Civil Engineering

Course Learning Outcomes are measurable statements that are used to identify the specific knowledge and skills that a student should have at the end of a course.

CE 1105
L1- Increase ability to communicate with people Learn to sketch and take field dimensions.
L2- Learn to take data and transform it into graphic drawings.
L3- Learn basic Auto Cad skills.
L4- Learn basic engineering drawing formats.
L5- Prepare the student for future Engineering positions.

CE 1120
L1- Student will learn about the different engineering disciplines.
L2- Students will learn about the design process.
L3- Students will learn about ethics and professionalism.

CE 2210
L1- To develop a disciplined approach for the application of the fundamental principles of mechanics to model and evaluate particle and rigid body systems in static equilibrium for unknown forces and moments (both external and internal) produced by known loads.
L2- To effectively communicate technical information in a professional manner.

CE 3301
L1- Have the ability to apply knowledge of mathematics, science and engineering to understand the measurement techniques and equipment used in land surveying.
L2- Gain an appreciation of the need for lifelong learning through the discussion of recent changes in survey procedures and equipment.
L3- Have the ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
L4- Ability to function as a member of a team.
L5- Understand the importance of professional licensure to protect the public in the practice of land surveying.

CE 3332
L1- Provide civil engineering students with a basic knowledge of soil mechanics in geotechnical engineering practice.
L2- Educate civil engineering students in the design requirements for building foundations.
L3- Slopes and retaining walls.
L4- Prepare civil engineering students for a career in geotechnical engineering.

CE 3341
L1- To develop an ability to identify, formulate, and solve engineering problems.

CE 3350
L1- To provide the theories of stresses and strains, combined loadings, stress concentrations, beam bending, column stability and shear connections applied to the design of structural members subject to tension, compression, torsion and bending.
L2- To effectively communicate technical information in a professional manner.
L3- To instill the importance of life-long learning and responsibilities in the pursuit of the engineering career.

CE 3360
L1- Prepare engineering students to analyze cost/revenue data and carry out make economic analyses in the decision-making process to justify or reject alternatives/projects on an economic basis.
L2- Prepare engineering students and computer science students to write technical reports.
L3- Prepare engineering students to obtain professional licensure.

CE 3361
L1- Prepare engineering students to analyze cost/revenue data and carry out make economic analyses in the decision-making process to justify or reject alternatives/projects on an economic basis.
L2- Prepare engineering students and computer science students to write technical reports.
L3- Prepare engineering students to obtain professional licensure.
L4- Prepare engineering students to function in business and management side of professional engineering practice.

CE 3362
L1- Ability to model loads on structures using current codes and standards.
L2- Ability to idealize and analyze statically determinate and indeterminate structures.
L3- Familiarity with structural analysis software.
L4- Familiarity with professional and contemporary issues.

CE 4424
L1- To develop a basic knowledge of open channel flow relationships by applying fluid properties, hydrostatics, and energy and the conservation equations for mass momentum.
L2- To gain proficiency in applying the conservation equations to open channel flow problems.
L3- To develop and apply relationships for hydraulic jumps, surges, and critical uniform and gradually-varying flows.
L4- Ability to make reasoned choices in open-ended design problems.

CE 4425
L1- Ability to design a system component or process to meet desired needs within realistic constraints such as economic, environmental, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
L2- Broad education necessary to understand the impact of engineering solutions in a global economic, environmental, and societal context.
L3- Knowledge of contemporary issues.

CE 4431
L1- To solve advanced solid mechanics problems using classical methods .
L2- To apply commercial software on select applied solid mechanics problems

CE 4434
L1- Prepare civil engineering students for a career in foundation engineering.
L2- Prepare civil engineering students to design foundation excavations/retaining walls and analyze the stability of structures on or below slopes.
L3- Prepare civil engineering students to analyze groundwater conditions in geotechnical engineering practice.
L4- Prepare civil engineering student to design and determine construction requirements of buried conduits.

CE 4435
L1- Ability to apply knowledge of mathematics, science, and engineering.
L2- Ability to identify formulate, and solve engineering problems.
L3- Ability to design a system component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, health and safety, manufacturability, and sustainability and sustainability.

L4- Ability to use techniques, skills, and modern engineering tools necessary for engineering.

CE 4436
L1- Ability to mathematically develop and interpret design standards for horizontal and vertical geometry and superelevation.
L2- Ability to apply standards to design of alignments when considering topography and environmental concerns.
L3- Familiarity with CAD software for the design and modeling of roadways/highways.
L4- Familiarity with professional ethics, conduct, current issues, and continuing education commitment.

CE 4454
L1- Prepare civil engineering students for a career in geotechnical engineering.
L2- Educate civil engineering students in rock engineering concepts and approaches in the design and construction of undergrounds openings.
L3- Provide civil engineering students with background and tools to identify the basic behavior of rock in underground openings.

CE 4462
L1- Ability to perform analysis and design of steel members and connections.
L2- Ability to design steel structural systems.
L3- Familiarity with professional and contemporary issues.

CE 4464
L1- Be able to perform analysis and design of reinforced concrete members and connections.
L2- Be able to identify and interpret the appropriate relevant industry design codes.
L3- To become familiar with professional and contemporary issues in the design and fabrication of reinforced concrete members.

CE 4465
L1- Be able to perform analysis and design of prestressed concrete members and connections.
L2- Be able to identify and interpret the appropriate relevant industry design codes.
L3- To become familiar with professional and contemporary issues in the design and fabrication of prestressed concrete members.

CE 4466
L1- Ability to perform analysis and design of wood members and connections.
L2- Ability to design a wood structural system.

CE 4467
L1- To perform several laboratory experiments including designing an experiment in structural engineering and mechanics.
L2- To analyze data, interpret results, and write technical reports.

CE 4468
L1- Ability to solve mechanics of composite materials problems using classical methods.
L2- Ability to do research and present on an advanced material topic.

CE 4496A
L1- Develop an ability to function in multi-disciplinary teams.
L2- Develop an ability to communicate effectively.
L3- Research and gather information and develop and understanding of ethical and contemporary Issues in Engineering.

CE 4496B
L1- Develop an ability to function in multi-disciplinary teams.
L2- Develop an ability to communicate effectively.
L3- Evaluate the impact of engineering solutions in a global economic, environmental, and societal context.
L4- Ability to perform mechanical engineering design