

COURSE LEARNING OUTCOME (CLOs) BATCH 2018

Semester	CLOs	CLO Statement At the end of this course, students will be able to:	PLOs	Bloom's
1 Fall	Engineering Surveying-I (UE-118)			
	CLO-1	Able to describe the principles of engineering surveying.	Engineering Knowledge	C-2
	CLO-2	Able to observe readings of surveying instruments.	Individual and Team Work	S-1
	CLO-3	Able to solve land surveying problems.	Problem Analysis	C-3
2 Spring	Engineering Drawing and Drafting-I (UE-117)			
	CLO-1	Capability to acquire the basic engineering knowledge related to solid objects.	Engineering Knowledge	C-1
	CLO-2	Capability to draw the basic shapes in two and three dimensional plane.	Modern Tool Usage	C-3
	CLO-3	Able to practice engineering drawing manually and through softwares with supervision.	Communication	S-3
	Statics and Dynamics (UE-102)			
	CLO-1	Able to apply the basic principles of engineering mechanics and able to apply learning in new situations through their problem analysis capability.	Engineering Knowledge	C-3
	CLO-2	Able to use the mathematical tools and the standard procedures to determine internal loadings in members of truss, beam, frame and cable with good problem solving skills.	Problem Analysis	C-3
	CLO-3	Able to use their creativity, imagination and knowledge to practice skills of analysis or design as required by the engineering discipline.	Investigation	S-3
	Engineering Materials (UE-104)			
	CLO-1	Able to select, describe and recognize building materials based on manufacturing methods, types, properties and uses.	Engineering Knowledge	C-1

	CLO-2	Able to solve complex engineering problems related to concrete mix design based on experimental values.	Problem Analysis	C-3
	CLO-3	Able to perform, manipulate laboratory tests related to different engineering materials and also able to answer freely about the practical procedure.	Investigation	S-3 A-2
3 Fall	Engineering Surveying - II (UE-215)			
	CLO-1	Able to calculate areas and volume from topographic maps and able to solve problems related to highways and railroad curves.	Problem Analysis	C-3
	CLO-2	Able to describe concepts of geospatial positioning, construction and bathymetric survey.	Engineering Knowledge	C-2
	CLO-3	Able to operate digital equipments in the field of surveying.	Modern Tool Usage	S-3
	Mechanics of Solids - I (UE-212)			
	CLO-1	Able to use the concepts of material strength and their behavior under loads.	Engineering Knowledge	C3
	CLO-2	Able to analyze structural components like beams, shafts and thin and thick walled cylinders.	Problem Analysis	C-4 A-2
	CLO-3	Able to apply knowledge in investigation of stresses.	Investigation	C-4
	CLO-4	Able to develop skills for identifying appropriate materials for Civil engineering structures.	Lifelong Learning	S-2
	Business Communication & Ethics (HS-304)			
	CLO-1	CONFORM to the framework of Communication in all professional and organizational communications	Communication	A-3
	CLO-2	COMMUNICATE orally in interpersonal and presentation situations	Communication	C-3

	CLO-3	DEVELOP written communications effectively using variety of technical genres.	Communication	C-3
Urban Sociology (AR-204)				
	CLO-1	Able to describe interactive methods, types and uses of social gen to select best behavior for working with people of city, and society at large and built environment.	The Engineer and Society	C-2
	CLO-2	To learn social mix design method in order to select appropriate amount of ingredients of good social engagement that helps to build safer society.	Ethics	C-2
	CLO-3	Able to describe the individual characteristics of city and social issues and able to discuss the importance of team work to prevent chaos in society.	Individual and team Work	C-2
Engineering Drawing & Drafting -II (UE-205)				
	CLO-1	Able to apply building regulations to carry out residential planning and prepare engineering drawings in architectural and structural modes.	Design/Development of Solutions	C-3
	CLO-2	Able to sketch digital drawing of residential units using CAD latest version.	Modern Tool Usage	C-3 S-3
	CLO-3	Able to produce and communicate the details of project (architectural and structural) through the drawings.	Communication	S-3
Computing Tools & Application (UE-114)				
	CLO-1	Ability to perform computations and data analysis using spread sheet software.	Communication	S3
	CLO-2	Ability to describe and work on simple database using database software.	Modern Tool Usage	C-2 S-3
	CLO-3	Ability to apply the programming skills to solve basic engineering problems using computer programming software (MATLAB).	Lifelong Learning	C-3 S-3

4 Spring	Planning & Design of Transportation Systems (UE-361)			
	CLO-1	Able to apply the basic concepts of planning for transportation systems.	Engineering Knowledge	C-3
	CLO-2	Able to perform geometric and pavement design of highways and runways.	Design/Development of Solutions	C-5
	CLO-3	Able to produce automated geometric and pavement design.	Individual and Team Work	S-4
	Fluid Mechanics (UE-214)			
	CLO-1	Able to describe the basic concepts and principles of fluid mechanics.	Engineering Knowledge	C-2
	CLO-2	Able to apply the basic fluid principles in general engineering problem.	Problem Analysis	C-3
	CLO-3	Able to detect basic fluid properties and flow types.	Investigation	S-1
	Analysis of Structures (UE-209)			
	CLO-1	Able to estimate loads and able to apply deformation characteristics by small deflection theory and energy methods.	Lifelong Learning	C-3
	CLO-2	Able to analyze determinate and indeterminate pin connected and frame structures by various techniques.	Problem Analysis	C-3
	Geology for Engineers (UE-216)			
	CLO-1	Able to identify interior parts of the earth, Define crystals, rocks and minerals, Identify geological structures.	Engineering Knowledge	C-1
	CLO-2	Able to describe process of internal and external origin, properties of rocks and aggregates.	Engineering Knowledge	C-2
	CLO-3	Able to recognize minerals, rocks and geological structures and processes.	Investigation	S-1
	Law and Regulatory Control Studies (UE-218)			
	CLO-1	Able to describe the law and rights for owning the property.	The Engineer and Society	C-2

	CLO-2	Able to prepare and share documents for project submission plans with considering by-laws non-violations.	Communication	C-3
	CLO-3	Able to discuss the professional and ethical obligations for managing work at site.	Ethics	C-2
5 Fall	Reinforced Concrete Design-I (UE-351)			
	CLO-1	Able to comprehend principles of reinforced concrete design based on codes and standards.	Engineering Knowledge	C-2
	CLO-2	Able to investigate reinforced concrete members based on codes and standards.	Investigation	C-3
	CLO-3	Able to design reinforced concrete members based on codes and standards.	Design/ Development of Solutions	C-5
	Construction Engineering (UE-352)			
	CLO-1	Ability to analyse project management aspects related to building delivery process.	Project Management	C-4
	CLO-2	Ability to apply understanding of construction aspects related to earthworks and substructure elements.	Engineering Knowledge	C-4
	CLO-3	Ability to apply understanding of construction aspects related to superstructure element and non-structural elements.	Engineering Knowledge	C-4
	Quantity & Cost Estimations (UE-353)			
	CLO-1	Describe basic concepts of quantity surveying and cost estimation for the preparation of cost estimates of construction projects.	Engineering Knowledge	C-2
	CLO-2	Apply the concept of quantity take-off and rate analysis for different civil engineering works.	Problem Analysis	C-3
	CLO-3	Discuss concepts related to legal and contractual aspects of cost of construction projects to prepare BOQs, tender documents and contracts for civil engineering projects.	Project Management:	C-2

	Traffic Engineering and Management (UE-316)		
	CLO-1	Ability to apply methods for investigation of traffic related problems and evaluation of existing traffic conditions.	Investigation C-3
	CLO-2	Ability to develop plans for improved traffic operations and management.	Design/Development of Solutions C-4
	CLO-3	Able to collect, analyze and present the traffic data.	The Engineer and Society S-3
6 Spring	Soil Mechanics-I (UE-305)		
	CLO-1	CARRY OUT classification of soils.	Engineering Knowledge C-3
	CLO-2	ANALYSE soil mass for stress, seepage and settlement.	Problem Analysis C4
	CLO-3	PRACTICE laboratory and field tests to characterize various soil parameters.	Investigation P-3
	Reinforced Concrete Design-II (UE-453)		
	CLO-1	DESIGN of RC elements of superstructure.	Design/Development of Solutions C-6
	CLO-2	DESIGN of foundations substructure elements.	Design/Development of Solutions C-6
	CLO-3	DESIGN of prestressed concrete members.	Design/Development of Solutions C-2
	Urban Hydrology and Municipal Engineering (UE-323)		
	CLO-1	DESCRIBE various components of hydrological cycle for a catchment area.	Engineering Knowledge C-2
	CLO-2	SOLVE problems related to Urban Storm Water System and to carry out design of services.	Problem Analysis C-3
	CLO-3	LOCATE and APPLY Knowledge of Municipal Engineering and concepts of land development process.	Investigation S-2
	Applied Economics for Engineers (CF-303)		
	CLO-1	DISCUSS significance of economic analysis in engineering profession.	Engineer and Society C-2

	CLO-2	ANALYZE alternatives using economic analysis techniques to accomplish given objective.	Problem Analysis	C-4
	Essential in Construction Project Management (UE-355)			
	CLO-1	UNDERSTAND project management knowledge areas and project management processes.	Project Management	C-2
	CLO-2	ANALYZE project networks with different techniques like CPM and PERT.	Problem Analysis	C-4
	CLO-3	APPLY resource planning to develop resources loading diagram and profiles.	Problem Analysis	C-3
7 Fall	Urban Mass Transportation (UE-452)			
	CLO-1	COMPREHEND needs and significance of public mass transportation in local and international context.	Lifelong Learning	C-2
	CLO-2	COLLECT travel data, investigate travel patterns and develop transportation demand models.	Investigation	C-3
	CLO-3	DEVELOP plan for improved operations and management of public transportation systems.	Design/ Development of Solutions	C-4
	Structural Analysis -II (UE-359)			
	CLO-1	ANALYZE Statistically Indeterminate Structures using Classical Methods.	Problem Analysis	C-4
	CLO-2	ANALYZE statistically indeterminate structures using matrix method.	Problem Analysis	C-4
	Soil Mechanics-II (UE-403)			
	Hydraulic Engineering and Water Resources Engineering-I (UE-451)			
	CLO-1	EXPLAIN hydrology, hydraulics, irrigation and drainage concepts.	Engineering Knowledge	C-2
	CLO-2	ANALYZE the water resources system for water-use and water-control.	Problem Analysis	C-4

	CLO-3	PRACTICE measuring basic parameters of hydrology and hydraulic processes.	Investigation	P-4
	Environmental Engineering-I (EN-301)			
	CLO-1	DESCRIBE environmental pollution.	Environmental Sustainability	C-2
	CLO-2	DESIGN of water treatment system.	Design/Development of Solutions	C-6
	CLO-3	DETECT concentration of pollutants in environmental samples.	Investigation	P-1
8 Spring	Design of Steel Structures (UE-454)			
	CLO-1	DESCRIBE the theories and models suitable for the analysis and design of structural steel members.	Engineering Knowledge	C-2
	CLO-2	DESIGN structural steel members under axial loads, flexure and shear.	Design/Development of Solutions	C-6
	CLO-3	DESIGN connections in structural steel members.	Design/Development of Solutions	C-6
	Mechanics of Solids-II (UE-360)			
	CLO-1	ANALYZE beams subjected to unsymmetrical bending, curved beams and beams on elastic foundations.	Problem Analysis	C-4
	CLO-2	APPLY of theory of elasticity under generalized loading.	Problem Analysis	C-3
	CLO-3	DISCUSS theory of plasticity and plastic analysis of beams and frames.	Problem Analysis	C-2
	Geoinformatics (UE-460)			
	Financial Resource Management (UE-435)			
CLO-1	IDENTIFY and ANALYZE the options in obtaining the requisite finance to fund the projects	Engineering Knowledge	C-2	

	CLO-2	PREPARE financial statements of any project and to analyze prospective investment in projects.	Project Management	C-3
	CLO-3	APPLY for Consumer Credits; and loans and practice the rules regarding exchange rates.	Development of Solutions	C-3
Environmental Engineering-II (EN-401)				
	CLO-1	DISCUSS recycling and its environmental impacts.	Environment and Sustainability	C-1
	CLO-2	DESIGN wastewater treatment and disposal systems.	Design/Development of Solutions	C-6
	CLO-3	EXPLAIN elements of solid waste management system.	The Engineer and Society	C-2
	CLO-3	DETECT environmental parameters in waste samples.	Investigation	P-1