buildings.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
3	Foundation	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
4	Steel Structures.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
Average		1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-

Semester - I

22STC14-Concrete And Experimental Stress Analysis Lab

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Able to design concrete mixes	2	2	3	3	2	-	-	-	-	2	1	-	-	3	-	-
2	Measure the permeability of concrete, crack width etc	2	2	2	-	3	-	-	-	-	2	1	-	-	3	-	-
3	Study the applications of various strain gauges	2	2	2	-	2	-	-	-	-	2	1	-	-	3	-	-
4	Perform non-destructive tests	2	2	2	-	3	2	-	-	-	2	1	-	-	3	-	-
Average		2	2	2.25	3	2	2	-	-	-	2	1	-	-	3	-	-

Semester - I

22MLC01-Research Methodology And IPR

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Understand research problem formulation	1	-	-	-	-	-	2	1	-	-	3	-	-	-	-	-
2	Analysis research related information	1	-	-	-	-	-	2	1	-	-	3	-	-	-	-	-
3	Follow research ethics.	1	-	-	-	-	-	3	1	-	-	3	-	-	-	-	-
4	Understand that today's world controlled by Computer, Information technology, but tomorrow world ruled by ideas, concept and creativity.	1	-	-	-	-	-	2	1	-	-	3	-	-	-	-	-
5	Understand that IPR production provides an incentive to inventors for further research work and investment in R&D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.	1	-	-	-	-	-	2	1	-	-	3	-	-	-	-	-
Average		1	-	-	-	-	-	2	1	-	-	3	-	-	-	-	-

Semester - II

22STC21-Finite Element Method in Structural Engineering

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	discretize the structure and also to formulate boundary value problems of finite element method	2	2	2	-	-	1	-	-	-	-	-	-	1	-	-	-
2	develop shape function and element stiffness matrices for 1D elements and solve structures made up of 1D elements using FEM	1	-	2	2	2	-	-	-	-	-	-	-	1	-	-	-
3	solve 2D scalar variable problems	2	1	2	2	1	-	-	-	-	-	-	-	-	-	-	-
4	formulate 2D FEM elements for plane stress and plane strain problems	1	-	2	2	2	-	-	-	-	-	-	-	1	-	-	-
5	built iso parametric elements, serendipity, Lagrangian elements and axisymmetry elements for 2D stress analysis	2	1	2		1	-	-	-	-	-	-	-	-	-	-	-
Average		1.6	1.33	2	2	1.5	1	-	-	-	-	-	-	1	-	-	-

Semester - II																	
22STC22-Structural Dynamics																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Evaluate the dynamics response of SDOF and MDOF systems using fundamental theory and equation of motion.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
2	Analyze the continuous system subjected to dynamic loading.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
3	Solve the dynamic response by using various numerical methods.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
4	Study the effect of Wind, Moving loads, Vibration etc on structures.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
Average		1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-

Semester - II																	
22STC23-Model Testing Lab																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	After completing all the experiments prescribed, students will be able to design high grade concrete and study the parameters affecting its performance	2	2	2	2	-	1	-	-	-	2	1	-	-	3	-	-
2	Students will be able to conduct Non Destructive tests, corrosion test and RCPT on concrete	3	2	2	-	3	2	-	-	-	2	1	-	-	3	-	-
3	On completion of this laboratory course students will be able to cast and test RC beams for flexure and shear behavior	2	2	2	2	-	1	-	-	-	2	1	-	-	3	-	-
4	They will be able to test cyclic load testing on beams	2	2	2	2	-	1	-	-	-	2	1	-	-	3	-	-
Average		2.25	2	2	2	3	1.25	-	-	-	2	1	-	-	3	-	-

Semester - II

22STC24-Numerical Analysis Lab

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Obtain the numerical solutions of non-linear equations using Bisection and Newton's method	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	0
2	Do curve fitting by least square approximations	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	0
3	Solve the system of linear equations using Gauss -Elimination / Gauss - Seidal iteration / Gauss Jordan Method	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	0
4	Integrate numerically using Trapezoidal and Simpson's rules	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	0
5	Obtain the numerical solution of ordinary differential equations by Euler's and Runge-Kutta methods	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	0
Average		3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-

Semester - II																	
22STC25-Mini Project																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Identify structural Engineering problems reviewing available literature	2	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-
2	Study different techniques used to analyze complex structural systems	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-
3	Work the solution given and present solution by using his/her techniques applying Engineering principles.	2	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-
Average		2	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-

Semester - III																	
22STC31 -Dissertation I																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Identify structural engineering problems reviewing available literature.	2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
2	Identify appropriate techniques to analyze complex structural systems.	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
3	Apply engineering and management principles through efficient handling of project	2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
Average		2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-

Semester - IV																	
22STC41 - Dissertation II																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Solve complex structural problems by applying appropriate techniques and tools	2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
2	Exhibit good communication skill to the engineering community and society	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
3	Demonstrate professional ethics and work culture	2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
Average		2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-

Elective Subjects

22STE11-Theory Of Thin Plates and Shell

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	At the end of the course, students will be able to Use analytical methods for the solution of thin plates and shells.	3	-	2	-	1	2	-	3	-	2	-	1	-	1	-	-
2	Use analytical methods for the solution of shells.	-	3	-	1	1	1	1	-	1	-	1	-	-	1	-	-
3	Apply the numerical techniques and tools for the complex problems in thin plates.	3	-	1	1	1	-	1	-	1	-	1	-	-	1	-	-
4	Apply the numerical techniques and tools for the complex problems in shells.	2	1	-	1	-	1	-	2	-	2	-	-	2	1	-	-
Average		2.6	2	1.5	1	1	2	1	2.5	1	2	1	1	2	1	-	-

Elective Subjects

22STE12-Theory And Applications of Cement Composites

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Formulate constitutive behaviour of composite materials – Ferrocement, SIFCON and Fibre Reinforced Concrete - by understanding their strain- stress behaviour	3	2	3	3	-	1	-	2	1	-	1	1	1	1	-	-
2	Classify the materials as per orthotropic and anisotropic behavior.	3	-	3	3	-	2	1	-	1	2	-	-	1	1	-	-
3	Estimate strain constants using theories applicable to composite materials.	3	-	-	1	2	-	1	1	-	1	1	2	-	-	-	-
4	Analyse and design structural elements made of cement composites.	2	3	2	3	1	-	-	1	-	2	1	-	1	1	-	-
Average		2.75	2.5	2.66	2.5	1.5	1.5	1	2	1	1.66	1	1.5	1	1	-	-

Elective Subjects

22STE13-Theory of Structural Stability

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Will have knowledge about the concepts of structural stability and analytical approaches	3	-	3	3	-	1	-	2	-	1	1	-	1	-	-	-
2	Will have an understanding of the methods of analysis and inelastic behaviour of columns, lateral and torsional buckling of beams and buckling of thin plates.	-	3	2	1	-	1	-	1	1	-	-	1	-	-	-	-
3	Will also be able to perform advanced experiments on beam columns and frames.	2	-	1	-	1	-	1	2	-	2	-	1	-	1	-	-
4	Publish papers in conferences and journals.	-	2	-	3	1	1	1	-	2	-	1	1	-	1	-	-
Average		2.5	2.5	2	2.33	1	1	1	1.66	1.5	1.5	1	1	1	1	-	-

Elective Subjects

22STE14-Corrosion And Its Prevention

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	To know about phenomenon of corrosion, its propagation and the methods to monitor corrosion.	1	-	2	2	-	2	1	-	2	-	1	-	1	-	-	-
2	To measure the rate of corrosion using Ultrasonic Pulse Velocity technique.	1	-	2	2	-	2	1	-	2	-	1	-	1	-	-	-
3	To understand different protective measures like coatings to concrete structures.	1	-	2	2	-	2	1	-	2	-	1	-	1	-	-	-
4	To design Protection system against corrosion of infrastructure, plant, equipment and machinery.	1	-	2	2	-	2	1	-	2	-	1	-	1	-	-	-
5	Ability to undertake corrosion problem identification, formulation and solution.	1	-	2	2	-	2	1	-	2	-	1	-	1	-	-	-
Average		1	-	2	2	-	2	1	-	2	-	1	-	1	-	-	-

Elective Subjects																	
22STE21-Analytical and Numerical Methods for Structural Engineering																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Obtain the numerical solutions of linear and non-linear equations	3	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
2	Acquire the techniques of interpolation and approximations	3	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
3	Familiarize with the numerical differentiation and integration.	3	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
4	Solve the initial value problems for ordinary differential equations	3	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
5	Good knowledge about different concreting methods	3	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-
Average		3	2	2	2	-	-	-	-	-	-	-	-	2	-	-	-

Elective Subjects

22STE22-Structural Health Monitoring

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Able to demonstrate the condition of structures	2	2	2	2	-	1	-	-	-	2	1	-	3	-	-	-
2	Will able to inspect and evaluate the damaged structures	3	2	2	-	3	2	-	-	-	2	1	-	3	-	-	-
3	Will able to implement the repairing techniques of a structure	2	2	2	2	-	-	-	-	-	2	1	-	3	-	-	-
4	Will demonstrate the dismantling and demolishing structures	2	2	2	2	-	-	-	-	-	2	1	-	3	-	-	-
Average		2.25	2	2	2	3	1.5	-	-	-	2	1	-	3	-	-	-

Elective Subjects																	
22STE23-Structural Optimization																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Apply the knowledge of engineering fundamentals to formulate and solve the Engineering problems by classical optimization techniques.	3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-
2	Identify, formulate and solve engineering problems by linear and non-linear Programming.	3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-
3	Analyse the problem and reducing G.P.P to a set of simultaneous equations.	3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-
4	Design various structural elements with minimum weight.	3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-
Average		3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-

Elective Subjects																	
22STE24-Experimental Techniques and Instrumentation																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Familiarize with various types of measuring devices and their working principles	-	3	-	2	-	1	-	-	-	-	1	-	-	3	-	-
2	Able to select a measuring device for a specific experimental work	-	3	-	2	-	1	-	-	-	-	1	-	-	3	-	-
3	Able to conduct experiments, observe and interpret data.	-	3	-	2	-	1	-	-	-	-	1	-	-	3	-	-
4	Obtained the expected results from the interpretation.	-	3	-	2	-	1	-	-	-	-	1	-	-	3	-	-
Average		-	3	-	2	-	1	-	-	-	-	1	-	-	3	-	-

Elective Subjects																	
22STE31-Advanced Steel Design																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Understand the behaviour of steel and design philosophies	3	3	3	3	-	3	-	1	2	-	-	-	1	2	-	-
2	They acquire knowledge to analysis and design of eccentric connections.	3	3	3	2	2	2	-	1	1	1	-	-	1	3	-	-
3	To acquire the knowledge of stability behavior of beam and column sections	3	3	3	2	2	2	-	2	1	-	-	-	1	3	-	-
4	Understand the behaviour of moment resistant frames used in pre-engineering buildings	3	3	3	2	2	2	-	1	1	1	-	-	1	3	-	-
5	To learn the behavior and design of of light gauge steel axial and flexural members.	3	3	3	2	2	2	-	2	1	-	-	-	1	3	-	-
Average		3	3	3	2.2	2	2.2	-	1.4	1.2	1	-	-	1	2.8	-	-

Elective Subjects																	
22STE32-Design Of Formwork																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Select proper formwork, accessories and material.	3	2	2	1	1	1	-	-	-	-	-	-	1	1	-	-
2	Design the form work for Beams, Slabs, columns, Walls and Foundations.	2	1	1	1	1	1	-	-	-	-	-	-	1	1	-	-
3	Design the form work for Special Structures.	2	1	1	1	1	1	-	-	-	-	-	-	1	1	-	-
4	Understand the working of flying formwork.	2	1	1	1	1	1	-	-	-	-	-	-	1	1	-	-
5	Judge the formwork failures through case studies.	2	1	1	1	1	1	-	-	-	-	-	-	1	1	-	-
Average		2.2	1.2	1.2	1	1	1	-	-	-	-	-	-	1	1	-	-

Elective Subjects																	
22STE33-Design of High Rise Structures																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	To understand the behavior of tall structures.	2	-	2	2	-	2	1	-	2	-	-	-	1	-	-	-
2	Analyze, design and detail Transmission/TV tower.	2	-	2	2	-	2	1	-	2	-	-	-	1	-	-	-
3	Analyze. design and detail of chimneys.	2	-	2	2	-	2	1	-	2	-	-	-	1	-	-	-
4	To understand the behavior of various structural forums.	2	-	2	2	-	2	1	-	2	-	-	-	1	-	-	-
5	To carry out the stability analysis.	2	-	2	2	-	2	1	-	2	-	-	-	1	-	-	-
Average		2	-	2	2	-	2	1	-	2	-	-	-	-	1	-	-

Elective Subjects

22STE34-Design Of Masonry Structures

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Understand the masonry design approaches.	2	2	2	2	1	1	-	2	-	-	-	-	1	1	1	-
2	Analyze Reinforced Masonry Members.	2	2	2	2	1	1	-	2	-	-	-	-	1	1	1	-
3	Determine interactions between members.	2	2	2	2	1	1	-	2	-	-	-	-	1	1	1	-
4	Check the stability of walls	2	2	2	2	1	1	-	2	-	-	-	-	1	1	1	-
5	Perform elastic and Inelastic analysis of masonry walls.	2	2	2	2	1	1	-	2	-	-	-	-	1	1	1	-
Average		2	2	2	2	1	1	-	2	-	-	-	-	1	1	1	-

Elective Subjects																	
22STE35-Design Of Prefabricated Structures																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Able to gain knowledge about the requirements for planning and layout of prefabricating plant	3	2	2	2	2	1	-	1	1	-	-	-	1	1	-	-
2	Will be familiar with the IS codal provisions, for prefabrication of structural elements	2	1	1	1	1	-	-	-	-	-	-	-	1	1	-	-
3	Will be able to design large panel walls, one way and two way prefabricated slabs, curtain walls, single storey industrial buildings with trusses, and gantry systems	2	1	1	1	1	-	-	-	-	-	-	-	1	1	-	-
Average		2.3	1.3	1.3	1.3	1.3	1	-	1	1	-	-	-	1	1	-	-

Elective Subjects

22STE36-Design Of Steel Concrete Composite Structures

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Have a thorough understanding of the behavior of steel concrete composite structure components – slabs, beams, columns and trusses.	3	2	-	2	-	1	-	2	3	-	1	1	-	3	-	-
2	Design the meeting out the desired specifications and requirements.	2	-	3	-	1	1	-	1	-	1	-	1	1	-	-	-
3	Have the ability to solve Structural engineering problems.	1	1	-	2	-	1	2	-	1	1	-	1	-	2	-	-
4	Have the knowledge to conduct advanced experiments on steel concrete composite structural components.	2	-	1	1	-	1	1	-	2	-	-	1	-	-	-	-
Average		2	1.5	2	1.66	1	1	1.5	1.5	2	1	1	1	1	2.5	-	-

Elective Subjects

22STE41-Design Of Advanced Concrete Structures

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Analyse the special structures by understanding their behaviour	2	2	2	-	-	1	1	-	-	-	-	-	1	-	-	-
2	.Design and prepare detail structural drawings for execution.	1	-	2	2	2	-	1	-	-	-	-	-	1	-	-	-
3	Design the special elements like corbels, deep beams, spandrel beams and grid floors	2	2	2	-	-	1	1	-	-	-	-	-	1	-	-	-
4	Predict the moment curvature behavior, design and detailing of concrete elements based on ductility parameter	1	-	2	2	2	-	1	-	-	-	-	-	1	-	-	-
Average		1.5	2	2	2	2	1	1	-	-	-	-	-	1	-	-	-

Elective Subjects

22STE42-Advanced Design of Foundations

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Decide the suitability of soil strata for different projects.	2	2	1	2	2	-	-	-	-	-	-	-	1	-	-	-
2	Design shallow foundations deciding the bearing capacity of soil.	2	2	2	2	2	-	-	-	-	-	-	-	1	-	-	-
3	Analyze and design the pile foundation	2	2	3	2	2	1	-	-	-	-	-	-	1	-	-	-
4	Understand analysis methods for well foundation.	2	2	2	2	2	-	-	-	-	-	-	-	1	-	-	-
Average		2	2	2	2	2	1	-	-	-	-	-	-	1	-	-	-

Elective Subjects																	
22STE43-Design of Industrial Structures																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Acquire knowledge about functional requirements of Industrial buildings.	3	3	3	3	1	2	-	3	3	1	-	-	1	3	-	-
2	Understand the behavior and design of plate and gantry girders.	3	3	3	3	1	3	-	3	3	1	-	-	2	3	-	-
3	Acquire knowledge about the design of portal frames.	3	3	3	3	1	2	-	3	3	1	-	-	1	3	-	-
4	Understand the design concept of steel bunkers and silos.	3	3	3	3	1	3	-	3	3	1	-	-	2	3	-	-
5	Design of steel chimneys and understand the design behavior.	3	3	3	3	1	3	-	3	3	1	-	-	2	3	-	-
Average		3	3	3	3	1	2.6	-	3	3	1	-	-	1.6	3	-	-

Elective Subjects																	
22STE44-Substructure Design																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Able to adopt a suitable foundation based on the soil condition and the type of structure.	1	3	3	-	-	2	-	2	-	1	-	-	-	3	2	-
2	Familiarize with principles, planning and design of various types of foundation as per IS codal specifications and requirements.	1	3	3	-	-	2	-	2	-	1	-	-	-	3	2	-
3	Able to design and detailing of reinforcement for foundations.	1	3	3	-	-	2	-	2	-	1	-	-	-	3	2	-
Average		1	3	3	-	-	2	-	2	-	1	-	-	-	3	2	-

Elective Subjects																	
22STE45-Design And Construction of Ferrocement Structures																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	On completion of the course the student will be able to understand the concepts of ferrocement technology.	3	3	-	2	1	2	3	1	1	1	-	1	3	-	1	-
2	The student will be in a position to analyse and design ferrocement structures.	2	3	-	1	1	2	-	1	1	-	2	1	1	1	-	-
3	The student will gain the knowledge of the method of construction of the structures.	1	-	1	-	2	1	1	-	1	1	-	1	1	1	-	-
Average		2	3	1	1.5	2	1.66	2	1	1	1	2	1	1.66	1	1	-

Elective Subjects

22STE51-Design Of Prestressed Concrete Structures

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Students will able to find out the basics and losses in prestressed concrete structures	3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-
2	Understand the basic concept of pre and post-tensioning processes, analyze prestressed concrete members	3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-
3	Design prestressed concrete deck slab and end blocks	3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-
Average		3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-

Elective Subjects

22STE52-Analysis Of Laminated Composite Plates

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Analyze the rectangular composite plates using the analytical methods.	3	2	-	1	-	1	-	-	1	2	-	1	1	1	-	-
2	Analyze the composite plates using advanced finite element methods.	1	-	1	-	1	1	-	1	-	-	1	-	1	-	-	-
3	Develop the computer programs for the analysis of composite plates.	1	1	-	1	-	1	1	-	1	1	-	1	-	1	-	-
Average		1.66	1.5	1	1	1	1	1	1	1	1.5	1	1	1	1	-	-

Elective Subjects

22STE53-Fracture Mechanics of Concrete Structures

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Identify and classify cracking of concrete structures based on fracture mechanics.	3	2	-	2	-	1	-	-	-	-	-	-	1	-	-	-
2	Implement stress intensity factor for notched members	2	-	1	-	1	1	-	-	-	-	-	-	1	-	-	-
3	Apply fracture mechanics models to high strength concrete and FRC structures.	2	1	1	2	-	1	2	-	-	-	-	-	1	-	-	-
4	Compute J-integral for various sections understanding the concepts of LEFM.	1	-	1	1	-	1	1	-	-	-	-	-	1	-	-	-
Average		2	1.5	1	1.66	1	1	1.5	-	-	-	-	-	1	-	-	-

Elective Subjects																	
22STE54-Design Of Plates and Shells																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Analyze and design prismatic folded plate systems	3	1	2	-	1	2	-	3	-	2	-	1	-	1	-	-
2	Analyze and design shells using approximate solutions	-	3	-	1	1	1	1	-	1	-	1	-	-	1	-	-
3	Analyze and Design Cylindrical Shells	3	-	1	1	1	-	1	-	1	-	1	-	1	1	-	-
4	Design Doubly Curved Shells using Approximate Solutions.	3	-	1	1	1	-	1	-	1	-	1	-	1	1	-	-
Average		3.0	2.0	1.3	1.0	1	1.5	0.75	3.0	1.0	2.0	1.0	1.0	1.0	1	-	-

Elective Subjects																	
22STE55-Design of Bridges																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Have a complete knowledge about the components , classification, Design Requirements of bridge structures	2	-	2	-	-	1	-	-	-	-	-	-	-	-	-	-
2	gain Knowledge on various loads on Bridges	-	2	2	2	2	1	-	-	-	-	-	-	-	-	-	-
3	To design of components of Slab and T- Beam bridges	2	1	-	2	-	1	-	-	-	-	-	-	1	-	-	-
4	To design Long Span Bridges	2	1	2	2	2	1	-	-	-	-	-	-	1	-	-	-
5	To design bearing, Abutments and various joints in bridges	2	1	2	2	2	1	-	-	-	-	-	-	1	-	-	-
Average		2.0	1.2	2.0	2.0	2.0	1	-	-	-	-	-	-	1.0	-	-	-

Elective Subjects

22STE56-Modern Construction Materials

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Acquire good knowledge about the recent construction materials, their construction and their significance.	2	1	1	1	-	1	-	2	-	-	-	-	1	-	-	-
2	Able to use modern materials based on their requirements.	2	2	2	2	-	1	-	2	-	-	-	-	2	-	-	-
3	Able to find new construction materials.	2	1	1	1	-	-	-	2	-	-	-	-	2	-	-	-
Average		2	1.3	1.3	1.3	-	1	-	2	-	-	-	-	1.6	-	-	-

Elective Subjects

22STE61-Advanced Concrete Technology

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Know about the properties of concrete	2	2	2	2	1	1	-	2	-	-	-	-	2	-	-	-
2	Design the concrete mix using ACI + IS code methods	2	2	2	2	1	1	-	2	-	-	-	-	1	-	-	-
3	Know about the role of various types of admixtures in concrete	2	2	2	2	1	1	-	2	-	-	-	-	1	-	-	-
4	Design special concretes for specific applications	2	2	2	2	1	1	-	2	-	-	-	-	1	-	-	-
5	Apply various types of concreting methods in the field	2	2	2	2	1	1	-	2	-	-	-	-	1	-	-	-
Average		2	2	2	2	1	1	-	2	-	-	-	-	1.2	-	-	-

Elective Subjects																	
22STE62-Disaster Resistant Structures																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Will understand the basic philosophy of design of disaster resistant structures	3	2	3	-	-	1	-	2	-	1	1	-	1	-	-	-
2	Will demonstrate the ability of identifying, formulating and understanding repair and rehabilitation of disturbed structures.	1	-	2	-	-	1	-	3	-	-	3	-	-	-	1	-
3	Will demonstrates the ability in designing structures with modern materials and techniques for disaster effect reduction.	3	-	1	-	2	-	3	-	1	1	-	1	-	1	-	-
4	Will understand the provision of relevant standard specification, requirements and usage.	3	-	1	-	1	-	1	1	-	1	-	1	-	1	-	-
5	Will demonstrate the ability to conduct damage assessments and write reports.	-	2	-	1	-	2	1	-	2	-	1	1	-	-	1	-
Average		2.5	2	1.75	1	1.5	1.33	1.66	2	1.5	1	1.66	1	1	1	1	-

Elective Subjects																	
22STE63-Soil Structure Interaction																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	The students will be able to understand various applications to soil structure interaction.	2	2	1	3	1	2	-	2	-	-	-	-	-	3	2	-
2	The students will able to calculate contact pressure and settlement under foundation	2	2	1	3	1	2	-	2	-	-	-	-	-	3	2	-
3	The student will able to calculate earth pressure on different retaining structures	2	2	1	3	1	2	-	2	-	-	-	-	-	3	2	-
Average		2	2	1	3	1	2	-	2	-	-	-	-	-	3	2	-

Elective Subjects

22STE64-Offshore Structures

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Recognizing the needs sorting out its importance and implementing practically the construction of essential environmental structures and special structures through analysis and design.	2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-
2	understand about the waves, force exerted by wave on coastal and offshore structures	2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-
3	Will be able to design small offshore structures like platforms, submerged pipelines etc	2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-
Average		2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-

Elective Subjects

22STE65-Wind and Cyclone Effects on Structures

		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Have a clear understanding about wind effects and performance of wind tunnel studies.	3	2	2	2	1	1	1	-	-	-	-	-	1	-	-	-
2	To understand about the wind loads , their effects with codal specifications	3	2	2	2	1	1	1	-	-	-	-	-	1	-	-	-
3	To analyze and design structures to resist extreme wind forces and cyclones.	3	2	2	2	1	1	1	-	-	-	-	-	1	-	-	-
Average		3	2	2	2	1	1	1	-	-	-	-	-	1	-	-	-

Elective Subjects

22AC01-English for Research Paper Writing

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	understand and appreciate the role of English in writing a good research paper	3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-
2	apply their knowledge in writing a research paper	3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-
3	analyze and assess the quality of their research paper	3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-
Average		3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-

Elective Subjects																	
22AC02-Disaster Management																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.	2	2	2	1	-	-	-	2	-	-	-	-	2	-	-	-
2	Critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.	2	2	2	1	-	-	-	2	-	-	-	-	1	-	-	-
3	develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations	2	2	2	1	-	-	-	2	-	-	-	-	1	-	-	-
4	Critically understand the strengths and weaknesses of disaster management approaches.	2	2	2	1	-	-	-	2	-	-	-	-	1	-	-	-
Average		2	2	2	1	-	-	-	2	-	-	-	-	1.25	-	-	-

Elective Subjects																	
22AC03-Sanskrit for Technical Knowledge																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Understanding basic Sanskrit language	3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-
2	Ancient Sanskrit literature about science & technology can be understood	3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-
3	Being a logical language will help to develop logic in students	3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-
Average		3	3	2	2	2	2	-	-	-	-	-	-	2	2	-	-

Elective Subjects																	
22AC04-Value Education																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Knowledge of self-development	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
2	Learn the importance of Human values	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
3	Developing the overall personality	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
Average		2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-

Elective Subjects																	
22AC05-Constitution of India																	
Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics	3	2	3	-	-	1	-	2	-	1	1	-	1	-	-	-
2	Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.	1	-	2	-	-	1	-	3	-	-	3	-	-	-	1	-
3	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution	3	-	1	-	2	-	3	-	1	1	-	1	-	1	-	-
4	Discuss the passage of the Hindu Code Bill of 1956.	3	-	1	-	1	-	1	1	-	1	-	1	-	1	-	-
Average		2.5	2	1.75	-	1.5	-	2	2	1	1	2	1	1	1	1	-

Elective Subjects																	
22AC06-Pedagogy Studies																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?	2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-
2	What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?	2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-
3	How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?	2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-
Average		2	2	2	2	1	1	-	1	1	1	-	-	1	-	-	-

Elective Subjects

22AC07-Stress Management by Yoga

Course Outcomes		Program Outcomes												Program Specific Outcomes			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Maintain good Physical health	2	3	2	2	2	2	-	1	1	1	-	-	1	-	-	-
2	Develop will power	2	3	2	2	2	2	-	1	1	1	-	-	1	-	-	-
3	Take quick and right decisions	2	3	2	2	2	2	-	1	1	1	-	-	1	-	-	-
4	Maintain good relationship with everyone around them his creating a Health Society	2	3	2	2	2	2	-	1	1	1	-	-	1	-	-	-
Average		2	3	2	2	2	2	-	1	1	1	-	-	1	-	-	-

Elective Subjects																	
22AC08-Personality Development Through Life Enlightenment Skills																	
		Program Outcomes												Program Specific Outcomes			
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve The highest goal in life	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
2	The person who has studied Geeta will lead the nation and mankind to peace and prosperity	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
3	Study of Neetishatakam will help in developing the versatile personality of students.	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
Average		2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-