

# Government College of Engineering, Salem - 11

## Department of Civil Engineering

### COs - POs and PSO Mapping

#### Course Articulation Matrix – 18 Regulation

Semester - III																
18ES205 - Mechanics of Solids																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Determine the resultant forces and moment for the given system	3	3	2	3	3	1	3	2	1	2	2	2	2	3	-
2	Analyse planar and spatial systems of forces and determine the centroid and moment of inertias.	3	3	3	3	3	1	3	2	1	2	-	2	3	3	-
3	Thorough understanding of fundamental concepts of stress and strain in mechanics of solids and structures	3	3	3	3	1	2	3	2	-	3	-	3	2	2	-
4	The ability to analyse the beams to determine shear force and bending moments	3	3	3	3	3	2	3	1	2	3	-	2	3	3	-
5	Sufficient knowledge in design shafts to transmit required power and springs for its maximum energy	3	3	3	3	2	1	2	2	2	2	-	3	3	3	-
<b>Average</b>		3.0	3.0	2.8	3.0	2.4	1.4	2.8	1.8	1.2	2.4	2.0	2.4	2.6	2.8	0.0



**Semester - III**

**18CE302 - Surveying And Geomatics**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Use conventional surveying tools such as chain/tape, compass, level in the field of civil engineering applications such as structural plotting and highway profiling	1	1	1	2	2	2	1	2	2	2	2	1	2	2	2
2	Apply the procedures involved in field work and to work as a surveying team	2	3	3	1	2	2	1	3	2	1	1	1	2	3	1
3	Plan a survey appropriately with the skill to understand the surroundings	3	1	2	3	2	3	1	3	2	3	1	2	1	3	3
4	Take accurate measurements, field booking, plotting and adjustment of errors can be understood	2	1	3	2	1	3	2	1	1	1	1	2	3	2	1
5	Invoke advanced surveying techniques over conventional methods in the field of civil engineering	3	2	3	2	3	1	2	1	2	3	3	2	1	1	2
<b>Average</b>		2.2	1.6	2.4	2.0	2.0	2.2	1.4	2.0	1.8	2.0	1.6	1.6	1.8	2.2	1.8

Semester - III																
18CE303 - Surveying Practical																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	handling the equipment Theodolite to find out the horizontal and vertical angles	1	1	1	1	1	1	1	2	2	1	3	1	2	1	2
2	find out the elevation of the required points with respect to reference plane	2	1	2	1	2	2	1	3	2	1	1	3	2	3	1
3	use the modern equipment like EDM, GPS and Total station with its applications	3	1	2	3	2	3	1	3	2	3	1	2	1	3	3
4	learn to set out the simple curve in the field	1	1	2	2	1	3	2	1	3	1	1	2	3	2	1
5	learn to set out the foundation of a building in the field	3	2	2	2	3	1	2	1	2	3	3	3	1	1	2
<b>Average</b>		2.0	1.2	1.8	1.8	1.8	2.0	1.4	2.0	2.2	1.8	1.8	2.2	1.8	2.0	1.8

**Semester - III**

**18CE304 - Computer Aided Building Drawing**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	The students will be able to draft the plan, elevation and sectional views of the buildings manually	3	3	2	1	2	1	2	2	3	3	2	3	3	3	2
2	The students will be able to draft the plan, elevation and sectional views of the buildings using computer softwares.	3	3	2	1	2	1	2	2	3	3	2	3	3	3	2
3	The students will be able to draft the plan, elevation and sectional views of the framed buildings using computer softwares.	3	3	2	2	3	1	2	2	3	3	2	3	3	3	2
4	The students will be able to draft the plan, elevation and sectional views of the industrial structures using computer softwares.	3	3	2	2	3	1	2	2	3	3	2	3	3	3	3
5	The students will be able to draft the plan, elevation and sectional views of the buildings manually	3	3	2	1	2	1	2	2	3	3	2	3	3	3	2
<b>Average</b>		3.0	3.0	2.0	1.4	2.4	1.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	3.0	2.2

**Semester - III**

**18CE305 - Engineering Mechanics**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the basics and statics of the particle	3	2	1	-	-	-	1	-	-	-	-	1	2	2	-
2	Establish the equilibrium of rigid bodies and draw the free body diagram and mention the supports and the reactions for the diagram	3	2	1	-	1	1	1	1	-	-	-	2	-	-	1
3	Determine the areas and volumes of the surfaces using the various theorems and find the moment of inertia of different body shapes	3	3	1	-	-	1	1	1	-	-	-	1	1	-	-
4	Comprehend the frictional forces acting on a rolling and the resting body	3	3	2	1	2	1	-	-	-	-	-	2	-	2	-
5	Understand the laws of motion, the kinematics of motion and the interrelationship.	2	2	2	2	3	1	-	1	-	-	-	2	-	-	2
<b>Average</b>		2.8	2.4	1.4	0.6	1.2	1.0	1.0	1.0	0.0	0.0	0.0	1.6	0.6	2.0	1.5

**Semester - IV**

**18CE401 - Strength Of Materials**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply the principle of various theorems in measurement of slope and deflection	3	3	3	2	-	-	2	2	2	3	2	3	3	3	1
2	Different stress developed in thin, thick cylinders and spherical shells	3	3	3	2	1	1	2	2	3	3	2	3	3	3	-
3	Visualize the behavior of column for combined bending and axial loading	3	3	3	2	1	1	2	2	2	3	2	3	3	3	-
4	Demonstrate the different theories of failure for brittle and ductile materials	3	3	3	3	2	2	1	2	2	3	2	3	3	3	-
5	Apply the different methods in unsymmetrical bending analysis	3	3	3	3	1	1	2	2	3	2	3	3	3	3	-
<b>Average</b>		3.0	3.0	3.0	2.4	1.0	1.0	1.8	2.0	2.4	2.8	2.2	3.0	3.0	3.0	1.0

Semester - IV																
18CE402 - Design Of Steel Structural Elements (Use Of Is 800 - 2007 & Steel Tables Are Permitted)																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply the IS code of practice for the design of steel structural elements	2	2	3	3	2	1	1	1	1	1	1	2	3	3	2
2	Analyze the behavior of bolted connections and design them to tension, compression and bending members.	3	3	1	1	2	1	1	1	1	1	1	1	2	2	1
3	Design compression and tension members using simple and built-up sections	3	1	2	2	1	1	2	1	1	1	2	1	2	1	1
4	Design of steel beams with end conditions.	1	2	3	1	1	2	1	1	1	2	2	1	1	1	2
5	Apply the IS code of practice for the design of steel structural elements	2	2	3	3	2	1	1	1	1	1	1	2	3	3	2
<b>Average</b>		2.2	2.0	2.4	2.0	1.6	1.2	1.2	1.0	1.0	1.2	1.4	1.4	2.2	2.0	1.6



**Semester - IV**

**18CE403 - Engineering Geology**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Identify the problems associated with underground excavations	2	3	3	2	-	-	3	2	-	-	-	-	1	3	-
2	Classify the rock mass using the reference data	1	1	2	3	-	-	-	2	-	-	-	-	-	3	-
3	Understand the failure criteria of rocks	2	2	3	2	-	-	3	2	-	-	-	-	1	3	-
4	Understand various natural hazards, their causes and effects.	2	2	3	2	-	-	3	2	-	-	-	-	1	3	-
5	Identify the problems associated with underground excavations	2	3	3	2	-	-	3	2	-	-	-	-	1	3	-
<b>Average</b>		1.8	2.2	2.8	2.2	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.0	1.0	3.0	0.0

**Semester - IV**

**18CE404 - Water Supply Engineering**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	An insight into the structure of drinking water supply systems, including water transport, treatment and distribution	1	1	2	-	2	3	3	3	-	1	2	1	3	1	1
2	an understanding of water quality criteria and standards, and their relation to public health	1	1	2	-	-	3	3	3	-	-	2	1	3	-	1
3	the ability to design and evaluate water supply project alternatives on basis of chosen selection criteria	3	3	3	2	1	3	3	3	-	1	2	1	3	1	1
<b>Average</b>		1.6	1.6	2.3	0.6	1.5	3.0	3.0	3.0	0.0	1.0	2.0	1.0	3.0	0.6	1.0

**Semester - IV**

**18CE405 - Applied Hydraulics And Fluid Machinery**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Visualize fluid flow phenomena observed in Civil Engineering systems such as flow in a pipe, flow measurement through orifices, mouth pieces, notches and weirs	2	1	2	1	2	1	2	1	1	1	1	1	2	-	1
2	Analyze fluid flows in open channel hydraulics and devices such as weirs and flumes	1	1	2	1	2	1	2	1	1	1	1	1	2	1	1
3	Apply dimensional analysis	1	1	1	1	1	1	2	1	1	1	1	1	2	-	1
4	To study types of centrifugal Pumps, work done and efficiency of the different types centrifugal pumps and also study about performance of pumps & characteristic curves	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
5	To study about specific speed and performance characteristics of different types of turbines	2	1	2	1	2	1	2	1	1	1	1	1	1	-	2
<b>Average</b>		1.4	1.0	1.6	1.0	1.6	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.6	1.0	1.2

Semester - IV																
18CE406 - Concrete Technology																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Test all the concrete materials as per IS code	-	-	-	1	2	1	1	1	1	2	1	1	1	-	1
2	Design the concrete mix using ACI and IS code methods	-	-	2	2	1	1	-	-	1	1	-	-	2	-	1
3	Determine the properties of fresh and hardened of concrete	-	-	-	-	1	1	1	-	-	1	-	-	1	-	1
4	Design special concretes for specific applications	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1
5	Ensure quality control while testing/ sampling and acceptance criteria	-	-	-	-	-	1	-	1	1	-	-	-	3	-	1
<b>Average</b>		0.0	0.0	2.0	1.3	1.3	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.7	0.0	1.0

Semester - IV																
18CE408 - Hydraulic Engineering Laboratory																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	To measure flow in pipes and determine frictional losses.	2	2	3	3	2	1	1	1	1	1	1	2	3	3	2
2	Apply dimensional analysis for design of experimental procedures	3	3	1	1	2	1	1	1	1	1	1	1	2	2	1
3	Calibrate flow measuring devices used in pipes, channels and tanks	3	1	2	2	1	1	2	1	1	1	2	1	2	1	1
4	Determine fluid and flow properties	1	2	3	1	1	2	1	1	1	2	2	1	1	1	2
5	Characterize laminar and turbulent flow	1	1	2	2	1	1	1	3	1	2	1	2	1	2	1
6	To develop characteristics of pumps and turbines.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Average</b>		1.7	1.5	1.8	1.5	1.2	1.0	1.0	1.2	1.0	1.2	1.2	1.2	1.5	1.5	1.2

**Semester - IV**

**18CEMC01 - Disaster Preparedness And Planning**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	To identify the different disasters and its causes.	1	1	1	1	1	1	1	1	3	3	3	3	2	2	2
2	To identify the vulnerable areas of disasters in India.	3	1	2	1	2	1	1	3	1	2	1	1	1	3	1
3	To get knowledge about preparedness during disasters.	1	3	2	1	2	1	3	1	2	1	3	2	3	1	1
4	To analyse the risk in disasters.	1	1	1	2	2	2	2	2	2	1	3	1	3	3	1
5	To know the corrective measures to mitigate disasters.	1	2	1	2	3	2	1	3	3	2	3	1	2	1	1
<b>Average</b>		1.4	1.6	1.4	1.4	2.0	1.4	1.6	2.0	2.2	1.8	2.6	1.6	2.2	2.0	1.2

Semester - V																
18CE501 - Basic Structural Analysis																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Use various classical methods for analysis of indeterminate structures	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Determine the effect of support settlements for indeterminate structures	3	1	2	3	2	3	1	3	1	2	1	1	1	3	1
3	Apply the concepts of ILD and moving loads on determinate structures	1	3	2	3	2	1	3	1	2	1	3	2	3	1	1
4	Know the performance of cables and suspension bridges under external loads	3	3	3	2	1	2	2	2	2	1	3	1	1	1	1
5	Analysis the various structures in plastic behavior	1	1	3	3	3	2	1	1	1	2	1	1	1	1	1
<b>Average</b>		1.8	1.8	2.2	2.4	1.8	1.8	1.6	1.6	1.4	1.4	1.8	1.2	1.4	1.4	1.0

Semester - V																
18CE502 - Mechanics of Soils																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the importance of soil mechanics in civil engineering and to classify the soil based on the tests conducted.	2	2	1	2	2	1	3	-	-	-	1	-	3	-	-
2	Do proper stress estimation for various types of foundation loads.	3	2	3	3	2	1	3	-	-	-	1	-	3	-	-
3	Solve any practical problems related to soil stresses estimation, permeability and seepage including flow net diagram	3	3	2	3	2	1	3	-	-	-	1	-	3	-	-
4	Solve practical problems related to consolidation settlement and time rate of settlement	3	3	3	2	1	1	3	-	-	-	1	-	3	-	-
5	Estimate shear strength of soil using the parameters obtained from different lab tests.	3	3	2	2	1	1	3	-	-	-	1	-	3	-	-
<b>Average</b>		2.8	2.6	2.2	2.4	1.6	1.0	3.0	0.0	0.0	0.0	1.0	0.0	3.0	0.0	0.0



Semester - V																
18CE503 - Water Resources Engineering																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Design various channel systems	2	1	2	2	2	2	2	1	1	1	1	1	2	3	1
2	Design head and cross regulator structures	2	2	1	2	2	2	2	1	1	1	1	1	2	3	1
3	Identify various types of reservoir and their design aspects	2	2	1	1	1	2	2	1	1	1	1	1	2	3	2
4	By the Establishes the understanding of cross drainage works and its design	2	2	1	1	1	1	2	1	1	1	1	1	1	3	1
5	Design different types of dams	2	1	2	2	2	1	2	1	1	1	1	1	1	3	2
<b>Average</b>		2.0	1.6	1.4	1.6	1.6	1.6	2.0	1.0	1.0	1.0	1.0	1.0	1.6	3.0	1.4

Semester - V																
18CE504 - Design Of Reinforced Concrete Elements																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply the fundamental concepts of different design philosophies. Use IS code of practice to design the basic reinforced concrete elements	1	2	2	3	2	1	1	1	1	1	1	2	2	3	1
2	Analysis, design and to present detailing of reinforcement for flexure members.	3	3	1	1	2	2	1	1	1	1	1	1	3	2	2
3	Analysis, design and to present detailing of Slab and beam elements for bond, anchorage, shear and torsion.	3	1	2	2	1	1	2	1	1	2	2	1	2	1	1
4	Analysis ,design and detailing of Columns	1	2	3	1	2	1	1	1	1	2	2	1	1	1	2
5	Analysis , design and detailing of Footings and staircases.	1	1	2	1	1	1	1	3	1	2	1	2	1	2	1
<b>Average</b>		1.8	1.8	2.0	1.6	1.6	1.2	1.2	1.4	1.0	1.6	1.4	1.4	1.8	1.8	1.4

Semester - V																
18CE505 - Waste Water Engineering																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Network of pipes, pumps, and force mains for the collection of wastewater, or sewage, from a community.	2	3	2	1	1	2	3	2	-	-	3	-	3	2	2
2	Water Negatively affected in quality by humans by changing its physical and chemical properties like colour, odor.	-	1	3	-	1	3	3	2	-	-	3	-	3	-	-
3	Harnesses the action of bacteria and other microorganisms to clean water	-	-	2	-	1	3	3	2	-	-	3	-	3	-	1
4	It is an integral part of any modern municipal waste water treatment	-	-	2	-	1	3	3	2	-	-	3	-	3	-	2
5	Biological processes are used to remove contaminants and produce treated wastewater that is safe enough for release into the environment.	-	-	3	-	1	3	3	2	-	-	3	-	3	-	3
<b>Average</b>		2.0	2.0	2.4	1.0	1.0	2.8	3.0	2.0	0.0	0.0	3.0	0.0	3.0	2.0	1.6

Semester - V																
18CE506 - Transportation Engineering																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Carry out surveys involved in planning and highway alignment	2	2	3	1	-	-	1	-	-	1	1	3	-	1	-
2	Design cross section elements, sight distance, horizontal and vertical alignment	2	2	2	-	2	-	1	-	-	1	1	3	-	-	-
3	Determine the characteristics of pavement materials	1	1	-	1	-	-	-	1	-	-	-	1	-	-	-
4	On completing the course, the students will have the ability to Plan and Design various civil Engineering aspects of Railways.	3	2	1	1	-	-	1	-	-	1	-	3	-	1	-
<b>Average</b>		2.0	1.8	1.5	1.0	0.5	0.0	1.0	1.0	0.0	1.0	1.0	2.5	0.0	1.0	0.0

**Semester - V**

**18CE507 - Geotechnical Laboratory**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Learn to find the index properties properties of soil by conducting laboratory tests.	3	3	3	3	2	-	1	-	1	1	1	2	3	3	1
2	To Identify and to classify the type of soil.	3	3	3	3	3	1	1	2	1	-	1	1	3	3	2
3	To stabilize soil by adding admixtures	3	3	3	3	3	3	3	1	-	-	-	2	3	3	1
4	To find the shear parameters and shear strength of soil from laboratory and field tests.	3	3	3	3	3	2	3	1	1	-	1	1	3	2	1
<b>Average</b>		3.0	3.0	3.0	3.0	2.8	1.5	2.0	1.0	1.0	1.0	1.0	1.5	3.0	2.8	1.3

Semester - V																
18CE508 - Environmental Engineering Laboratory																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Perform common environmental experiments relating to water and wastewater quality, and know which tests are appropriate for given environmental problems.	-	-	-	2	1	1	-	-	-	1	-	-	2	-	1
2	Obtain the necessary background for subsequent courses in environmental engineering.	-	-	-	2	1	1	1	-	1	1	-	1	1	-	-
3	Quantify the concentration of salts in water and wastewater	-	-	-	-	1	1	1	-	-	-	-	-	1	-	1
4	Recommend the degree of treatment required for the water and wastewater	-	-	-	-	1	1	1	-	-	-	-	-	1	-	-
5	Examine the conditions for the growth of micro-organisms	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
<b>Average</b>		0.0	0.0	0.0	2.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.2	0.0	1.0

Semester - VI																
18CE601 - Advanced Structural Analysis																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Have the knowledge on classical methods (SDM & MDM) of analysis of indeterminate structures.	2	1	2	3	-	-	-	-	-	-	-	-	-	2	-
2	understand the concepts of FEM	1	2	-	2	-	-	-	-	-	-	-	-	-	2	-
3	understand the procedures to be followed for various methods of analysis of indeterminate structures	1	2	-	1	-	-	-	-	-	-	-	-	-	3	-
4	Be able to Analyse indeterminate structures using force and displacement matrix methods	1	-	-	3	-	-	-	-	-	-	-	-	-	2	-
5	Be able to analyse the indeterminate structures and frames by using classical and modern method of analysis	1	-	-	3	-	-	-	-	-	-	-	-	-	3	-
<b>Average</b>		1.2	1.6	2.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0

Semester - VI																
18CE602 - Foundation Engineering																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Characterise soil investigation for any civil engineering construction	3	3	2	3	1	1	3	1	2	-	-	-	3	-	-
2	Analyse earth retaining structures for any kind of soil medium	3	3	3	2	2	2	3	1	2	-	-	-	3	-	-
3	Estimate bearing capacity using IS code methods	3	3	3	3	2	2	3	1	2	-	-	-	3	-	-
4	Design proper foundations for any kind of shallow foundation system	3	3	3	2	1	2	3	1	2	-	-	-	3	-	-
5	Estimate pile and pile group capacity for any kind of soil including group efficiency and negative	3	3	2	3	1	1	3	1	2	-	-	-	3	-	-
<b>Average</b>		3.0	3.0	2.6	2.6	1.4	1.6	3.0	1.0	2.0	0.0	0.0	0.0	3.0	0.0	0.0



Semester - VI																
18CE604 - Professional Practice, Ethics & Building By-Laws																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	To familiarise the students to what constitutes professional practice, introduction of various stakeholders and their respective roles; understanding the fundamental ethics governing the profession	1	-	3	-	-	3	3	3	1	1	3	3	1	-	-
2	To give a good insight into contracts and contracts management in civil engineering, dispute resolution mechanisms; laws governing engagement of labour	1	-	-	-	2	1	3	3	2	1	2	3	3	-	-
3	To give an understanding of Intellectual Property Rights, Patents	-	-	1	-	2	1	-	3	3	1	3	3	2	-	-
4	To make the students understand the types of roles they are expected to play in the society as practitioners of the civil engineering profession.	2	-	-	1	2	2	-	3	2	2	2	3	2	-	-
5	To familiarise the students to what constitutes professional practice, introduction of various stakeholders and their respective roles; understanding the fundamental ethics governing the profession	1	-	3	-	-	3	3	3	1	1	3	3	1	-	-
<b>Average</b>		1.2	0.0	2.3	1.0	2.0	2.0	3.0	3.0	1.8	1.2	2.6	3.0	1.8	0.0	0.0

**Semester - VI**

**18CE605 - Concrete Laboratory**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Know the techniques to characterize various construction materials through relevant tests.	-	-	-	2	2	-	-	-	2	-	-	-	2	-	2
2	Test all the concrete materials as per IS code	-	-	-	2	-	-	1	-	-	-	-	-	2	-	2
3	Design the concrete mix using IS code	-	-	-	2	-	-	1	-	-	-	-	-	2	-	2
4	Determine the properties of fresh and hardened concrete	-	-	-	-	2	-	2	-	-	-	-	-	1	-	1
5	Conduct tests on concrete using NDT methods	-	-	-	-	2	-	2	-	-	-	-	-	1	-	1
<b>Average</b>		0.0	0.0	0.0	2.0	2.0	0.0	1.2	0.0	2.0	0.0	0.0	0.0	1.6	0.0	1.6

Semester - VI																
18CE606 - Computer Aided Design And Drawing (Concrete And Steel)																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Acquire hands on experience on designing the concrete structures	2	2	2	3	2	1	1	2	1	1	1	2	3	3	2
2	Acquire hands on experience on designing the steel structures	2	2	1	1	2	1	1	1	1	1	1	1	2	2	1
3	Preparation of structural drawings of concrete structures technically	3	1	2	2	1	1	1	1	1	1	2	1	2	1	1
4	Preparation of structural drawings of steel structures technically	1	2	3	1	1	2	1	1	1	2	2	1	1	1	2
5	Analyse the RCC and Steel structures with safe limits and checking the design.	1	1	2	2	3	1	1	2	1	2	1	2	1	2	1
<b>Average</b>		1.8	1.6	2.0	1.8	1.8	1.2	1.0	1.4	1.0	1.4	1.4	1.4	1.8	1.8	1.4

Semester - VI																
18CE801 - Construction Management																
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the nuances of management functions	1	-	2	1	1	1	3	1	2	1	3	3	-	1	3
2	Analyze the framework of a business organization	1	3	2	1	-	-	3	-	2	-	3	3	3	3	3
3	Adopt an empirical approach toward business situations	-	3	2	1	2	1	3	1	2	2	3	3	1	3	3
4	Apply various Project Management techniques	1	1	2	2	2	-	3	-	2	2	3	3	3	3	3
5	Implement roles of team players	1	-	3	-	-	-	3	1	2	-	3	3	1	3	3
<b>Average</b>		1.0	2.3	2.2	1.2	1.6	1.0	3.0	1.0	2.0	1.6	3.0	3.0	2.0	2.6	3.0

**ELECTIVE PAPERS**

**18CEPE01 - Traffic Engineering**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply the principles of the transportation planning process and demand estimation	2	3	2	-	1	-	1	-	-	-	1	1	3	-	1
2	Analyse the trip production and trip attraction models	-	1	2	2	-	-	1	-	-	-	1	-	3	-	-
3	Analyse the growth factor, gravity and opportunity models	1	1	-	1	1	-	-	-	1	-	-	-	1	-	-
4	Apply the mode choice behaviour and mode split models	-	-	1	1	1	-	1	1	1	-	1	-	1	-	1
5	Apply the principles of the transportation planning process and demand estimation	2	3	2	-	1	-	1	-	-	-	1	1	3	-	1
<b>Average</b>		1.6	1.6	1.4	1.3	1.0	0.0	1.0	1.0	1.0	0.0	1.0	1.0	2.2	0.0	1.0

**ELECTIVE PAPERS**

**18CEPE02 - Airports, Docks And Harbour Engineering**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Plan for airport, harbour, docks and coastal structures	3	-	2	2	-	2	3	-	1	-	1	3	3	-	1
2	Design for airport and its components	3	-	2	3	-	3	3	-	1	-	1	3	3	-	1
3	Construct airport, docks and harbour	3	-	2	2	-	3	3	-	1	-	1	3	3	-	1
4	Protect the harbour, docks and coastal structures	3	-	3	2	-	3	3	-	1	-	1	3	3	-	1
5	Plan for airport, harbour, docks and coastal structures	3	-	2	2	-	2	3	-	1	-	1	3	3	-	1
<b>Average</b>		3.0	0.0	2.2	2.2	0.0	2.6	3.0	0.0	1.0	0.0	1.0	3.0	3.0	0.0	1.0

**ELECTIVE PAPERS**

**18CEPE03 - Integrated Traffic Planning And Management**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyse traffic problems and plan for traffic systems various uses	3	3	3	3	2	-	1	1	1	1	1	3	3	3	1
2	Perform surveys and forecast traffic	2	3	1	2	1	-	3	3	2	2	1	-	3	-	1
3	Design Channels, Intersections, signals and parking arrangements	3	3	3	3	3	-	3	2	2	2	1	1	3	3	3
4	Develop Traffic management Systems	3	2	1	3	3	-	3	2	2	3	3	3	1	2	1
5	Analyse traffic problems and plan for traffic systems various uses	3	3	3	3	2	-	1	1	1	1	1	3	3	3	1
<b>Average</b>		2.8	2.8	2.2	2.8	2.2	0.0	2.2	1.8	1.6	1.8	1.4	2.5	2.6	2.7	1.4

**ELECTIVE PAPERS**

**18CEPE04 - Smart Materials And Smart Structures**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply the knowledge on the self-diagnosis, functions and response of various smart materials	3	2	3	2	2	2	2	2	3	2	2	2	2	-	2
2	Acquire thorough knowledge on instrumentation for measuring strains, load and deflection	3	2	3	2	3	2	2	2	3	2	2	2	2	-	2
3	Apply the concepts of sensors parameters and characteristics	2	3	1	3	2	3	3	3	2	3	1	3	3	1	3
4	Have an insight into actuator techniques, SMA	3	2	3	3	2	3	2	2	2	3	-	1	1	1	2
5	Demonstrate the concepts of signal processing and control system	2	3	3	2	3	1	3	2	3	2	3	1	2	1	3
<b>Average</b>		2.6	2.4	2.6	2.4	2.4	2.2	2.4	2.2	2.6	2.4	1.6	1.8	2.0	1.0	2.4



**ELECTIVE PAPERS**

**18CEPE05 - Construction Techniques And Equipments**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Know the different construction techniques and methods.	3	3	3	3	3	2	2	2	2	2	2	3	3	3	2
2	Select, maintain and operate hand and power tools and equipment used in the bridges, roads, railways and dams.	2	2	3	2	2	2	2	2	2	2	2	2	2	-	-
3	Know the methods and techniques involved in the construction of various sub structures.	2	2	2	2	2	1	1	1	2	2	2	2	3	3	-
4	Understand the importance of electric safety in buildings	3	3	2	2	3	2	2	1	2	3	2	3	3	2	2
5	Know the principles on illumination and fire safety.	3	2	3	3	3	3	3	2	2	2	2	3	3	2	1
<b>Average</b>		2.6	2.4	2.6	2.4	2.6	2.0	2.0	1.6	2.0	2.2	2.0	2.6	2.8	2.5	1.6

**ELECTIVE PAPERS**

**18CEPE06 - Project Safety Management**

		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Know various constructions safety concepts.	3	1	1	2	1	1	1	1	1	1	1	-	1	1	1
2	Carryout various safety programmes	2	1	2	1	1	1	1	3	1	2	1	1	1	1	1
3	Challenge contractual obligations task	1	1	1	1	-	1	3	1	3	3	3	2	1	1	1
<b>Average</b>		2.0	1.0	1.3	1.3	1.0	1.0	1.7	1.7	1.7	2.0	1.7	1.5	1.0	1.0	1.0

**ELECTIVE PAPERS**

**18CEPE07 - Repair And Rehabilitation Of Structures**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the condition of structures	1	3	1	1	1	1	3	2	2	1	1	1	1	1	2
2	Inspect and evaluate the damaged structure	3	1	3	2	2	3	2	3	1	2	1	1	1	3	1
3	Implement the repairing techniques of a structure	1	3	2	1	3	1	3	1	2	1	3	2	3	1	1
4	Identify and Use different materials for repairing works	3	3	2	2	1	2	2	2	2	1	3	1	1	1	2
5	Demonstrate the dismantling and demolishing structures	1	1	2	3	3	2	1	1	1	2	1	1	2	1	2
<b>Average</b>		1.8	2.2	2.0	1.8	2.0	1.8	2.2	1.8	1.6	1.4	1.8	1.2	1.6	1.4	1.6

**ELECTIVE PAPERS**

**18CEPE08 - Industrial Waste Management**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the polluting potential of major industries	2	-	3	-	1	3	-	-	-	2	-	-	2	-	-
2	Carry out various methods to control the pollutants	3	2	3	-	-	3	-	-	-	-	2	-	2	-	2
<b>Average</b>		2.5	2.0	3.0	0.0	1.0	3.0	0.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	2.0

**ELECTIVE PAPERS**

**18CEPE09 - Hazardous Waste Management**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the characteristics of different types of solid and hazardous wastes and the factors affecting variation	-	1	1	2	-	3	2	-	1	-	1	2	2	-	2
2	Define and explain important concepts in the field of solid waste management and suggest suitable technical solutions for treatment of municipal and industrial waste	-	2	1	2	-	2	2	1	1	-	1	2	2	-	1
3	Understand the role legislation and policy drivers play in stakeholders' response to the waste and apply the basic scientific principles for solving practical waste management challenges	-	1	1	1	-	2	2	2	1	-	1	2	3	-	2
<b>Average</b>		0.0	1.3	1.0	1.7	0.0	2.3	2.0	1.0	1.0	0.0	1.0	2.0	2.3	0.0	1.7

**ELECTIVE PAPERS**

**18CEPE10 - Air Pollution Monitoring And Control**

		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Causes of air pollution	-	1	2	2	-	1	1	1	1	1	2	2	1	-	2
2	Effects of air and noise pollution	1	2	2	2	2	2	2	-	1	2	3	3	3	-	2
3	Effective air pollution management	2	3	3	2	2	2	2	1	1	2	3	3	3	-	2
<b>Average</b>		1.5	2.0	2.3	2.0	2.0	1.7	1.7	1.0	1.0	1.7	2.7	2.7	2.3	0.0	2.0

**ELECTIVE PAPERS**

**18CEPE11 - Municipal Solid Waste Management**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Sources and characterization of municipal solid wastes	-	2	3	2	1	2	2	-	-	1	2	1	3	-	2
2	On-site/off-site processing of municipal solid wastes and disposal methods.	-	2	3	3	1	3	2	1	2	2	3	2	2	-	3
3	Effective municipal solid waste management	2	2	3	3	3	1	3	3	1	3	2	3	2	3	3
<b>Average</b>		2.0	2.0	3.0	2.7	1.7	2.0	2.3	2.0	1.0	2.0	2.3	2.0	2.3	3.0	2.7

## ELECTIVE PAPERS

### 18CEPE12 - Marine Pollution Monitoring And Control

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	lying behind the oceanic currents and natural processes of various activities happening over the marine environment.	-	-	1	2	2	2	1	-	-	-	1	1	1	-	2
2	Acquired knowledge on the marine pollution and the effect of the same on the ecology	1	-	2	2	2	3	1	-	-	1	1	2	1	-	2
3	Should have gained knowledge on remote sensing and various other techniques for measuring and monitoring oceanic environment parameters	1	2	2	2	2	3	2	-	2	-	1	2	1	-	2
4	Should have acquired knowledge on control of marine pollution and sustainable development	1	1	2	2	2	3	1	1	-	2	1	3	1	-	2
<b>Average</b>		1.0	1.5	2.0	2.0	2.0	2.7	1.2	1.0	2.0	1.5	1.0	2.0	1.0	0.0	2.0



**ELECTIVE PAPERS**

**18CEPE13 - Environmental Impact Assessment**

		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Impacts of development projects on environment	1	3	2	3	3	2	1	1	3	1	1	1	3	1	2
2	Mitigating measures on environmental impact assessment	1	3	2	3	3	2	1	-	1	1	1	1	3	-	2
3	Safe environmental plan to avoid Impacts on water, air, land, flora and fauna	1	3	2	3	3	2	1	-	1	1	1	1	3	-	2
<b>Average</b>		1.0	3.0	2.0	3.0	3.0	2.0	1.0	1.0	1.7	1.0	1.0	1.0	3.0	1.0	2.0

**ELECTIVE PAPERS**

**18CEPE14 - Open Channel Flow**

		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the causes of soil erosion	1	2	1	2	1	2	2	1	1	1	1	1	2	1	1
2	Carry out conservation measures in a watershed	1	2	2	2	2	2	2	1	1	1	1	1	2	1	2
3	Know about water harvesting and groundwater recharging structures	1	2	2	1	2	2	2	2	1	1	1	1	2	1	2
<b>Average</b>		1.0	2.0	1.7	1.7	1.7	2.0	2.0	1.3	1.0	1.0	1.0	1.0	2.0	1.0	1.7

**ELECTIVE PAPERS****18CEPE15 - River Engineering**

<b>Course Outcomes</b>		<b>Program Outcomes</b>												<b>Program Specific Outcomes</b>		
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	Design various channel systems	1	2	2	2	2	2	2	1	1	1	1	1	2	1	1
2	Design head and cross regulator structures	1	2	2	2	2	2	2	1	1	1	1	1	2	1	2
3	Identify various types of reservoir and their design aspects	1	2	2	2	2	2	2	2	1	1	1	1	2	1	2
<b>Average</b>		1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.0	1.0	1.0	1.0	2.0	1.0	1.7

**ELECTIVE PAPERS**

**18CEPE16 - Ground Water Engineering**

		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the causes of soil erosion	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2
2	Carry out conservation measures in a watershed	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2
3	Know about water harvesting and groundwater recharging structures	2	2	2	2	2	2	2	2	1	1	1	1	2	1	2
<b>Average</b>		2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.0	1.0	1.0	1.0	2.0	1.0	2.0

**ELECTIVE PAPERS****18CEPE17 - Irrigation Engineering**

<b>Course Outcomes</b>		<b>Program Outcomes</b>												<b>Program Specific Outcomes</b>			
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>1</b>	<b>2</b>	<b>3</b>	
1	Assess the irrigation needs of crops	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3	1
2	Design weirs on pervious foundation	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3	1
3	Design gravity dam and earthen dam	2	2	1	2	1	2	2	2	1	1	1	1	1	2	3	1
4	Design the canal systems	2	2	1	2	1	1	2	1	1	1	1	1	1	1	3	1
5	Select and design canal fall	2	1	2	2	2	1	2	1	1	1	1	1	1	1	3	2
<b>Average</b>		2.0	1.8	1.6	2.0	1.6	1.6	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	3.0	1.2

**ELECTIVE PAPERS**

**18CEPE18 - Water Shed Management**

		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the causes of soil erosion	3	2	2	2	2	2	2	1	1	1	1	1	2	1	2
2	Carry out conservation measures in a watershed	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2
3	Know about water harvesting and groundwater recharging structures	1	2	2	2	2	2	2	2	1	1	1	1	2	1	2
<b>Average</b>		2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.0	1.0	1.0	1.0	2.0	1.0	2.0

**ELECTIVE PAPERS**

**18CEPE19 - Hydrology**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Demonstrate the concepts of hydrograph, S-hydrograph, Unit hydrograph and IUH	3	2	2	2	2	2	2	1	1	1	1	1	2	-	1
2	Estimate the hydrological parameters	2	2	2	2	2	2	2	1	1	1	1	1	2	-	1
3	Carry out statistical and probability analysis of hydrological data	1	2	1	2	1	2	2	1	1	1	1	1	2	-	1
4	Demonstrate the concepts of hydrological systems	1	2	1	2	1	1	2	1	1	1	1	1	1	-	1
5	Develop regression models for the analysis of hydrological data	2	1	2	2	2	1	2	1	1	1	1	1	1	-	2
<b>Average</b>		1.8	1.8	1.6	2.0	1.6	1.6	2.0	1.0	1.0	1.0	1.0	1.0	1.6	0.0	1.2

**ELECTIVE PAPERS**

**18CEPE20 - 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
1	Analyze and design of short span RC bridges	1	2	3	3	2	1	1	1	1	1	1	2	2	3	1
2	Have a thorough knowledge on the design principles of Long span RC bridges	3	3	1	1	2	2	1	1	1	1	1	1	3	2	2
3	Analyze and design of Prestressed Concrete bridges	3	1	3	3	1	1	2	1	1	2	2	1	2	1	1
4	Analyze and design of Steel bridges	1	2	3	3	2	1	1	1	1	2	2	1	1	1	2
5	Design Bearings and sub structures of bridges.	1	1	2	1	1	1	1	3	1	2	1	2	1	2	1
<b>Average</b>		1.8	1.8	2.4	2.2	1.6	1.2	1.2	1.4	1.0	1.6	1.4	1.4	1.8	1.8	1.4



**ELECTIVE PAPERS**

**18CEPE21 - Modern Structural Analysis**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	To apply the knowledge of mathematics, science, and engineering to understand about the determinate-indeterminate structures	3	2	1	2	-	-	1	1	1	-	-	-	-	3	1
2	To identify, formulate and solve engineering problems using matrix methods.	3	3	1	1	2	-	-	-	-	-	-	-	-	3	-
3	To use the model analysis for engineering practice.	-	-	-	2	-	-	1	-	-	-	-	-	-	2	-
4	To use the finite element method for engineering practice.	1	-	1	1	1	-	1	-	-	-	-	-	-	2	1
5	To apply various theorems and their applications in analyzing structures.	1	1	-	2	2	-	1	-	-	-	-	-	-	2	-
<b>Average</b>		2.0	2.0	1.0	1.6	1.6	0.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	2.4	1.0

**ELECTIVE PAPERS**

**18CEPE22 - Storage Structures**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Learn the basic theory and concepts of designing the steel and concrete storage structures like Water tank, Bunkers and silos	3	-	2	1	-	-	3	-	1	1	-	2	3	-	-
2	Design of Steel and Reinforced Concrete Water tanks	3	-	2	1	-	-	3	-	1	1	-	2	3	-	-
3	Design of Steel and Reinforced Concrete Bunkers and Silos	3	-	2	1	-	-	3	-	1	1	-	2	3	-	-
4	Design of Prestressed Concrete Water tank	3	-	2	1	-	-	3	-	1	1	-	2	3	-	-
<b>Average</b>		3.0	0.0	2.0	1.0	0.0	0.0	3.0	0.0	1.0	1.0	0.0	2.0	3.0	0.0	0.0

**ELECTIVE PAPERS**

**18CEPE23 - 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
1	Differentiate pre-tensioned and post – tensioned prestressed concrete	3	3	1	1	1	1	1	2	2	1	1	1	1	1	2
2	Design a prestressed concrete beam accounting for losses and deflection	3	1	3	3	2	1	2	1	1	2	1	1	3	2	1
3	Design the prestressing members subjected to stress function	1	1	3	3	2	1	3	2	2	1	1	1	3	1	3
4	Design the anchorage zone for post tensioned members	1	1	3	3	1	2	2	1	1	1	2	1	3	1	2
5	Know the partial and circular prestressing technique in various structures.	3	1	2	1	1	2	1	-	1	1	2	2	2	1	1
<b>Average</b>		2.2	1.4	2.4	2.2	1.4	1.4	1.8	1.5	1.4	1.2	1.4	1.2	2.4	1.2	1.8

**ELECTIVE PAPERS**

**18CEPE24 - Advanced Steel Structures**

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Design welded plate girder and other components and gantry girder	2	2	3	3	2	1	1	1	2	1	1	2	3	3	2
2	Connections between beam and columns	3	3	1	1	2	1	1	1	1	1	1	1	2	2	1
3	Carry out wind load calculations for tall structures and design of steel chimneys	2	1	3	2	1	1	2	1	1	1	2	1	2	1	1
4	Design the cold-formed steel beams and columns.	1	2	3	1	1	2	1	1	1	2	2	1	1	1	2
<b>Average</b>		2.0	2.0	2.5	1.8	1.5	1.3	1.3	1.0	1.3	1.3	1.5	1.3	2.0	1.8	1.5

**ELECTIVE PAPERS****18CEPE25 - Tall Buildings**

<b>Course Outcomes</b>		<b>Program Outcomes</b>												<b>Program Specific Outcomes</b>		
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	Behaviour of tall buildings subjected to lateral building.	1	3	1	1	1	1	1	1	-	-	-	1	1	2	2
2	Rudimentary principles of designing tall buildings as per the existing codes.	3	3	3	3	1	1	2	-	-	1	1	1	1	1	1
3	Stability evaluation of tall buildings with respect to various factors	1	1	3	3	2	1	3	1	-	1	1	1	1	1	1
<b>Average</b>		1.7	2.3	2.3	2.3	1.3	1.0	2.0	1.0	0.0	1.0	1.0	1.0	1.0	1.3	1.3