Course: Structural Analysis-II **Course Code: (7CE01)**

At the end of Structural Analysis-II course the student will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Apply the knowledge of moment distribution method and slope and deflection method for analysis of frame.	L3
2	Apply the knowledge of Kani's method for analysis of frame and continuous beam.	L3
3	Apply the knowledge of Castigliano's second theorem, principle of least work for Analysis of redundant frames.	L3
4	Apply the knowledge Tension coefficient method for analysis of simple space trusses.	L3
5	Analyse Flexibility method and its application to continuous beams and single - bay, single - storey portal frame.	L4
6	Analyse Stiffness method and its application to continuous beams and single - bay, single - storey portal frame.	L4

Course: Geotechnical Engineering – II **Course Code: (7CE02)**

At the end of Geotechnical Engineering – II course subject student will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Discuss the soil investigation method and get true sub soil parameters used for selection of type of foundation.	L2
2	Calculate the bearing capacity of shallow foundation.	L4
3	Calculate the lateral earth pressure on the retaining wall.	L4
4	Calculate bearing capacity of well foundation and design of pile foundation.	L4
5	Compute the settlement of different types of foundation.	L3
6	Explain the suitable ground improvement method.	L2

Course: Hydraulics Engineering   **Course Code: (7CE03)**

At the end of Hydraulics Engineering course, the student will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Illustrate the flow pattern in the open channels, criteria for formation of hydraulics jump.	L3
2	Identify different types of GVF profiles and methods.	L4
3	Compute of water hammer pressures in pipe.	L3
4	Design penstocks, understand causes of water hammer.	L5
5	Apply Alluvia's Method and Approximate Pressure	L3
6	Design surge tank	L5

Course: Environmental Engineering – II   **Course Code: (7CE04)**

At the end of Engineering Environment Engineering II course, the student will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Explain the significance of terms and parameters frequently used in Wastewater Treatment.	L2
2	Examine the influence of the different parameters in design and treatment of Wastewater treatment plant.	L4
3	Describe biological treatment Trickling filters, low rate, high-rate tricking filters, Construction details, Re-circulation Modification of trickling filters.	L2
4	Interpret the advantages, disadvantages and limitations of the technologies and discover new developments.	L3
5	Explain characterization, waste minimization, transportation, and risk associated with solid waste	L2
6	Classify different types of air pollutants and their sources.	L2

Course: Water Power Engineering   **Course Code: (7CE05)**

At the end of the Water Power Engineering course students be will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Describe the various sources of energy systems.	L2
2	Classify the different power plants.	L2
3	Identify the problems related to hydraulic pressure.	L2
4	Demonstrate the working of Intake Structures	L3
5	Demonstrate the hydel channel.	L3
6	Discuss the working of Power Houses	L2

Laboratory Outcome

Computational Structure Analysis-II- Lab   **(Course Code: 7CE06)**

At the end of Structure Analysis-II lab. Course the student will be able to:

LO No.	Laboratory Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Analyse of 2D beam & frame by using software like STAAD Pro. /Etabs.	L4
2	Analyse of 2D simple truss by using software like STAAD Pro. /Etabs.	L4
3	Analyse of 3D G+2 structure by using software like STAAD Pro. /Etabs.	L4

Course: Geotechnical Engineering – II Lab.   **Course Code: (7CE07)**

At the end of Geotechnical Engineering – II lab Practical's student will be able to:

LO No.	Laboratory Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Demonstrate the Field Vane shear test by using the soil resistivity/seismic refractivity method and use the standard penetration test to ascertain the properties of the soil.	L3
2	Demonstrate the soil's characteristics using a static cone penetration test, and compute the bearing capacity using an analytical method to validate with a field test.	L3
3	Classify the soil characteristic with respect to soil log bore Compulsory & Introduction to Geotechnical Software.	L2

Course: Environmental Engineering – II Lab.   **Course Code: (7CE08)**

At the end of Engineering Environment Engineering II lab Practical's the student will be able:

LO No.	Laboratory Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Demonstrate the C.O.D, B.O.D., D.O., chloride & sulphate content from a given water sample.	L3
2	Demonstrate the physical characteristics of water including colour & odour.	L3
3	Demonstrate SVI, SPM & ambient noise measurement.	L3

Course: Seminar   **Course Code: (7CE09)**

At the end of Seminar the student will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Choose new insights and knowledge related to the seminar topic, deepening their understanding of the subject matter.	L3
2	Relate specific skills to the seminar content, such as communication, critical thinking, or leadership skills.	L4
3	Apply the new ideas, best practices, and strategies, enabling them to enhance their performance and advance in their careers.	L3

B.E. 8th Sem

Course: **Construction Project Management**   **Course Code: (8CE01)**

At the end of the Construction Project Management course students be will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Discuss the phases of Project Life Cycle and process of developing it.	L2
2	Use and apply various planning tools like BAR chart, Milestone Chart, Networking Methods like CPM, PERT.	L3
3	Compare and control the project at the time of execution.	L4
4	Discuss projects and review the status of work.	L2
5	Apply project using Network crashing method	L3
6	Discuss the concept of Project Smoothening/ leveling.	L2

Course: **Construction Economics & Estimating Costing**   **Course Code: (8CE02)**

At the end of the Construction Economics & Estimating Costing course students be will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Select the modes of measurements for different items of the works.	L2
2	Compute the rate for given items of the work using rate analysis techniques.	L4
3	Prepare approximate estimates of civil engineering works.	L3
4	Devise detailed estimates of civil engineering works.	L5
5	Discuss the need, purpose and process of valuation.	L2
6	Prepare the tender documents for civil engineering works.	L3

Course: Industrial Waste Water Treatment   **Course Code (8CE03)**

At the end of the Industrial Waste Water Treatment course students be will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Discuss the industrial process, water utilization and waste water generation	L2
2	Classify operational problems of common effluent treatment plants.	L3
3	Select treatment methods for industrial wastewater.	L2
4	Classify design criteria for physical, chemical, and biological unit operations.	L3
5	Discuss the Principles of pollution prevention and mechanism of oxidation processes.	L2
6	Apply the suitable technologies for the treatment of wastewater.	L3

Course: Advanced Wastewater Engineering   **Course Code (8CE04)**

At the end of the Advanced Wastewater Engineering course students be will be able to:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Choose from different types and sources of wastewater.	L3
2	Compare different advanced technologies use for Wastewater treatment.	L4
3	Categorize the most appropriate types of membrane processes for tertiary treatment of wastewater.	L5
4	Relate adsorption concept to the activated carbon treatment.	L5
5	Apply advanced oxidation processes to treat concentrated non-biodegradable wastewater.	L3
6	Describe sludge handling and disposal processes.	L2

Laboratory Outcome

Course: **Construction Economics & Estimating Costing- Lab.**   **Course Code: (8CE05)**

At the end of the Construction Economics & Estimating Costing lab. Practical's students be will be able:

LO No.	Laboratory Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Write specification for 5 items that includes Building Work, Road work, Irrigation work etc. & perform rate Analysis of 6 items like Cement, Sand, Steel, Brick, Paver and Timber.	L4
2	Prepare BAR bending Schedule, Quantity & Rate Estimate of small Commercial building & Manual plus Software Application for detail estimate of Residential Block with 4 rooms.	L4
3	Quantity & Rate Estimate of Rigid/ Flexible Pavement Road for stretch of 1 km & Valuation of small building/ flat for any existing structure	L4

Course: **Advanced Wastewater Engineering Lab.**   **Course Code :(8CE06)**

At the end of the Advanced Wastewater Engineering course students be will be able to:

LO No.	Laboratory Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Determine Alkalinity and Acidity, Dissolved oxygen, Biochemical Oxygen Demand & Chemical Oxygen Demand.	L4
2	Determine suspended, settle able, volatile, fixed solids, Oil & Grease content.	L4
3	Determine SVI of Biological sludge, Phosphates and Sulphate contents & prepare report of Field visit to Industrial Waste Water Treatment Plant.	L4

Course: Project   **Course Code: (6CE07)**

At the end of Project the student will be able:

CO No.	Course Outcome	Level of Learning (as per Bloom's Taxonomy)
1	Identify Patterns or trends within the data or results of the various project.	L2
2	Demonstrate the connections between the project outcomes and existing research in the field.	L3
3	Compare the results with other contexts, clearly state the circumstances in which the findings are most likely to hold true, and provide an explanation of any limitations.	L4
4	Collect the practical implications of the research outcomes and conclude.	L5
5	Explain how the findings can be applied to address real-world problems and contribute to the development of practical solutions in your field of study.	L5