

SESSION 2022-26

FACULTY NAME :		SESSION :	JULY DEC 2024
SUBJECT CODE :	CE21015	B.TECH YEAR :	II YEAR
SUBJECT NOMN :	Engineering Material	SEM :	III

COURSE OUTCOME

CO1 :	Demonstrate the composition, manufacturing and properties of brick, lime and clay products.
CO2 :	Describe and explain the type's uses and properties of glasses, timber and plastics in buildings.
CO3 :	Discuss and explain the properties of decorative materials such as rubber, organic coating, and laminates water proofing etc.
CO4 :	Classify the properties of fresh and hardened concrete. Design and recommend the proportion of concrete mix using the specification of ingredients.
CO5 :	Discuss Alternate & Innovative Construction Material for Housing and classify the properties of heat insulating materials and behavior of various materials under compression, tension, bending, fatigue, creep and hardness under different loading.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	1	0	0	0	2	0	0	0	1	0	3	2	2	0	0
CO2	3	1	0	0	0	2	0	0	0	1	0	3	2	2	0	0
CO3	3	1	0	0	0	2	0	0	0	1	0	3	2	2	0	0
CO4	3	2	2	0	0	2	0	0	0	1	0	3	3	2	0	0
CO5	3	2	1	0	0	2	0	0	0	2	0	3	3	2	0	0
TARGET	3	1.4	1.5	-	-	2	-	-	-	1.2	-	3	2.4	2	-	-

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.5	0.8	0	0	0	1.7	0	0	0	0.8	0	2.5	1.7	1.7	0	0
CO2	2.9	1.0	0	0	0	2.0	0	0	0	1.0	0	2.9	2.0	2.0	0	0
CO3	2.5	0.8	0	0	0	1.7	0	0	0	0.8	0	2.5	1.7	1.7	0	0
CO4	2.5	1.7	1.7	0	0	1.7	0	0	0	0.8	0	2.5	2.5	1.7	0	0
CO5	2.3	1.5	0.8	0	0	1.5	0	0	0	1.5	0	2.3	2.3	1.5	0	0
ATTAIN	2.6	1.2	1.2	-	-	1.7	-	-	-	1.0	-	2.6	2.0	1.7	-	-

FACULTY NAME :		SESSION :	JULY DEC 2023
SUBJECT CODE :	CE21005	B.TECH YEAR :	II YEAR
SUBJECT NOMN :	Engineering Material	SEM :	III

COURSE OUTCOME

CO1 :	Demonstrate the composition, manufacturing and properties of brick, lime and clay products.
CO2 :	Describe and explain the type's uses and properties of glasses, timber and plastics in buildings.
CO3 :	Discuss and explain the properties of decorative materials such as rubber, organic coating, and laminates water proofing etc.
CO4 :	Classify the properties of fresh and hardened concrete. Design and recommend the proportion of concrete mix using the specification of ingredients.
CO5 :	Discuss Alternate & Innovative Construction Material for Housing and classify the properties of heat insulating materials and behavior of various materials under compression, tension, bending, fatigue, creep and hardness under different loading.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	1	0	0	0	2	0	0	0	1	0	3	2	2	0	0
CO2	3	1	0	0	0	2	0	0	0	1	0	3	2	2	0	0
CO3	3	1	0	0	0	2	0	0	0	1	0	3	2	2	0	0
CO4	3	2	2	0	0	2	0	0	0	1	0	3	3	2	0	0
CO5	3	2	1	0	0	2	0	0	0	2	0	3	3	2	0	0
TARGET	3	1.4	1.5	-	-	2	-	-	-	1.2	-	3	2.4	2	-	-

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.9	1.0	0	0	0	2.0	0	0	0	1.0	0	2.9	2.0	2.0	0	0
CO2	2.9	1.0	0	0	0	2.0	0	0	0	1.0	0	2.9	2.0	2.0	0	0
CO3	2.9	1.0	0	0	0	1.9	0	0	0	1.0	0	2.9	1.9	1.9	0	0
CO4	3.0	2.0	2.0	0	0	2.0	0	0	0	1.0	0	3.0	3.0	2.0	0	0
CO5	1.5	1.0	0.5	0	0	1.0	0	0	0	1.0	0	1.5	1.5	1.0	0	0
ATTAIN	2.7	1.2	1.2	-	-	1.8	-	-	-	1.0	-	2.7	2.1	1.8	-	-

FACULTY NAME :	Mr. TARUN KUMAR NARNALRE, Ms. NAMRATA KHEDE	SESSION :	2022-26
SUBJECT :	CE21004	B.TECH YEAR - II	
SUBJECT :	ENGINEERING MATERIALS	SEM : A	

COURSE OUTCOME

- CO1 : Analyze cement properties through standardized tests.
CO2 : Evaluate aggregate characteristics and behavior.
CO3 : Assess concrete workability and strength parameters.
CO4 : Examine various construction materials properties.
CO5 : Apply concrete mix design principles and methods.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1	3	0	0	3	0	0	3	3	3	0	3	3	3	0	0
CO2	3	3	3	0	3	0	0	3	3	3	0	3	3	3	0	0
CO3	3	3	3	0	3	0	0	3	3	3	0	3	3	3	0	0
CO4	3	3	0	0	3	0	0	3	3	3	0	3	3	3	0	0
CO5	3	3	3	0	0	0	0	3	3	3	0	3	3	3	0	0
TARGET	3.00	3.00	2.30	-	3.00	-	-	3.00	3.00	3.00	-	3.00	2.80	3.00	-	-

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.91	2.91	0	0	0	0	0	1.9	0.0	0.00	0	0.00	0.0	0.00	0	0
CO2	2.91	2.92	1.95	0	0	0	0	2.9	0.0	0.00	0	0.00	0.0	0.00	0	0
CO3	2.91	2.90	2.90	0	2.9175	0	0	2.9	2.92	2.92	0	2.92	2.9375	2.92	0	0
CO4	2.91	2.90	0	0	2.9	0	0	2.9	2.90	2.90	0	2.90	0	2.90	0	0
CO5	2.91	2.90	1.93	0	0	0	0	2.9	2.90	2.90	0	2.90	2.9	2.90	0	0
ATTAIN	2.9	2.9	1.5	-	1.5	-	-	2.6	1.0	1.0	-	1.0	1.0	1.0	-	-

22-26

FACULTY NAME : Dr. S.K. AHIRWAR/ Ms. MEGHA PATEL
 SUBJECT CODE : CE 21007
 SUBJECT NOMN : BUILDING PLANNING & ARCHITECTURE

SESSION : 2023-24
 B.TECH YEAR : IInd YEAR
 SEM : 3rd

COURSE OUTCOME

- CO1 : Identify building components and apply regulations in site planning
 CO2 : Utilize environmental design principles in architectural planning
 CO3 : Implement functional planning and integrate basic building services.
 CO4 : Describe architectural history and the architect's professional role.
 CO5 : Create architectural compositions and produce technical drawings.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	2	0	0	0	0	0	3	0	0	0	3	1	2	0	0
CO2	2	3	0	2	0	0	0	3	0	0	0	3	1	2	1	1
CO3	3	2	0	2	0	0	0	3	0	0	0	3	1	3	0	0
CO4	2	1	0	2	0	0	0	3	0	0	0	3	1	0	0	0
CO5	2	2	0	3	0	0	0	3	0	0	0	3	1	0	0	0
TARGET	2.4	2	0	2.25	0	0	0	3	0	0	0	3	1	2.333	1	1

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.52	1.68	0.00	0.00	0.00	0.00	0.00	2.52	0.00	0.00	0.00	2.52	0.84	1.68	0.00	0.00
CO2	1.68	2.52	0.00	1.68	0.00	0.00	0.00	2.52	0.00	0.00	0.00	2.52	0.84	1.68	0.84	0.84
CO3	2.92	1.93	0.00	1.93	0.00	0.00	0.00	2.92	0.00	0.00	0.00	2.92	0.97	2.92	0.00	0.00
CO4	1.85	0.93	0.00	1.85	0.00	0.00	0.00	2.78	0.00	0.00	0.00	2.78	0.93	0.00	0.00	0.00
CO5	1.41	1.41	0.00	2.11	0.00	0.00	0.00	2.11	0.00	0.00	0.00	2.11	0.70	0.00	0.00	0.00
ATTAINED	2.08	1.70	0.00	1.90	0.00	0.00	0.00	2.57	0.00	0.00	0.00	2.57	0.86	2.09	0.84	0.84

22-26

FACULTY NAME : Dr. S.K. AHIRWAR/Ms. MEGHA PATEL
 SUBJECT CODE : CE 21007
 SUBJECT NOMN : BUILDING PLANNING & ARCHITECTURE

SESSION : 2023-24
 B.TECH YEAR : IInd YEAR
 SEM : 3rd

COURSE OUTCOME

- CO1 : Interpret and apply architectural drawing conventions, including sign conventions,
 CO2 : Create accurate architectural drawings for various residential structures, including doors, windows, staircases, and different house types
 CO3 : Utilize AutoCAD software to produce professional-quality plans, elevations, and sections

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	3	3	0	0	0	0	2	2	0	0	3	3	2	1	2
CO2	3	3	3	0	0	0	0	2	3	0	0	3	3	3	1	2
CO3	3	3	3	0	0	0	0	2	3	0	0	3	3	3	1	2
TARGET	3	3	3	0	0	0	0	2	3	0	0	3	3	3	1	2
								2	2.667	0	0	3	3	2.667	1	2

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.10	2.10	2.10	0	0	0	0	1.40	1.40	0	0	2.10	2.10	1.40	0.70	1.40
CO2	2.10	2.10	2.10	0.00	0.00	0.00	0.00	1.40	2.10	0.00	0.00	2.10	2.10	2.10	0.70	1.40
CO3	2.10	2.10	2.10	0	0	0	0	1.40	2.10	0	0	2.10	2.10	2.10	0.70	1.40
ATTAINED	2.10	2.10	2.10	0.00	0.00	0.00	0.00	1.40	1.87	0.00	0.00	2.10	2.10	1.87	0.70	1.40

B.Tech. II Year CE21504 Transportation Engineering 2024

PO Attainment			
CO	CO Attainment	2	1
CO1	2.5	1.7	0.8
CO2	1.7	1.1	0.6
CO3	1.7	1.1	0.6
CO4	2.9	1.9	1.0
CO5	2.5	1.6	0.8

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO1	PSO2	PSO3	PSO4	Avg CO
	CO1	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
	CO2	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
	CO3	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
	CO4	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
Average PO/PSO Attainment		3.0	3.0	3.0	-	-	-	-	-	-	-	-	1.4	3.0	3.0	-	-	2.7

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO1	PSO2	PSO3	PSO4	Avg CO
	CO1	2.48	2.48	2.48	0	0	0	0	0	0	0	0	0.83	2.48	2.48	0	0	2.31
	CO2	1.70	1.70	1.70	0	0	0	0	0	0	0	0	0.57	1.70	1.70	0	0	1.51
	CO3	1.65	1.65	1.65	0	0	0	0	0	0	0	0	0.55	1.65	1.65	0	0	1.47
	CO4	2.89	2.89	2.89	0	0	0	0	0	0	0	0	0.98	2.89	2.89	0	0	2.57
Average PO Attainment achieved		2.2	2.2	2.2	-	-	-	-	-	-	-	-	1.1	2.2	2.2	-	-	2.0
Target PO		3.0	3.0	3.0	-	-	-	-	-	-	-	-	1.4	3.0	3.0	-	-	2.7
Gap		0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.8	0.0	0.0	0.7

FACULTY NAME:	DR. R.K. KHARE, MR. MAHESH CHANDRA
SUBJECT CODE:	CE 20504
SUBJECT NAME:	STRUCTURAL MECHANICS

SEMESTER:	2022-2023
ELTCH YEAR:	II
SEM:	IV

CO	Statement
1	Determine the deflection of determinate structures using energy methods.
2	Analyze axially loaded and eccentric columns and calculate buckling loads.
3	Analyze curved flexural members, springs, flex and pressure vessels.
4	Compute stresses in beams subjected to unsymmetrical bending.
5	Analyze and interpret response of single degree of freedom systems subjected to harmonic loading.

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO#1	PSO#2	PSO#3	PSO#4
	CO1	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0
	CO2	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0
	CO3	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0
	CO4	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0
	CO5	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0
Average PO/PSO Attainment		3.0	3.0	3.0	-	-	-	-	-	-	-	-	-	3.0	3.0	3.0	-

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO#1	PSO#2	PSO#3	PSO#4
	CO1	2.7	2.7	2.7	0	0	0	0	0	0	0	0	0	2.7	2.7	2.7	0
	CO2	2.5	2.5	2.5	0	0	0	0	0	0	0	0	0	2.5	2.5	2.5	0
	CO3	2.2	2.2	2.2	0	0	0	0	0	0	0	0	0	2.2	2.2	2.2	0
	CO4	2.3	2.3	2.3	0	0	0	0	0	0	0	0	0	2.3	2.3	2.3	0
	CO5	2.7	2.7	2.7	0	0	0	0	0	0	0	0	0	2.7	2.7	2.7	0
Average PO/PSO Attainment		2.4	2.4	2.4	-	-	-	-	-	-	-	-	-	2.4	2.4	2.4	-

FACULTY NAME:	MR. MANISH CHANDRA, MR. KRISHNA PRATAP VERMA
SUBJECT CODE:	CE 21154 / CE 21804
SUBJECT NAME:	STRUCTURAL MECHANICS LAB

SESSION:	2022-2023
B.TECH YEAR:	II
SEM:	IV

CO	Statement
1	Develop a thorough understanding of the behavior of various structural elements (beams, trusses, and columns) under different loading conditions.
2	Apply theoretical principles such as strain energy method, Euler's theory, and Castigliano's theorem to analyze and predict structural responses.
3	Enhance analytical and computational skills by verifying experimental results through analytical methods and developing computer programs for structural analysis.
4	Develop proficiency in conducting experiments related to deflection, bending, shear force, and moment of inertia and verify results with theoretical calculations.
5	Gain hands-on experience in using experimental and computational tools to analyze structural elements, enhancing the ability to apply these techniques in real-world engineering problems.

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PS#1	PS#2	PS#3	PS#4
	CO1	3.0	3.0	3.0	-	-	-	-	-	3.0	-	-	3.0	3.0	3.0	-	-
	CO2	3.0	3.0	3.0	-	-	-	-	-	3.0	-	-	3.0	3.0	3.0	-	-
	CO3	3.0	3.0	3.0	-	-	-	-	-	3.0	-	-	3.0	3.0	3.0	-	-
	CO4	3.0	3.0	3.0	-	-	-	-	-	3.0	-	-	3.0	3.0	3.0	-	-
	CO5	3.0	3.0	3.0	-	-	-	-	-	3.0	-	-	3.0	3.0	3.0	-	-
Average PO/PSO Attainment		3.0	3.0	3.0	-	-	-	-	-	3.0	-	-	3.0	3.0	3.0	-	-

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PS#1	PS#2	PS#3	PS#4
	CO1	2.9	2.9	2.9	-	-	-	-	-	2.9	-	-	2.9	2.9	2.9	-	-
	CO2	2.9	2.9	2.9	-	-	-	-	-	2.9	-	-	2.9	2.9	2.9	-	-
	CO3	2.9	2.9	2.9	-	-	-	-	-	2.9	-	-	2.9	2.9	2.9	-	-
	CO4	2.9	2.9	2.9	-	-	-	-	-	2.9	-	-	2.9	2.9	2.9	-	-
	CO5	2.9	2.9	2.9	-	-	-	-	-	2.9	-	-	2.9	2.9	2.9	-	-
Average PO/PSO Attainment		2.9	2.9	2.9	-	-	-	-	-	2.9	-	-	2.9	2.9	2.9	-	-

FACULTY NAME :	<i>Suminda Parmar / Praveen Thepe</i>	SESSION :	JAN/JUNE 2024
SUBJECT CODE :	CE21502	B.TECH YEAR :	II YEAR
SUBJECT NOMN :	Construction Technology -I	SEM :	IV

COURSE OUTCOME

CO1 :	Describe the various available conventional and new construction materials and techniques.
CO2 :	Explain the suitability of materials required for various structural elements.
CO3 :	Describe the suitability different construction techniques.
CO4 :	Apply the suitability of locally available material in building constructions.
CO5 :	Explain the application of globally available equipment's in construction technology.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	0	0	0	0	2	2	0	0	0	0	2	3	2	0	0
CO2	3	0	0	0	0	2	2	0	0	0	0	2	3	0	0	0
CO3	3	0	0	0	0	2	2	0	0	0	0	2	2	2	0	0
CO4	3	0	0	0	0	2	2	0	0	0	0	2	2	2	0	0
CO5	3	0	0	0	2	2	2	0	0	0	0	2	2	2	0	0
TARGET	3	0	0	0	2	2	2	0	0	0	0	2	2.4	2	0	0

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3.0	0	0	0	0	2.0	2.0	0	0	0	0	2.0	2.96	1.97	0	0
CO2	3.0	0	0	0	0	2.0	2.0	0	0	0	0	2.0	2.97	0	0	0
CO3	2.6	0	0	0	0	1.7	1.7	0	0	0	0	1.7	1.71	1.71	0	0
CO4	3.0	0	0	0	0	2.0	2.0	0	0	0	0	2.0	1.98	1.98	0	0
CO5	2.9	0	0	0	2.0	2.0	2.0	0	0	0	0	2.0	1.96	1.96	0	0
ATTAIN	2.9	-	-	-	2.0	1.9	1.9	-	-	-	-	1.9	2.3	1.9	-	-

FACULTY NAME :	<i>Suminda Parmar / Pranav Moha</i>	SESSION :	JAN JUNE 2024
SUBJECT CODE :	CE21801	B.TECH YEAR :	II YEAR
SUBJECT NOMN :	CONSTRUCTION TECHNOLOGY-I LABORATORY	SEM :	IV

COURSE OUTCOME

CO1 :	Analyze and apply fundamental concepts in building construction, including foundations, masonry techniques, and structural elements
CO2 :	Evaluate and compare different types of construction materials and methods used in flooring, roofing, and staircase design.
CO3 :	Develop practical skills in interpreting and creating technical drawings related to various building components and systems.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	3	0	0	0	0	0	2	0	0	0	3	3	3	0	0
CO2	3	3	0	0	0	0	0	0	0	0	0	3	2	2	0	0
CO3	3	3	0	0	0	0	0	2	0	0	0	3	3	2	0	0
TARGET	3	3	0	0	0	0	0	2	0	0	0	3	2.7	2.3	0	0

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3.0	3.0	0	0	0	0	0	2.0	0	0	0	3.0	2.95	2.95	0	0
CO2	3.0	3.0	0	0	0	0	0	0	0	0	0	3.0	1.99	1.99	0	0
CO3	3.0	3.0	0	0	0	0	0	2.0	0	0	0	3.0	2.97	1.98	0	0
ATTAIN	3.0	3.0	-	-	-	-	-	2.0	-	-	-	3.0	2.6	2.3	-	-

FACULTY NAME : Dr. S.K. AHIRWARI/ Ms. MEGHA PATEL
 SUBJECT CODE : CE 21508
 SUBJECT NOMN : ENGINEERING GEOLOGY

SESSION : 2023-24
 B.TECH YEAR : II nd YEAR
 SEM : 4th

COURSE OUTCOME

CO1 :	Comprehend fundamental geological concepts and their relevance to civil engineering.
CO2 :	Analyze rock properties and structural geology for engineering applications.
CO3 :	Evaluate geological hazards, particularly landslides and earthquakes
CO4 :	Apply geological investigation techniques for various civil engineering projects.
CO5 :	Utilize remote sensing, GPS, and GIS technologies in civil engineering and resource mapping.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	2	0	0	0	2	0	0	0	3	0	3	2	2	1	1
CO2	2	3	0	0	0	2	0	0	0	3	0	3	2	3	1	1
CO3	3	2	0	0	2	2	0	0	0	3	0	3	2	2	2	2
CO4	2	1	0	0	2	2	0	0	0	3	0	3	3	2	2	2
CO5	2	2	0	3	2	2	0	0	0	3	0	3	3	2	2	2
TARGET	2.4	2	0	3	2	2	0	0	0	3	0	3	2.4	2.2	1.6	1.6

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.87	1.91	0.00	0.00	0.00	1.91	0.00	0.00	0.00	2.87	0.00	2.87	1.91	1.91	0.96	0.96
CO2	1.38	2.07	0.00	0.00	0.00	1.38	0.00	0.00	0.00	2.07	0.00	2.07	1.38	2.07	0.69	0.69
CO3	2.44	1.63	0.00	0.00	1.63	1.63	0.00	0.00	0.00	2.44	0.00	2.44	1.63	1.63	1.63	1.63
CO4	1.39	0.69	0.00	0.00	1.39	1.39	0.00	0.00	0.00	2.08	0.00	2.08	2.08	1.39	1.39	1.39
CO5	1.90	1.90	0.00	2.85	1.90	1.90	0.00	0.00	0.00	2.85	0.00	2.85	2.85	1.90	1.90	1.90
ATTAINED	2.00	1.64	0.00	2.85	1.64	1.64	0.00	0.00	0.00	2.46	0.00	2.46	1.97	1.78	1.31	1.31

FACULTY NAME : Dr. S.K. AHIRWAR/Ms. MEGHA PATEL
 SUBJECT CODE : CE 21508
 SUBJECT NOMN : ENGINEERING GEOLOGY LAB

SESSION : 2023-24
 B.TECH YEAR : II nd YEAR
 SEM : 4TH

COURSE OUTCOME

- CO1 : Analyze geological structures including folds, faults, and unconformities
 CO2 : Interpret geological features relevant to civil engineering projects.
 CO3 : Develop skills in geological map reading and cross-section drawing

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	2	0	0	0	0	2	0	0	0	0	2	0	2	2	2
CO2	2	3	0	2	0	0	2	0	2	0	0	2	2	2	2	2
CO3	3	2	0	2	0	0	0	0	2	0	0	2	3	2	1	2
TARGET	2.667	2.333	0	2	0	0	2	0	2	0	0	2	2.5	2	1.667	2

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.03	1.35	0.00	0.00	0.00	0.00	1.35	0.00	0.00	0.00	0.00	1.35	0.00	1.35	1.35	1.35
CO2	1.94	2.90	0.00	1.94	0.00	0.00	1.94	0.00	1.94	0.00	0.00	1.94	1.94	1.94	1.94	1.94
CO3	2.10	1.40	0.00	1.40	0.00	0.00	0.00	0.00	1.40	0.00	0.00	1.40	2.10	1.40	0.70	1.40
ATTAINED	2.02	1.89	0.00	1.67	0.00	0.00	1.64	0.00	1.67	0.00	0.00	1.56	2.02	1.56	1.33	1.56

FACULTY NAME	Ms. Shruti Bajpai, Ms. Namrata Khode	SESSION	24 batch
SUBJECT CODE	CE 31409	B.TECH YEAR	III YEAR
SUBJECT NAME	CE21409 (Industrial Training)	SEM	5 SEM

COURSE OUTCOME

- CO1: Establish motivation for any topic of interest
- CO2: Organize a detailed literature survey and build a document with respect to technical publications.
- CO3: Do Analysis and comprehension of proof-of-concept and related data
- CO4: Demonstrate the knowledge of the subject
- CO5: Prepare effective presentation and improve their soft skills

CO-PO TARGET MATRIX

CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO1	PSO2	PSO3	PSO4
CO1	1	1	1	1	1	2	2	1	1	2	2	2	1	1	1	1
CO2	1	2	1	1	1	2	2	1	1	2	2	2	1	1	1	1
CO3	2	2	2	2	2	2	1	1	1	1	2	2	1	2	2	1
CO4	2	2	2	2	2	2	1	1	1	1	2	2	1	2	2	1
CO5	1	1	1	1	2	1	1	1	2	2	2	2	1	2	2	1
TARGET	1.40	1.80	1.40	1.40	1.60	2.80	1.40	1.00	1.20	1.80	2.40	2.60	1.00	1.40	1.40	1.00

CO-PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	0	0	0	0	0	2	2	0	0	2	3	3	0	0	0	0
CO2	0.00	2.90	0.00	0.00	0.00	1.90	1.90	0.00	0.00	2.90	2.90	2.90	0.00	0.00	0.00	0.00
CO3	2.90	1.90	1.90	1.90	2.90	1.90	1.90	0.00	0.00	0.00	1.90	1.90	0.00	1.90	1.90	0.00
CO4	1.90	1.90	1.90	1.90	1.90	1.90	0.00	0.00	0.00	0.00	1.90	1.90	0.00	1.90	1.90	0.00
CO5	0.00	0.00	0.00	0.00	1.90	0.00	0.00	0.00	1.90	2.90	2.90	2.90	0.00	0.00	0.00	0.00
ATTAIN	0.8	1.3	0.8	0.8	1.1	1.5	0.8	0.0	0.4	1.6	2.3	2.5	0.0	0.8	0.8	0.0
TARGET	1.40	1.80	1.40	1.40	1.60	2.80	1.40	1.00	1.20	1.80	2.40	2.60	1.00	1.40	1.40	1.00

FACULTY NAME: Ms. Shresh Bappa, Ms. Namrata Rhede
 SUBJECT CODE: CE 31408
 SUBJECT NAME: CE31408 (Industrial Training)

SESSION: 22 batch
 B.TECH YEAR: III YEAR
 SEM: 5 SEM

COURSE OUTCOME

CO1	Establish motivation for any topic of interest
CO2	Organize a detailed literature survey and build a document with respect to technical publications.
CO3	Do Analysis and comprehension of proof-of-concept and related data
CO4	Demonstrate the knowledge of the subject
CO5	Prepare effective presentation and improve their soft skills

CO- PO TARGET MATRIX

CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO1	PSO2	PSO3	PSO4
CO1	1	1	1	1	1	2	2	1	1	2	3	3	1	1	1	1
CO2	1	3	1	1	1	2	2	1	1	2	2	2	1	1	1	1
CO3	2	2	2	2	2	2	3	1	1	3	1	2	1	2	2	1
CO4	2	2	2	2	2	2	1	1	1	1	2	3	1	2	2	1
CO5	1	1	1	1	1	2	1	1	2	3	3	3	1	1	1	1
TARGET	1.40	1.30	1.40	1.40	1.00	1.80	1.40	1.00	1.70	1.80	2.40	2.60	1.00	1.40	1.40	1.00

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00	2.00	3.00	3.00	0.00	0.00	0.00	0.00
CO2	0.00	3.10	0.00	0.00	0.00	1.40	1.40	0.00	0.00	1.40	1.40	1.40	0.00	0.00	0.00	0.00
CO3	1.40	1.40	1.40	1.40	1.40	1.40	0.00	0.00	0.00	0.00	1.40	1.40	0.00	0.00	0.00	0.00
CO4	1.40	1.40	1.40	1.40	1.40	1.40	0.00	0.00	0.00	0.00	1.40	2.10	0.00	1.40	1.40	0.00
CO5	0.00	0.00	0.00	0.00	1.90	0.00	0.00	0.00	1.90	2.90	2.90	2.90	0.00	0.00	0.00	0.00
ATTAIN	0.6	1.0	0.6	0.6	0.9	1.2	0.7	0.0	0.4	1.3	2.0	2.2	0.0	0.6	0.6	0.0
TARGET	1.40	1.30	1.40	1.40	1.00	1.80	1.40	1.00	1.70	1.80	2.40	2.60	1.00	1.40	1.40	1.00

FACULTY NAME: Mr. Shrutti Bajpai, Mr. Namrata Khosla
 SUBJECT CODE: CE 31902
 SUBJECT NOMN: CE31902 (Technical Visit)

SESSION: 22 batch
 B TECH YEAR: III YEAR
 SEM: 5 SEM

COURSE OUTCOME

CO1:	Explain about the project visited studied during the internship
CO2:	Describe use of advanced tools and techniques encountered in project undertaken during industrial training and visit.
CO3:	Write the evidences about the interaction with industrial personnel
CO4:	Exhibit awareness about general work place behaviour and build interpersonal and team skills.
CO5:	Prepare professional work reports and presentations.

CO- PO TARGET MATRIX																
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1
CO2	2	2	2	2	1	2	1	1	1	1	1	2	1	2	2	1
CO3	1	1	1	2	1	2	2	3	3	1	3	2	1	2	1	1
CO4	1	1	2	1	1	1	1	3	2	2	3	1	1	1	1	3
CO5	2	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1
TARGET	1.60	1.40	1.60	1.80	1.60	1.60	1.40	2.00	2.00	1.80	2.80	3.20	1.00	1.40	1.20	1.40

CO- PO ATTAIN MATRIX																
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	2.00	0.00	0.00	0.00	0.00
CO2	1.90	1.90	1.90	1.90	2.90	1.90	0.00	0.00	0.00	0.00	2.90	1.90	0.00	1.90	1.90	0.00
CO3	0.00	0.00	0.00	1.90	0.00	1.90	1.90	2.90	2.90	2.90	2.90	1.90	0.00	1.90	0.00	0.00
CO4	0.00	0.00	1.90	0.00	0.00	0.00	0.00	2.90	2.90	1.90	2.90	2.90	0.00	0.00	0.00	2.90
CO5	2.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	0.00	0.00	0.00	0.00
ATTAIN	1.0	0.8	1.1	1.5	1.0	1.1	0.8	1.5	1.5	1.3	2.7	2.1	0.0	0.8	0.4	0.6
TARGET	1.60	1.40	1.60	1.80	1.60	1.60	1.40	2.00	2.00	1.80	2.80	3.20	1.00	1.40	1.20	1.40

FACULTY NAME:	DR. H.K. MAHESWAR, MR. M.K. LADHATE, DR. ARTI SAMU
SUBJECT CODE:	CE 3307
SUBJECT NAME:	STRUCTURAL ANALYSIS I

SESSION:	2022-2023
S. TECH YEAR:	III
SEM:	V

CO	Statement
1	Compute deformations using different methods to analyze indeterminate structures with various loads and supports. Differentiate between determinate/indeterminate and
2	Analyze the two-degree indeterminate problems using the concept of strain energy.
3	Analyze fixed and continuous beams with varying cross-sections and support settlements.
4	Illustrate the influence lines and rolling loads for beams, trusses, and bridges.
5	Analyze arches, cables and suspension bridges with influence lines.

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PSO1	PSO2	PSO3	PSO4
	CO1	3.0	3.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	2.0	0.0
	CO2	3.0	3.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	1.0	3.0	3.0	2.0	0.0
	CO3	3.0	3.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	2.0	0.0
	CO4	3.0	3.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	2.0	0.0
	CO5	3.0	3.0	2.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	2.0	0.0
Average PO/PSO Attainment		3.0	3.0	2.0	-	-	3.0	-	-	-	-	1.8	3.0	3.0	1.6	-

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PSO1	PSO2	PSO3	PSO4
	CO1	2.0	2.0	1.5	0	0	2.0	0	0	0	0	1.5	2.0	2.0	1.5	0
	CO2	1.0	1.0	1.0	0	0	1.0	0	0	0	0	0.5	1.0	1.0	1.0	0
	CO3	1.0	1.0	1.0	0	0	1.0	0	0	0	0	1.0	1.0	1.0	1.0	0
	CO4	1.5	1.5	1.0	0	0	1.5	0	0	0	0	1.0	1.5	1.5	0.5	0
	CO5	1.5	1.5	1.0	0	0	1.5	0	0	0	0	1.0	1.5	1.5	0.5	0
Average PO/PSO Attainment		1.8	1.8	1.2	-	-	1.8	-	-	-	-	1.1	1.8	1.8	1.0	-

FACULTY NAME : Mr. TARUN KUMAR NARNAURE
SUBJECT CODE : CE31201
SUBJECT NOMIN : ADVANCE HIGHWAY AND AIRPORT ENGINEERING

SESSION : 2022-26
R. TECH YEAR : III
SEM : B

COURSE OUTCOME

CO1 :	Identify and evaluate the properties of highway materials relevant to pavement performance and construction.
CO2 :	Solve design problems related to flexible and rigid pavements using standard methods and guidelines.
CO3 :	Analyze key factors influencing pavement design and compare different design methodologies.
CO4 :	Interpret aircraft characteristics and integrate them into airport planning, highway construction procedures, and maintenance practices.
CO5 :	Develop airport layout plans and perform structural design of airport pavements based on technical criteria.

CO-PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	3	2	2	0	0	0	0	0	0	0	0	3	3	1	2
CO2	3	3	2	2	0	0	0	0	0	0	0	0	3	3	1	1
CO3	2	2	3	3	0	0	0	0	0	0	0	0	2	3	2	2
CO4	2	2	3	2	0	2	0	0	0	0	0	0	2	3	1	2
CO5	2	3	3	3	0	2	0	0	0	0	0	0	3	3	1	1
TARGET	2.4	2.6	2.6	2.4	-	0.8	-	-	-	-	-	-	2.6	3.0	1.2	1.6

CO-PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.3	2.3	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.8	1.5
CO2	2.3	2.3	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.8	0.8
CO3	1.5	1.5	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.3	1.5	1.5
CO4	1.6	1.6	2.4	1.6	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6	2.4	0.8	1.6
CO5	1.5	2.3	2.3	2.3	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.8	0.8
ATTAIN	1.8	2.0	2.0	1.8	-	0.6	-	-	-	-	-	-	2.0	2.3	0.9	1.2

FACULTY NAME :	MR. TARUN KUMAR NARNALRE,	SESSION :	2022-23
SUBJECT CODE :	MR. NAMRATA KHEDDE CE11201	B.TECH YEAR :	III
SUBJECT :	ADVANCE HIGHWAY AND AIRPORT ENGINEERING	SEM :	B

COURSE OUTCOME

CO1 :	Master the evaluation of physical properties of aggregates.
CO2 :	Analyze the mechanical properties and durability of aggregates.
CO3 :	Study the rheological properties and behavior of bituminous materials. Study the rheological properties and behavior of bituminous materials.
CO4 :	Develop expertise in designing bituminous concrete mixes and road drainage systems.
CO5 :	Evaluate pavement performance and design rehabilitation strategies.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	0	0	0	0	0	0	2	2	0	2	3	3	1	2	2
CO2	1	0	0	0	0	0	0	2	2	0	2	3	3	1	1	1
CO3	2	0	0	0	0	2	2	2	0	0	3	2	3	2	2	2
CO4	2	0	0	0	0	2	3	2	0	0	3	2	3	2	2	2
CO5	2	0	0	0	0	2	2	2	0	0	3	2	3	1	1	1
TARGET	2.40	0.00	0.00	0.00	0.00	1.2	1.40	0.80	2.00	0.00	2.60	2.40	3.00	1.40	1.60	1.60

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.90	0.00	0.00	0.00	0	0	0.00	2.0	2.0	0.00	2.00	2.90	2.9	1.00	2.00	2.00
CO2	3.00	0.00	0.00	0.00	0	0	0.00	2.0	2.0	0.00	2.00	3.00	3.0	1.00	1.00	1.00
CO3	1.90	0.00	0.00	0.00	0	1.9	1.90	2.0	0.00	0.00	2.90	1.90	2.9	1.90	1.90	1.90
CO4	2.00	0.00	0.00	0.00	0	2	3.00	2.0	0.00	0.00	3.00	2.00	3.0	2.00	2.00	2.00
CO5	2.00	0.00	0.00	0.00	0	2	2.00	2.0	0.00	0.00	3.00	2.00	3	1.00	1.00	1.00
ATTAIN	2.4	-	-	-	-	0.6	0.6	0.8	1.3	-	2.3	2.4	2.9	1.3	1.6	1.6

FACULTY NAME : Ms. Shruti Bajpai, Ms. Namrata Khede
 SUBJECT CODE : CE 31902
 SUBJECT NAME : CE31902 (Technical Visit)

SESSION : 24 batch
 B TECH YEAR : 01 YEAR
 SEM : 5 SEM

COURSE OUTCOME

CO1	Explain about the project visited studied during the internship
CO2	Describe use of advanced tools and techniques encountered in project undertaken during industrial training and visit.
CO3	Write the evidences about the interaction with industrial personnel
CO4	Exhibit awareness about general workplace behaviour and build interpersonal and team skills.
CO5	Prepare professional work reports and presentations.

CO- PO TARGET MATRIX

CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
TARGET	1.50	1.50	1.50	1.50	1.50	1.50	1.40	2.00	2.00	1.80	2.80	2.20	1.00	1.40	1.20	1.40

CO- PO ATTAIN MATRIX

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	2.00	0.00	0.00	0.00	0.00
CO2	1.00	1.00	1.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	2.00	1.00	0.00	1.00	1.00	0.00
CO3	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	2.00	2.00	2.00	1.00	0.00	1.00	0.00	0.00
CO4	0.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	2.00	1.00	2.00	2.00	0.00	0.00	0.00	0.00
CO5	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00
ATTAIN	1.0	0.8	1.1	1.5	1.0	1.1	0.8	1.5	1.5	1.3	2.7	2.1	0.0	0.8	0.4	0.0
TARGET	1.50	1.50	1.50	1.50	1.50	1.50	1.40	2.00	2.00	1.80	2.80	2.20	1.00	1.40	1.20	1.40

FACULTY NAME :		SESSION :	2022-26
SUBJECT CODE :	CE-31999	B.TECH YEAR :	III YEAR
SUBJECT NOMN :	MINOR PROJECT	SEM :	VI

COURSE OUTCOME

CO1 :	Establish motivation for any topic of interest and define objectives of the project work.
CO2 :	Organize a detailed literature survey and build a document with respect to technical publications
CO3 :	Demonstrate skill of selecting alternative out of all the available choices with reference to functional, aesthetic, social, economic, or environmental consideration.
CO4 :	Apply various tools and techniques needed for project development
CO5 :	Demonstrate effective presentation and soft skills.
CO6 :	Prepare a well-organized report employing elements of technical writing and critical thinking.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1
CO2	2	1	1	2	1	1	1	1	2	1	1	1	1	1	3	1
CO3	2	2	2	2	2	3	3	1	2	1	1	2	2	2	1	3
CO4	2	2	2	1	3	2	2	1	2	1	3	1	2	2	2	2
CO5	1	1	2	1	3	2	1	2	2	3	2	3	2	2	1	1
CO6	2	1	1	1	3	2	1	1	2	2	2	3	1	2	1	1
TARGET	1.8	1.3	1.5	1.3	2.2	1.8	1.5	1.2	2.0	1.5	1.7	1.8	1.5	1.7	1.5	1.5

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1.97	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.97	0.99	0.99	0.99	0.99	0.99	0.99	0.99
CO2	1.97	0.98	0.98	1.97	0.98	0.98	0.98	0.98	1.97	0.98	0.98	0.98	0.98	0.98	2.95	0.98
CO3	1.96	1.96	1.96	1.96	1.96	2.94	2.94	0.98	1.96	0.98	0.98	1.96	1.96	1.96	0.98	2.94
CO4	1.96	1.96	1.96	0.98	2.94	1.96	1.96	0.98	1.96	0.98	2.94	0.98	1.96	1.96	1.96	1.96
CO5	0.98	0.98	1.97	0.98	2.95	1.97	0.98	1.97	1.97	2.95	1.97	2.95	1.97	1.97	0.98	0.98
CO6	1.98	0.99	0.99	0.99	2.97	1.98	0.99	0.99	1.98	1.98	1.98	2.97	0.99	1.98	0.99	0.99
ATTAIN	1.80	1.31	1.48	1.31	2.13	1.80	1.47	1.15	1.97	1.48	1.64	1.81	1.48	1.64	1.48	1.47

FACULTY NAME : Ms. Shruti Bajpai, Mr. Devendra Dohare
 SUBJECT CODE : CE31006
 SUBJECT NOMN : ENVIRONMENTAL ENGINEERING

SESSION : 2024-25
 B.TECH YEAR III
 SEM : VI

COURSE OUTCOME

- CO1 : Determine types of sources, intake works and common impurities in water, population forecasting methods and examination of physicochemical and bacteriological quality of water.
 CO2 : Describe pipes used in water supply scheme-types of joints, valves, fittings etc. including corrosion in pipes.
 CO3 : Analyze water distribution network and aspects of leak detection.
 CO4 : Determine and analyze quality of wastewater/sewage and significance of variousParameter related to same.
 CO5 : Classify types of sewerage system and analyze hydraulic design of sewers.

CO- PO TARGET MATRIX																
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	3	2	0	0	2	1	0	0	0	0	0	3	2	1	3
CO2	3	3	1	0	0	0	0	0	0	0	0	0	3	3	1	2
CO3	3	2	1	0	2	0	1	0	0	0	0	0	2	3	2	2
CO4	3	2	0	0	0	2	0	0	0	0	0	0	3	2	2	3
CO5	3	2	1	0	0	0	0	0	0	0	0	0	3	3	2	3
TARGET	3	2.4	1.25	0	2	2	1	0	0	0	0	0	2.8	2.6	1.6	2.6

CO- PO ATTAIN MATRIX																
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2.0	2.0	1.3	0.0	0.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	2.0	1.3	0.7	2.0
CO2	2.0	2.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.7	1.3
CO3	3.0	2.0	1.0	0.0	2.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	2.0	2.0
CO4	2.0	1.3	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.3	1.3	2.0
CO5	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	1.3	2.0
ATTAIN	2.2	1.7	0.9	-	2.0	1.3	0.8	-	-	-	-	-	2.2	1.9	1.2	1.9

FACULTY NAME : MR. KRISHNA PRATAP VERMA
 SUBJECT CODE : CE31505
 SUBJECT NOMN : STRUCTURAL ANALYSIS II

B.TECH : II YEAR
 SESSION : JAN-JUNE 2025

COURSE OUTCOME:

1. Identify suitable method to solve indeterminate structures.
2. Calculate the forces in member by the displacement and force methods.
3. Analyze traffic studies and design traffic control measures, including signals, markings, and intersection types.
4. Determine the bending moment diagram and shear force diagram of determinate and indeterminate structures.
5. Assess the formation of plastic hinges in the structure.

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PS01	PS02	PS03	PS04	AVG CO
	CO1	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04	#DIV/DI
	CO2	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
	CO3	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
	CO4	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
	CO5	3	3	3	0	0	0	0	0	0	0	0	1	3	3	0	0	2.67
Average PO/PSO Attainment		3.0	3.0	3.0	-	-	-	-	-	-	-	-	1.0	3.0	3.0	-	-	2.67
PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PS01	PS02	PS03	PS04	AVG CO
	CO1	1.96	1.96	1.96	0	0	0	0	0	0	0	0	0.65	1.96	1.96	0	0	1.74
	CO2	0.90	0.90	0.90	0	0	0	0	0	0	0	0	0.30	0.90	0.90	0	0	0.80
	CO3	1.93	1.93	1.93	0	0	0	0	0	0	0	0	0.64	1.93	1.93	0	0	1.72
	CO4	1.68	1.68	1.68	0	0	0	0	0	0	0	0	0.56	1.68	1.68	0	0	1.50
	CO5	1.86	1.86	1.86	0	0	0	0	0	0	0	0	1.86	1.86	1.86	0	0	1.86
Average PO Attainment achieved		1.7	1.7	1.7	-	-	-	-	-	-	-	-	0.8	1.7	1.7	-	-	1.52
Target PO		3.0	3.0	3.0	-	-	-	-	-	-	-	-	1.4	3.0	3.0	-	-	2.73
GAP		1.3	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.3	1.3	0.0	0.0	1.2

FACULTY	Prof. Devendra Donare & Prof. Soumya Sekheta
SUBJECT CODE	CE317D3
SUBJECT NOMN	WATER AND WASTEWATER TREATMENT TECHNOLOGIES

SESSION	2024-25
B.TECH YEAR	III
SEM	VI

COURSE OUTCOME

CO1:	Explain impact of raw water quality on health and its mitigation, design of sedimentation tank, its types and factors affecting settling.
CO2:	Analyze coagulants, factors affecting coagulation, jar test, design of Clariflocculator, Filtration unit, its types and multimedia filters.
CO3:	Apply methods of disinfection, usage of free chlorine and combined chlorine, mechanism of chlorination with their advantage and disadvantage.
CO4:	Design preliminary, primary and secondary treatment units of conventional sewage treatment plant.
CO5:	Design biological treatment units viz. Activated sludge plant, SBR and methods of sludge treatment and disposal.

CO- PO TARGET MATRIX																
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	2	3	1	0	2	2	1	1	0	0	1	2	1	1	1
CO2	3	2	3	1	0	0	1	0	0	0	0	0	3	1	1	2
CO3	3	1	3	1	0	0	2	0	0	0	0	0	2	3	1	2
CO4	3	2	2	1	0	1	2	0	0	0	0	1	1	2	3	2
CO5	3	1	2	1	0	0	1	0	0	0	0	0	1	1	2	2
TARGET	1	1.6	2.6	1	0	1.5	1.6	1	1	0	0	1	2.2	1	1.6	2.2

CO- PO ATTAIN MATRIX																
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1.5	1.7	2.5	0.8	0	1.7	1.7	0.8	0.8	0	0	0.8	1.7	2.5	0.8	2.5
CO2	2.1	1.4	2.1	0.7	0	0	0.7	0	0	0	0	0	2.1	2.1	0.7	1.4
CO3	1.9	0.8	1.9	0.8	0	0	1.2	0	0	0	0	0	1.2	1.9	0.8	1.2
CO4	2.5	1.7	1.7	0.8	0	0.8	1.7	0	0	0	0	0.8	0.8	2.5	2.5	1.7
CO5	1.9	0.8	1.2	0.8	0	0	0.8	0	0	0	0	0	1.9	1.9	1.2	1.2
ATTAIN	2.2	1.2	1.9	0.7	-	1.2	1.2	0.8	0.8	-	-	0.8	1.5	2.2	1.2	1.8

FACULTY	Prof. Ravendra Dahore, Prof. Samiya Sakhe, Prof. Rajendra Ch.
SUBJECT CODE	CE31703 Lab
SUBJECT NAME	WATER AND WASTEWATER TREATMENT TECHNOLOGIES Lab

SESSION	2024-25
B.TECH YEAR	III
SEM	VI

COURSE OUTCOME

CO1	Apply analytical techniques to measure specific contaminants and quality parameters in water and wastewater samples, including organic, fluoride, and nitrogen compounds.
CO2	Conduct jar tests to determine optimal coagulant dosages and analyze sludge characteristics for water and wastewater treatment applications.
CO3	Evaluate solid waste properties and utilize Indian and international standards for water quality assessment and management.

CO- PO TARGET MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3.0	2.0	0.0	1.0	1.0	1.0	1.0	0.0	2.0	2.0	0.0	1.0	2.0	3.0	3.0	3.0
CO2	3.0	3.0	1.0	2.0	0.0	0.0	2.0	2.0	0.0	1.0	1.0	3.0	2.0	2.0	3.0	2.0
CO3	3.0	1.0	0.0	0.0	0.0	2.0	2.0	1.0	2.0	2.0	0.0	2.0	3.0	1.0	1.0	3.0
TARGET	3.0	2.0	1.0	1.5	1.0	1.5	2.0	1.5	2.0	1.7	1.0	2.0	2.3	2.0	2.3	2.7

CO- PO ATTAIN MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3.0	2.0	0	1.0	1.0	1.0	1.0	0	1.0	1.0	0	1.0	1.0	1.0	1.0	2.0
CO2	3.0	3.0	1.0	2.0	0	0	2.0	2.0	0	1.0	3.0	3.0	2.0	2.0	3.0	2.0
CO3	3.0	1.0	0	0	0	2.0	2.0	1.0	2.0	2.0	0	2.0	3.0	1.0	1.0	3.0
ATTAIN	3.0	2.0	1.0	1.5	1.0	1.5	2.0	1.5	2.0	1.6	3.0	2.0	2.3	2.0	2.3	2.6

FACULTY NAME : MR. KRISHNA PRATAP VERMA
 SUBJECT CODE : CE41001
 SUBJECT NOMN : DESIGN OF ADVANCED RCC STRUCTURE

B.TECH
 YEAR : III YEAR
 JULY DEC
 SESSION : 2024 - 25

COURSE OUTCOME:

1. Design tanks resting on the ground and underground, including circular and rectangular tanks, using IS 3370 and other methods.
2. Design overhead tanks and their structural components, considering the effects of continuity.
3. Design silos, bunkers, and chimneys in reinforced concrete and steel.
4. Analyze and design flat slabs using direct and equivalent frame methods.
5. Design grid slabs using approximate and exact methods.

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PS01	PS02	PS03	PS04	AVG CO
	CO1	3	3	3	0	0	0	3	3	0	0	0	3	2	3	2	3	2.80
	CO2	3	3	3	0	0	0	3	3	0	0	0	3	2	3	2	3	2.80
	CO3	3	3	3	0	0	0	3	3	0	0	0	3	2	3	3	3	2.90
	CO4	3	3	3	0	0	0	3	3	0	0	0	3	3	3	3	2	2.90
	CO5	3	3	3	0	0	0	3	3	0	0	0	3	3	3	3	2	2.90
Average PO/PSO Attainment		3.0	3.0	3.0	-	-	-	3.0	3.0	-	-	-	3.0	2.4	3.0	2.6	2.6	2.86

PO Attainment	CO	PO#1	PO#2	PO#3	PO#4	PO#5	PO#6	PO#7	PO#8	PO#9	PO#10	PO#11	PO#12	PS01	PS02	PS03	PS04	AVG CO
	CO1	2.19	2.19	2.19	0	0	0	2.19	2.19	0	0	0	2.19	1.46	2.19	1.46	2.19	2.03
	CO2	0.50	0.50	0.50	0	0	0	0.50	0.50	0	0	0	0.50	0.33	0.50	0.33	0.50	0.46
	CO3	1.67	1.67	1.67	0	0	0	1.67	1.67	0	0	0	1.67	1.11	1.67	1.67	1.67	1.61
	CO4	2.88	2.88	2.88	0	0	0	2.88	2.88	0	0	0	2.88	2.88	2.88	2.88	1.92	2.88
	CO5	2.06	2.06	2.06	0	0	0	2.06	2.06	0	0	0	2.06	2.06	2.06	2.06	1.38	2.06
Average PO Attainment achieved		1.9	1.9	1.9	-	-	-	1.9	1.9	-	-	-	1.9	1.6	1.9	1.7	1.5	1.81
Target PO		3.0	3.0	3.0	-	-	-	3.0	3.0	-	-	-	3.0	2.4	3.0	2.6	2.6	2.89
GAP		1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.8	1.1	0.0	0.0	1.1