

## **Department of Civil Engineering**

### **Program Outcomes (PO)**

The program outcomes are those skills and knowledge which students possess at the time of graduation. Society expects following capabilities from engineering graduate:

- (1) Graduate engineer must have knowledge of mathematics, science, and engineering.
- (2) Graduate engineer must be able to conduct experiments, as well as to analyze and interpret data
- (3) Graduate engineer must be able to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (4) Graduate engineer must be able to function in multi-disciplinary teams
- (5) Graduate engineer must be able to identify, formulate, and solve engineering problems.
- (6) Graduate engineer must have an understanding of professional and ethical responsibility
- (7) Graduate engineer must be able to communicate effectively.
- (8) Graduate engineer must have the education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- (9) Graduate engineer should recognize the need, and should possess ability to engage in life-long learning.
- (10) Graduate engineer must have knowledge of contemporary issues.
- (11) Graduate engineer must have an ability to use the techniques, skills, and modern engineering tools.
- (12) Graduate engineer learn management principal and apply these to once own's work as a member and leader in team

## Department of Civil Engineering

**Subject Code/Name:- 4CE2-01/Advanced Engineering Mathematics**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Use the basic probability rules, Baye's theorem, and Translate real-world problems into probability models
<b>CO-2</b>	Understand the discrete and continuous random variables , Mathematical expectations and their Probability distributions
<b>CO-3</b>	Calculate Correlation and Regression of given set of values, Fitting the curves on given data table.
<b>CO-4</b>	Check the level of significance applying large sample test for single proportion and difference of proportion
<b>CO-5</b>	Apply large sample test for mean, difference of means and difference of standard deviations.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	0	0	0	0	0	0	0	0	2	1	2	2
<b>II</b>	3	3	0	0	0	0	0	0	0	0	0	2	1	1	2
<b>III</b>	3	3	0	3	0	0	0	0	0	0	0	2	2	1	2
<b>IV</b>	3	3	0	3	0	0	0	0	0	0	0	1	1	2	1
<b>V</b>	3	3	0	3	0	0	0	0	0	0	0	1	1	1	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 4CE1-02/Technical Communication**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Ability to describe the Elements of Written Communication.
<b>CO-2</b>	Ability to Recognize basic Value-based Text Reading
<b>CO-3</b>	Ability to express fundamentals of Technical Communication
<b>CO-4</b>	Ability to choose Appropriate Forms of Technical Communication
<b>CO-5</b>	Ability to Design programs that presentation Strategies.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	1	0	0	0	0	0	2	2	0	2	0	3	1	1	3
<b>II</b>	1	0	0	0	0	2	0	2	0	2	0	3	1	1	3
<b>III</b>	2	2	0	0	0	2	2	2	0	2	0	3	2	1	3
<b>IV</b>	2	2	0	0	0	3	0	2	0	2	0	3	1	1	3
<b>V</b>	1	0	0	0	0	1	0	1	0	3	0	3	1	1	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:-4CE3-04/Basic Electronics for Civil Engineering Applications**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Characterize semiconductors, diodes and bipolar junction transistors
<b>CO-2</b>	Learn the fundamentals of digital electronics
<b>CO-3</b>	Analyze the characteristics of different types of transducers & sensors
<b>CO-4</b>	Understand the working of various instruments and measure the error
<b>CO-5</b>	Understand the concept and processing of digital images

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	3	1	0	0	0	1	0	0	2	2	2	1
<b>II</b>	3	3	0	3	0	0	0	0	1	0	0	2	2	2	2
<b>III</b>	3	3	0	2	1	0	0	0	1	0	0	3	2	2	2
<b>IV</b>	3	3	1	3	1	1	0	0	1	0	0	2	2	3	1
<b>V</b>	3	3	3	3	1	0	2	0	1	0	0	2	2	3	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:-4CE4-05/Strength of Materials**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Compute Stress and strain caused by applied loads in simple and composite sections.
<b>CO-2</b>	Determine the effects of external loads such as axial force, shear force and bending moment at any section of the beam, using consistent sign conventions.
<b>CO-3</b>	Understand the concept of simple bending and shear stress including combined direct and bending stress.
<b>CO-4</b>	Understand the concept of torsion and columns.
<b>CO-5</b>	Determine deflection of beam by using various method

### MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PSO'S

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	3	1	0	0	0	1	0	0	2	2	2	1
<b>II</b>	3	3	0	3	0	0	0	0	1	0	0	2	2	2	2
<b>III</b>	3	3	0	2	1	0	0	0	1	0	0	3	2	2	2
<b>IV</b>	3	3	1	3	1	1	0	0	1	0	0	2	2	3	1
<b>V</b>	3	3	3	3	1	0	2	0	1	0	0	2	2	3	1

**Note:** Correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

## Department of Civil Engineering

**Subject Code/Name:-4CE4-06/Hydraulics Engineering**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Applying dimensional homogeneities between dependent and independent quantities and model similarities on both prototype and its model
<b>CO-2</b>	Analyze and Compute the frictional loss and Reynolds's number in laminar and turbulent flows.
<b>CO-3</b>	Analyze and design of fluid flows in open channel open channels for most economical sections like rectangular, trapezoidal and circular sections.
<b>CO-4</b>	Calculate forces and work done by a jet on fixed or moving plate and curved plates and understand the characteristics pump and turbine
<b>CO-5</b>	Applying dimensional homogeneities between dependent and independent quantities and model similarities on both prototype and its model

### MAPPING OF COURSE OBJECTIVE WITH PROGRAM OUTCOMES

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	2	3	2	2	2	1	0	0	0	0	1	2	1	1	2
<b>II</b>	3	3	2	2	0	1	0	0	0	0	0	3	2	2	3
<b>III</b>	2	3	3	3	1	1	1	0	1	0	1	3	3	2	3
<b>IV</b>	2	2	2	1	0	0	0	0	0	0	0	2	2	1	2
<b>V</b>	2	2	2	1	1	1	0	1	2	0	2	3	3	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:-4CE4-07/Building Planning**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Identify the factors to be considered in planning and construction of building.
<b>CO-2</b>	Impart the ability to work with an architect and contractor
<b>CO-3</b>	Plan a building following the bye-laws.
<b>CO-4</b>	Plan the buildings according the modern requirements such as sustainability, environment friendly etc.
<b>CO-5</b>	Prepare drawings, foundation plans and others executable drawings with proper details of building.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	2	0	0	0	2	0	0	0	0	3	2	2	1	3
<b>II</b>	3	0	0	0	0	0	2	0	3	0	2	2	3	1	2
<b>III</b>	3	0	0	0	0	3	2	0	0	0	0	2	1	2	2
<b>IV</b>	3	0	0	0	0	0	3	0	0	0	0	2	1	1	2
<b>V</b>	3	2	0	0	0	2	0	0	0	0	1	2	3	1	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:-4CE4-08/Concrete Technology**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Identify the functional role of ingredients of concrete and apply this knowledge to mix design philosophy
<b>CO-2</b>	Acquire and apply fundamental knowledge in the fresh and hardened properties of concrete & Application & use of NDT.
<b>CO-3</b>	Understand the techniques of handling, placing and maturity of concrete and also Causes of deterioration.
<b>CO-4</b>	Understand the importance and uses of admixtures in concrete. Design a concrete mix which fulfils the required properties for fresh and hardened concrete and awareness about the formwork.
<b>CO-5</b>	Understand the Requirements of Formwork and Special types of concrete for advanced construction.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	2	2	2	0	0	0	0	0	0	0	2	1	2	2
<b>II</b>	3	2	0	0	1	0	0	0	0	0	0	3	2	2	3
<b>III</b>	3	1	1	0	2	2	0	0	0	0	0	2	1	2	2
<b>IV</b>	3	3	3	2	0	3	3	0	0	0	0	3	2	3	3
<b>V</b>	3	1	1	0	1	2	0	0	0	0	0	2	2	2	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**



## Department of Civil Engineering

**Subject Code/Name:- 4CE4-21/ Material Testing Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Determine the compressive and tensile strength of steel and HYSD bar
<b>CO-2</b>	Determine the strength of cement and concrete cubes.
<b>CO-3</b>	Determine the hardness and impact of distinct materials.
<b>CO-4</b>	Determine the modulus of rupture of wooden beam.
<b>CO-5</b>	Explain basic material's properties like fatigue, torsion, etc.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	0	0	0	3	0	0	0	0	0	0	2	2	1	2
<b>II</b>	3	2	0	0	3	0	2	2	3	2	2	2	2	1	3
<b>III</b>	3	0	0	0	3	0	0	0	0	0	0	2	2	1	1
<b>IV</b>	3	0	0	0	3	0	2	0	2	2	0	2	2	2	1
<b>V</b>	3	2	0	0	3	0	0	0	0	0	0	2	2	2	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 4CE4-22/ Hydraulics Engineering Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Determine various type of losses in pipe flow.
<b>CO-2</b>	Understand momentum equation for governing fluid flows. Analyze the discharge through broad crested wier and venturimeter
<b>CO-3</b>	Analyze the discharge through broad crested wier and venturimeter & velocity distribution in open channel flow.
<b>CO-4</b>	Determine Manning's & Chezy's coefficient of roughness
<b>CO-5</b>	Understand and plot characteristics curve of hydraulic jump.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	2	3	2	2	1	2	0	0	0	2	2	2	2	1
<b>II</b>	2	3	2	1	2	1	0	0	1	0	0	3	2	2	2
<b>III</b>	3	3	3	2	2	1	0	0	0	0	0	3	2	3	3
<b>IV</b>	3	2	3	2	2	1	2	0	0	0	2	2	2	2	1
<b>V</b>	2	2	1	1	1	1	2	0	0	0	0	3	2	3	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 4CE4-23/ Building Drawing Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Apply the Bye laws and Principles of Planning for residential and other public buildings
<b>CO-2</b>	Prepare detail drawings for single and two storied residential building and public building.
<b>CO-3</b>	Develop the building models
<b>CO-4</b>	Draw the details of parts of buildings
<b>CO-5</b>	Provide scope and provisions for building components and services

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	0	0	0	0	2	0	0	0	0	0	3	2	1	3
<b>II</b>	3	0	0	0	0	2	0	0	0	0	0	3	3	1	2
<b>III</b>	3	0	0	0	0	2	0	0	0	0	0	3	1	2	2
<b>IV</b>	3	0	0	0	0	2	0	0	0	0	0	3	1	1	2
<b>V</b>	3	0	0	0	0	2	0	0	0	0	0	3	3	1	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 4CE4-24/ Advanced Surveying Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Measurement of horizontal and vertical angle by theodolite.
<b>CO-2</b>	To determine the height of an object by trigonometric levelling.
<b>CO-3</b>	Uses of total station to measurement of angles,length of survey lines and area of traverse.
<b>CO-4</b>	Prepare the map of area by Plane Table.
<b>CO-5</b>	To measure and adjust the angles of a braced quadrilateral.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	2	0	2	3	2	0	2	3	0	1	3	3	3	3
<b>II</b>	3	2	0	2	2	3	0	2	3	0	1	3	2	3	3
<b>III</b>	3	3	0	3	2	0	0	2	2	0	2	3	3	2	3
<b>IV</b>	3	2	0	2	3	2	0	2	3	0	1	3	3	3	3
<b>V</b>	3	2	0	0	2	1	0	2	2	0	1	3	2	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 4CE4-25/ Concrete Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Conduct the experiments for determining various physical properties of cement
<b>CO-2</b>	Perform experiments evaluating different properties of aggregates related to concrete
<b>CO-3</b>	Test the properties of fresh concrete and hardened concrete.
<b>CO-4</b>	Design concrete mix for various grades of concrete according to IS recommendations with and without admixtures
<b>CO-5</b>	Understand and perform Non-Destructive testing (NDT) of Concrete

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	1	0	0	2	1	0	2	0	0	0	3	1	1	2
<b>II</b>	3	1	0	0	2	1	0	2	0	0	0	3	2	1	2
<b>III</b>	3	2	0	1	2	1	0	3	2	0	2	3	2	2	3
<b>IV</b>	3	2	2	2	2	2	0	2	2	0	2	3	2	2	3
<b>V</b>	3	1	0	1	3	1	0	2	0	0	0	2	2	2	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE3-01/ Wind and Seismic Analysis**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Explain the theory of lateral load distribution concept and structural systems phenomena.
<b>CO-2</b>	Explain the principle of building analysis and behaviour of structure during lateral loads.
<b>CO-3</b>	Apply wind & load for analyzing the structure to evaluate the response of lateral load
<b>CO-4</b>	Apply seismic load for analyzing the structure to evaluate the response of lateral load
<b>CO-5</b>	Build the understanding of Earthquake Resistant Construction as per the codal provision of Indian Standards.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	1	1	0	0	0	0	0	0	0	0	3	2	1	3
<b>II</b>	3	2	1	0	0	0	0	0	0	0	0	3	2	1	3
<b>III</b>	3	2	1	0	2	0	0	0	0	0	0	2	2	1	2
<b>IV</b>	3	2	1	0	2	0	0	0	0	0	0	2	2	1	2
<b>V</b>	3	2	1	0	0	0	0	0	0	0	0	3	2	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-02/ Structural Analysis II**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	To explain the concept and application of unit load method.
<b>CO-2</b>	To explain the behavior of moving load on girders using concepts of influence line.
<b>CO-3</b>	To analysis of two hinged and three hinged parabolic arches.
<b>CO-4</b>	To calculate stresses, shear center and deflection of unsymmetrical section.
<b>CO-5</b>	To analysis of multistory frames by portal, cantilever and factor methods.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	2	2	0	1	0	1	0	0	0	0	0	2	2	1	2
<b>II</b>	3	3	1	2	1	1	0	0	0	0	0	2	1	1	2
<b>III</b>	2	2	0	0	0	1	0	0	0	0	0	2	2	1	3
<b>IV</b>	2	2	1	0	0	1	0	0	0	0	0	1	1	1	1
<b>V</b>	2	2	1	0	0	0	0	0	0	0	0	1	1	2	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-03/ Environmental Engineering**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Understand demand for water supply to households, industry and public services.
<b>CO-2</b>	Understand source of water and their quality parameter, analyse the process of treatment processes, transmission, and distribution.
<b>CO-3</b>	Understand quantity of sewage, conveyance, design of sewers, quality parameters, treatment, disposal
<b>CO-4</b>	Analyze the process of advanced treatment of water and wastewater
<b>CO-5</b>	Basic concepts of air and noise pollution, monitoring and control measures.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	0	0	0	0	0	0	0	0	0	1	1	1
<b>II</b>	3	3	1	2	2	1	1	0	0	0	0	1	1	1	1
<b>III</b>	3	3	2	2	0	1	1	0	0	0	0	1	2	1	1
<b>IV</b>	3	3	0	0	0	0	0	0	0	0	0	1	1	1	1
<b>V</b>	3	0	0	0	2	1	2	0	0	0	0	0	1	1	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**



## Department of Civil Engineering

**Subject Code/Name:- 6CE4-04/ Design of Steel Structures**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Explain the fundamental of steel structures and calculate the plastic moment of different cross-sections. Design and analysis the various members of steel under combined forces
<b>CO-2</b>	Design and analysis the bolted connections, welded .tension members and compression members.
<b>CO-3</b>	Design of beams: simple and compound sections. including for web buckling, web crippling, lateral torsional buckling.
<b>CO-4</b>	Design and analysis of column bases and various members of steel under combined forces
<b>CO-5</b>	Design of plate girder, gantry girder, roof trusses members and foot over bridges. Introduction to Pre Engineered Buildings.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	3	2	0	1	0	2	1	0	0	3	3	2	3
<b>II</b>	3	3	3	3	0	1	0	2	2	0	1	3	2	3	3
<b>III</b>	3	3	3	2	0	1	0	2	2	0	1	2	3	2	3
<b>IV</b>	3	3	3	2	0	1	0	2	2	0	1	3	2	2	3
<b>V</b>	3	3	3	2	2	2	2	2	2	1	2	3	3	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-05/ Estimating & Costing**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	To understand knowledge of quantity surveying and will become familiar with modes of measurement and utility of various types of estimates.
<b>CO-2</b>	To understand the use of current schedule of rates and quantitative resource allocation for the rate analysis.
<b>CO-3</b>	To extend the knowledge of detailed estimate preparation for various civil engineering works.
<b>CO-4</b>	To calculate cost of works acknowledging overhead charges, contingencies, work charge establishment and percentage of various services.
<b>CO-5</b>	To understand utility, purpose and concepts involved in the building valuation.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	0	1	0	0	0	0	0	0	3	1	2	2
<b>II</b>	3	3	0	0	1	0	0	0	0	0	0	2	2	2	2
<b>III</b>	3	3	0	0	1	0	0	0	0	0	0	3	3	3	3
<b>IV</b>	3	3	0	0	2	0	0	0	0	0	0	3	3	3	3
<b>V</b>	3	3	0	0	1	0	0	0	0	0	0	3	2	2	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE5-12/ Solid and Hazardous Waste Management**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	To understand the basic components of swm.
<b>CO-2</b>	Process to collect the solid waste.
<b>CO-3</b>	To characteristics the properties of solid waste and waste processing.
<b>CO-4</b>	Introduction of hazardous waste and disposal.
<b>CO-5</b>	Treatment and disposal of solid waste and understanding the latest rules related to swm.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	2	0	0	0	1	1	3	1	3	2	2	2	1	1	2
<b>II</b>	1	0	0	1	1	1	3	2	3	2	3	2	1	1	2
<b>III</b>	2	1	0	1	2	2	2	2	3	2	2	2	1	2	2
<b>IV</b>	1	2	0	2	3	2	3	2	3	2	3	2	1	1	1
<b>V</b>	2	1	0	2	3	2	3	2	3	3	3	2	2	2	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE5-16/ Geographic Information System & Remote Sensing**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Understand and applying the basic concept and methods of photogrammetry.
<b>CO-2</b>	Understand the process of remote sensing.
<b>CO-3</b>	Analyze different types of platforms, sensors and their characteristics, Orbital parameters of a satellite, Multi concept in Remote Sensing.
<b>CO-4</b>	Understand and remember the concepts of image Interpretation.
<b>CO-5</b>	Application of Geographic Information System (GIS).

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	1	0	0	0	2	0	0	0	0	0	0	1	1	1	1
<b>II</b>	1	0	0	0	2	0	0	0	0	0	0	1	1	1	1
<b>III</b>	1	0	0	2	2	0	0	0	0	0	0	1	1	1	1
<b>IV</b>	1	0	0	0	2	2	2	0	0	0	0	1	1	1	1
<b>V</b>	1	0	0	0	2	0	0	0	0	0	0	1	1	1	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-21/ Environmental Engineering Design and Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Understand about the water quality parameters and their permissible limits as per the standards.
<b>CO-2</b>	Analyze the physical tests to be conducted for the water before supply.
<b>CO-3</b>	Analyze chemical tests to be conducted for the water before supply.
<b>CO-4</b>	Accumulate the information about water supply fittings.
<b>CO-5</b>	Calculate physical chemical properties by lab experiments for sewage sample. Understand biological reaction of sewage sample

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	0	0	0	0	0	0	0	0	0	1	1	1
<b>II</b>	3	3	1	2	2	1	1	0	0	0	0	1	1	1	1
<b>III</b>	3	3	2	2	0	1	1	0	0	0	0	1	2	1	1
<b>IV</b>	3	3	0	0	0	0	0	0	0	0	0	1	1	1	1
<b>V</b>	3	0	0	0	2	1	2	0	0	0	0	0	1	1	1

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-22/ Steel Structures Design**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Explain the fundamental of steel structures and calculate the plastic moment of different cross-sections. Design and analysis the various members of steel under combined forces
<b>CO-2</b>	Design and analysis the bolted connections, welded .tension members and compression members.
<b>CO-3</b>	Design of beams: simple and compound sections. including for web buckling, web crippling, lateral torsional buckling.
<b>CO-4</b>	Design and analysis of column bases and various members of steel under combined forces
<b>CO-5</b>	Design of plate girder, gantry girder, roof trusses members and foot over bridges. Introduction to Pre Engineered Buildings

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	3	2	0	1	0	2	1	0	0	3	3	2	3
<b>II</b>	3	3	3	3	0	1	0	2	2	0	1	3	2	3	3
<b>III</b>	3	3	3	2	0	1	0	2	2	0	1	2	3	2	3
<b>IV</b>	3	3	3	2	0	1	0	2	2	0	1	3	2	2	3
<b>V</b>	3	3	3	2	2	2	2	2	2	1	2	3	3	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-23/ Quantity Surveying and Valuation Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	To understand knowledge of quantity surveying and will become familiar with modes of measurement and utility of various types of estimates.
<b>CO-2</b>	To understand the use of current schedule of rates and quantitative resource allocation for the rate analysis.
<b>CO-3</b>	To extend the knowledge of detailed estimate preparation for various civil engineering works.
<b>CO-4</b>	To calculate cost of works acknowledging overhead charges, contingencies, work charge establishment and percentage of various services.
<b>CO-5</b>	To understand utility, purpose and concepts involved in the building valuation.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	0	1	0	0	0	0	0	0	3	1	2	2
<b>II</b>	3	3	0	0	1	0	0	0	0	0	0	3	2	2	2
<b>III</b>	3	3	0	0	1	0	0	0	0	0	0	2	3	3	3
<b>IV</b>	3	3	0	0	2	0	0	0	0	0	0	3	3	3	3
<b>V</b>	3	3	0	0	1	0	0	0	0	0	0	3	2	2	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 6CE4-24/ Water and Earth Retaining Structures Design Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Design the continuous beam and understanding of moment redistribution in continuous beam.
<b>CO-2</b>	Design the curved beam.
<b>CO-3</b>	Design of circular domes.
<b>CO-4</b>	Design of Water Tanks and Towers.
<b>CO-5</b>	Design and stability analysis of retaining wall.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	3	1	0	1	0	1	0	0	0	3	3	2	3
<b>II</b>	3	3	3	2	0	1	0	2	0	0	0	3	2	2	3
<b>III</b>	3	3	3	2	0	1	0	2	0	0	0	3	2	3	3
<b>IV</b>	3	3	3	3	0	2	0	3	0	0	0	3	3	2	3
<b>V</b>	3	3	3	2	0	2	0	2	0	0	0	3	3	2	2

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**



## Department of Civil Engineering

**Subject Code/Name:- 6CE4-25/ Foundation Engineering Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Design of isolated shallow, combined footings and design of raft foundation.
<b>CO-2</b>	Design of pile foundations
<b>CO-3</b>	Design of wells and casions.
<b>CO-4</b>	Design of machine foundation.
<b>CO-5</b>	Design of retaining structure.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	2	3	2	2	0	0	2	1	0	0	3	3	2	3
<b>II</b>	3	3	2	3	3	0	0	2	1	0	0	3	2	3	3
<b>III</b>	3	3	3	2	2	0	0	3	1	0	0	3	3	3	2
<b>IV</b>	3	3	3	3	3	0	1	2	1	0	0	3	2	3	3
<b>V</b>	3	3	3	2	0	2	0	2	0	0	0	3	3	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 8CE4-01/ Project Planning and Construction Management**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Evaluate the financial evaluation of projects and project planning.
<b>CO-2</b>	Analyze the project scheduling.
<b>CO-3</b>	Identify the project cost and time control.
<b>CO-4</b>	Analyze about the contract management.
<b>CO-5</b>	Understand the safety management during construction.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	3	3	0	0	0	0	2	2	3	3	1	2	3
<b>II</b>	3	3	3	3	2	0	0	0	0	2	0	3	1	2	2
<b>III</b>	3	3	3	3	0	0	0	0	0	0	0	3	1	2	2
<b>IV</b>	3	3	2	3	0	0	0	0	2	3	0	3	2	2	3
<b>V</b>	3	3	3	3	0	3	0	0	0	3	0	3	1	2	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 8TT6-60.2/ Disaster Management**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Describe the basic concepts of disaster and hazards.
<b>CO-2</b>	Discuss various types of natural and man-made disasters, risk and vulnerability associated with disasters.
<b>CO-3</b>	Explain the types of disasters, causes, impact and preventive measure.
<b>CO-4</b>	Evaluate man made disasters, textile processing hazards, road accidents.
<b>CO-5</b>	Assess the role of production people in disaster management of Indian textile industries.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	1	0	0	0	2	2	2	1	1	0	1	2	1	1	3
<b>II</b>	1	2	0	0	0	1	2	0	1	1	0	2	1	1	3
<b>III</b>	1	0	0	0	0	1	1	0	1	0	0	2	1	1	3
<b>IV</b>	1	0	0	0	0	1	1	1	0	0	0	2	1	2	3
<b>V</b>	1	0	0	0	0	1	1	1	0	0	1	2	1	1	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 8CE4-21/ Project Planning and Construction Management Lab**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Understand about the different Types of contracts
<b>CO-2</b>	Analyze the Drafting of tender documents
<b>CO-3</b>	Analyze the Different models of PPP like BOT, BOOT etc.
<b>CO-4</b>	Design and Preparation of bar chart diagram
<b>CO-5</b>	Network Analysis using PERT and CPM

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	2	2	0	0	0	0	0	0	1	0	3	2	2	3
<b>II</b>	3	2	2	0	0	0	0	0	0	1	0	3	2	2	3
<b>III</b>	3	1	2	0	0	2	0	0	3	2	2	3	2	2	3
<b>IV</b>	3	3	3	2	0	0	0	0	0	1	3	3	2	3	3
<b>V</b>	3	3	3	3	0	0	0	0	0	2	3	3	2	3	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

**Subject Code/Name:- 8CE4-22/ Pavement Design**

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Understand the Pavement Mix Analysis.
<b>CO-2</b>	Understand the Pavement Basics.
<b>CO-3</b>	To Design of Flexible Pavements.
<b>CO-4</b>	To Design of Concrete Pavements.
<b>CO-5</b>	Understand the Specifications for rural roads.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	2	1	1	0	0	1	0	2	1	0	0	2	2	1	3
<b>II</b>	2	1	1	0	0	1	0	2	1	0	0	2	2	1	3
<b>III</b>	3	2	2	2	1	1	0	2	2	0	2	3	3	2	2
<b>IV</b>	3	2	2	2	1	1	0	2	2	0	2	3	3	2	2
<b>V</b>	2	1	1	0	0	1	0	2	1	0	0	2	2	1	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## Department of Civil Engineering

Subject Code/Name:- 8CE7-50/ Project

<b>List of Course Outcomes</b>	
<b>CO-1</b>	Acquire basic knowledge and practical knowledge to implement towards industries.
<b>CO-2</b>	Design and test concrete and pavement.
<b>CO-3</b>	Apply project management skills (scheduling work, procuring parts, and documenting expenditures and working within the confines of a deadline).
<b>CO-4</b>	Develop and demonstrate troubleshooting ability in civil technology.
<b>CO-5</b>	Communicate technical information by means of written and oral reports.

### MAPPING OF COURSE OUTCOME WITH PROGRAM OUTCOMES AND PSO

<b>COURS E OUTCO ME</b>	<b>PROGRAM OUTCOME</b>												<b>PSO</b>		
	<b>P O- 1</b>	<b>P O- 2</b>	<b>P O- 3</b>	<b>P O- 4</b>	<b>P O- 5</b>	<b>P O- 6</b>	<b>P O- 7</b>	<b>P O- 8</b>	<b>P O- 9</b>	<b>P O- 10</b>	<b>P O- 11</b>	<b>P O- 12</b>	<b>PS O-1</b>	<b>PS O-2</b>	<b>PS O-3</b>
<b>I</b>	3	3	0	0	3	3	3	3	3	3	3	3	1	2	3
<b>II</b>	3	3	0	0	3	3	3	3	3	3	3	3	1	3	3
<b>III</b>	3	3	0	0	3	3	3	3	3	3	3	3	1	3	3
<b>IV</b>	3	3	0	0	3	3	3	3	3	3	3	3	1	2	3
<b>V</b>	3	3	0	0	3	3	3	3	3	3	3	3	1	3	3

**Note: Correlation levels 1, 2 or 3 as defined below:**

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**