Government College of Engineering, Salem - 11

Department of Civil Engineering

M.E. - Structural Engineering

COs - POs and PSO Mapping

Course Articulation Matrix – 18 Regulation

Semester - I																
18STC11-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	Analyze the skeleton structures using stiffness analysis code	2	1	1	2	-	1	-	2	1	-	-	-	1	-	-	-
2	Use direct stiffness method understanding its limitations.	2	1	1	1	-	2	1	-	1	2	-	-	1	-	-	-
3	To learn about the determinate and indeterminate structures	2	1	1	1	2	-	1	1	-	1	-	-	1	-	-	-
4	To understand the linear and dimensional properties of structures	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																
18STC12-Theory Of Elasticity and Plasticity																
		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 Knowledge or thorough understanding of stress distribution in engineering structures	3	2	2	2	-	1	-	-	-	-	-	-	1	-	-	-
2	To learn the use to his advantage the more rigorous methods of stress analysis	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	-	-	-
Average		**3**	**2**	**2**	**1.2**	**2**	**1.5**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	-

Semester - I																
18STC13-Structural Design Lab																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**
1	Design and Detail of all the Structural Components of Frame Buildings.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
2	Design and Detail of Multi-Storey Frame Buildings.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
3	Design and Detail of RCC/PSC bridges.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
4	Design and Detail of an Industrial building with steel roof truss.	1	-	2	3	-	2	1	-	3	-	1	-	-	-	3	-
Average		**1**	**-**	**2**	**3**	**-**	**2**	**1**	**-**	**3**	**-**	**1**	**-**	**-**	**-**	**3**	**-**

Semester - I																
18STC14- Concrete And Experimental Stress Analysis Lab																
		Program Outcomes												**Program Specific Outcomes**			
Course 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 concrete mixes	2	2	3	3	2	-	-	-	-	2	1	-	-	3	-	-
2	Measure the permeability of concrete, crack width etc and perform non-destructive tests	2	2	2	-	3	-	-	-	-	2	1	-	-	3	-	-
3	students will be gaining a thorough knowledge about the uses and applications of various strain gauges which will be helpful during their research thesis works	2	2	2	-	2	-	-	-	-	2	1	-	-	3	-	-
Average		**2**	**2**	**2.25**	**3**	**2**	**2**	**-**	**-**	**-**	**2**	**1**	**-**	**-**	**3**	**-**	-

Semester - I																	
18MLC01-Research Methodology And IPR																	
		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 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																
18STC21-Finite Element Method in 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	Use Finite Element Method for structural analysis.	2	2	2	-	-	1	-	-	-	-	-	-	1	-	-	-
2	Execute the Finite Element Program/ Software	1	-	2	2	2	-	-	-	-	-	-	-	1	-	-	-
3	Solve continuum problems using finite element analysis.	2	1	2	2	1	-	-	-	-	-	-	-	-	-	-	-
Average		1.6	1	2	1.3	1	1	-	-	-	-	-	-	1	-	-	-

Semester - II																
18STC22-Structural Dynamics																
		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 study dynamics response of single degree freedom system using fundamental theory and equation of motion.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
2	Analyze and study dynamics response of Multi degree freedom system using fundamental theory and equation of motion.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
3	Use the available software for dynamic analysis.	1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-
Average		1	2	1	-	2	3	-	-	3	-	-	-	-	2	-	-

Semester - II																
18STC23-Advanced Concrete Lab																
		Program Outcomes												**Program Specific Outcomes**			
Course 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 forflexure and shear behaviour	2	2	2	2	-	1	-	-	-	2	1	-	-	3	-	-
4	They will be able to test cyclic load testing on steel beams	2	2	2	2	-	1	-	-	-	2	1	-	-	3	-	-
Average		**2.25**	**2**	**2**	**2**	**3**	**1.25**	**-**	**-**	**-**	**2**	**1**	**-**	**-**	**3**	**-**	**-**

Semester - II																
18STC24-Numerical Analysis Lab																
		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 non-linear equations using Bisection and Newton's method	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-
2	Do curve fitting by least square approximations	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-
3	Solve the system of linear equations using Gauss - Elimination / Gauss -Seidal iteration / GaussJordan Method	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-
4	Integrate numerically using Trapezoidal and Simpson's rules	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-
5	Obtain the numerical solution of ordinary differential equations by Euler's and Runge-Kutta methods	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-
Average		**3**	**2**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	-

Semester - II																	
18STC25-Mini Project																	
		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	Study different techniques used to analyze complex structural systems	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
3	work on the solutions given and present solution by using his/her technique applying engineering principles	2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
Average		**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**1**	**-**	**-**	**-**	**-**	**-**

Semester - III																
18STC41-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																
18STC41-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 Papers																
18STE11- Theory of Thin Plates and Shell																
		Program Outcomes												**Program Specific Outcomes**			
Course 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 platesand shells.	3	-	2	-	1	2	-	3	-	2	-	1	-	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 Papers																
18STE12- Theory and Applications of Cement Composites																
		Program Outcomes												**Program Specific Outcomes**			
Course 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 Papers																
18STE13- Theory of Structural Stability																
		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 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 Papers																
18STE14- Corrosion and Its Prevention																
		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 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	-	-	-
Average		**1**	**-**	**2**	**2**	**-**	**2**	**1**	**-**	**2**	**-**	**1**	**-**	**1**	**-**	**-**	**-**

Elective Papers																
18STE21- 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 Papers																
18STE22- Structural Health Monitoring																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE23- Structural Optimization																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Use Variational principle for optimization, apply optimization techniques in structural members	3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-
2	Designs using frequent constrain	3	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-
Average		**3**	**2**	**2**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**

Elective Papers																
18STE24- Experimental Techniques and Instrumentation																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 interpretation of data.	-	3	-	2	-	1	-	-	-	-	1	-	-	3	-	-
Average		**-**	**3**	**-**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**3**	**-**	**-**

Elective Papers																
18STE31- Advanced Steel Design																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	They acquire knowledge to analysis and design of eccentric connections.	3	3	3	3	-	3	-	1	2	-	-	-	1	2	-	-
2	To acquire the knowledge of stability behavior of beam and column sections	3	3	3	2	2	2	-	1	1	1	-	-	1	3	-	-
3	To learn the behavior of light gauge steel sections.	3	3	3	2	2	2	-	2	1	-	-	-	1	3	-	-
Average		**3**	**3**	**3**	**2**	**2**	**2**	**-**	**1.3**	**1.3**	**1**	**-**	**-**	**1**	**2.6**	**-**	**-**

Elective Papers																
18STE32- Design Of Formwork																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE33- Design of High Rise Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Analyze, design and detail Transmission/ TV tower, Mast and Trestles with different loading conditions	2	-	2	2	-	2	1	-	2	-	-	-	-	-	-	-
2	Analyze, design and detail the RC Chimney.	2	-	2	2	-	2	1	-	2	-	-	-	-	-	-	-
3	Analyze. design and detail the tall buildings subjected to different loading conditions using relevant codes.	2	-	2	2	-	2	1	-	2	-	-	-	-	-	-	-
Average		**2**	**-**	**2**	**2**	**-**	**2**	**1**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Elective Papers																
18STE34- Design of Masonry Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE35- Design of Prefabricated Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE36- Design of Steel Concrete Composite Structures																
		Program Outcomes											**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE41-Design Of Advanced Concrete Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 citing relevant to IS Codes.	1	-	2	2	2	-	1	-	-	-	-	-	1	-	-	-
Average		**1.5**	**2**	**2**	**2**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**

Elective Papers																
18STE42-Advanced Design of Foundations																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE43- Soil Structure Interaction																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	The students will be able to understand various applications to soil structure interaction.	3	3	3	3	1	1	-	3	1	-	-	-	2	2	-	-
2	The students will able to calculate contact pressure and settlement under foundation	3	3	3	3	1	2	-	3	1	-	-	-	2	3	-	-
3	The student will able to calculate earth pressure on different retaining structures	3	3	3	3	1	2	-	3	2	-	-	-	2	3	-	-
Average		**3**	**3**	**3**	**3**	**1**	**2**	**-**	**3**	**1.3**	**-**	**-**	**-**	**2**	**2.6**	**-**	**-**

Elective Papers																
18STE44-Design Of Industrial Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Acquire knowledge about functions requirements	3	3	3	3	1	2	-	3	3	1	-	-	1	3	-	-
2	Design of component of industrial structure both concrete and steel.	3	3	3	3	1	3	-	3	3	1	-	-	2	3	-	-
Average		**3**	**3**	**3**	**3**	**1**	**2.5**	**-**	**3**	**3**	**1**	**-**	**-**	**1.5**	**3**	**-**	**-**

Elective Papers																
18STE45- Substructure Design																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 present the detailing of reinforcement for foundations.	1	3	3	-	-	2	-	2	-	1	-	-	-	3	2	-
Average		**1**	**3**	**3**	**-**	**-**	**2**	**-**	**2**	**-**	**1**	**-**	**-**	**-**	**3**	**2**	**-**

Elective Papers																
18STE46- Design And Construction of Ferrocement Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	On completion of the course the student will be able to understand the concepts of ferrocementtechnology.	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**	**1.3**	**1.6**	**2**	**1**	**1**	**1**	**2**	**1**	**1.6**	**1**	**1**	**-**

Elective Papers																
18STE51-Design Of Prestressed Concrete Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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, analyse prestressed concretemembers	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 Papers																
18STE52-Analysis Of Laminated Composite Plates																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Analyse the rectangular composite plates using the analytical methods.	3	2	-	1	-	1	-	-	1	2	-	1	1	1	-	-
2	Analyse the composite plates using advanced finite element method.	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 Papers																
18STE53-Fracture Mechanics Of Concrete Structures																
		Program Outcomes											**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE54- Design of Plates and Shells																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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	-	-
Average		**2**	**1.3**	**1**	**1**	**1**	**1**	**1**	**3**	**1**	**2**	**1**	**1**	**1**	**1**	**-**	**-**

Elective Papers																
18STE55- Design Of Bridges																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Have a complete knowledge about the substructure and superstructure of bridge structures	2	-	2	-	-	1	-	-	-	-	-	-	-	-	-	-
2	To design of components of long and short span bridges	-	2	2	2	2	1	-	-	-	-	-	-	-	-	-	-
3	To design prestressed concrete bridges and their bearings, footings	2	1	-	2	-	1	-	-	-	-	-	-	1	-	-	-
4	To analyze the various types of bridge structures	2	1	2	2	2	1	-	-	-	-	-	-	1	-	-	-
Average		**2**	**1.3**	**2**	**2**	**2**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**

Elective Papers																
18STE56- Modern Construction Materials																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Acquire good knowledge about the recent construction materials, their construction and theirsignificance.	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 Papers																
18STE61- Advanced Concrete Technology																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE62- Disaster Resistant Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 ofdisturbed 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 writing 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 Papers																
18STE63- Soil Structure Interaction																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 Papers																
18STE64- Environmental Engineering and offshore Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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	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	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	1	1	-
Average		**2**	**2**	**2**	**2**	**1**	**1**	**-**	**1**	**1**	**1**	**-**	**-**	**1**	**1**	**1**	-

Elective Papers																
18STE65- Wind and Cyclone Effects on Structures																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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**	**-**	**-**	**-**

Audit Courses																
18AC01- English for Research Paper Writing																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Understand and appreciate the process of a good research paper	3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-
2	Apply their gained knowledge in writing a research paper	3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-
3	Analyse and assess the quality of their research paper	3	3	2	2	-	-	-	-	-	-	-	-	1	-	-	-
Average		**3**	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**

Audit Courses																
18AC02- Disaster Management																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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**	**-**	**-**	**-**

Audit Courses																
18AC03- Sanskrit for Technical Knowledge																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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**	**-**	**-**

Audit Courses																
18AC04- Value Education																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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**	**-**	-

Audit Courses																
18AC05- Constitution of India																
		Program Outcomes											**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 ofGandhi 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 ofsocial 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**	**-**

Audit Courses																
18AC06- Pedagogy Studies																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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, andwith 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**	**-**	**-**	**-**

Audit Courses																
18AC07- Stress Management by Yoga																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**11**	**12**	**1**	**2**	**3**	**4**
1	Develop healthy mind in a healthy body thus improving social health also	3	3	2	2	2	2	-	1	1	1	-	-	1	1	1	-
2	Improve efficiency	3	3	2	2	2	2	-	1	1	1	-	-	1	1	1	-
Average		**3**	**3**	**2**	**2**	**2**	**2**	**-**	**1**	**1**	**1**	**-**	**-**	**1**	**1**	**1**	**-**

Audit Courses																
18AC08- Personality Development Through Life Enlightenment Skills																
		Program Outcomes												**Program Specific Outcomes**			
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1-**	**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 versatile personality of students.	2	2	2	2	2	-	-	-	-	-	-	-	1	1	-	-
Average		**2**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**