CIVIL ENGINEERING (CIVE)

CIVE 110 Introduction to Civil Engineering (1 Credits)
Lecture: 1
Ov erview of the various fields of civil engineering and career opportunities in civl engineering. Path professional licensure Introduction to fundamental engineering conepts, engineering design, entineering ethics, and professional societies. 1 lecture hour per week.
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 141 Civil Engineering Materials (3 Credits)
Lecture: 3, **Lab:** 0
Introduction to materials and equipment for civil engineering construction. Properties and uses discussed of steel, alloys, asphalt, timbers, cement, aggregates, acoustics, etc. Three hours of lecture per week. Co-Requisite: CIVE 141L
Prerequisite(s): (CIVE 141L (may be taken concurrently))
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 141L Civil Engineering Materials Lab (1 Credits)
Lab: 1
Laboratory testing of properties of steel, alloys, asphalt, timbers, cement, aggregates, acoustics, etc. Co-Requisite: CIVE141
Prerequisite(s): (CIVE 141 (may be taken concurrently))
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 223 Hydrology and Water Resources (3 Credits)
Lecture: 2, **Lab:** 2
Introduction to the science of hydrology and application. Hydro-meteorology ground-water, hydrographic, storm water control, free surface flow and water quality. Three hours of lecture and two hours of laboratory per week. Prerequisites: MATH 241
Prerequisite(s): MATH 241
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 224 Geotechnical Engineering (3 Credits)
Lecture: 3, **Lab:** 0
Geotechnical analysis of soils: application of science and engineering principles; methods of exploration, testing, and classification using ASTM and AASHTO laboratory methods. Three hours of lecture per week. Prerequisites: MATH 241 and CIVE 141. Co- Requisite : CIVE 224L
Prerequisite(s): (MATH 241 and CIVE 141 and CIVE 224L (may be taken concurrently))
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 224L Geotechnical Engineering Lab (1 Credits)
Lecture: 0, **Lab:** 1
Laboratory testing of geotechnical material, and its classification using ASTM and AASHTO laboratory methods.. Two hours of laboratory per week. Co- Requisite : CIVE 224
Prerequisite(s): (CIVE 224 (may be taken concurrently) and CIVE 141)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 231 Plane Surveying (3 Credits)
Lecture: 2, **Lab:** 2
Theory and practice of plane surveying; instruments, measurements of distances, angles, elevations; introduction to traverse, contour, and electronic distance measurements. Two hours of lecture and two hours of laboratory per week.
Prerequisite(s): (MATH 241)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 232 Statics (3 Credits)
Lecture: 3, **Lab:** 0
Introduction to applications of equilibrium of rigid bodies, including moments, couples, and moments of inertia. Three hours of lecture per week. Prerequisites: PHYS 251. Co- requisite MATH 243
Prerequisite(s): (PHYS 251 and MATH 241)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 233 Dynamics (3 Credits)
Lecture: 3, **Lab:** 0
Principles of kinetics, kinematics, Newton's laws of motion, vectors, simple harmonic motion, and energy. Two hours of lecture per week. Prerequisite: CIVE 232 & MATH 243
Prerequisite(s): (CIVE 232)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 301 Environmental Engineering (3 Credits)
Lecture: 2, **Lab:** 2
Introduction to sanitary microbiology and sanitary chemistry, communicable diseases, solid waste; environmental sanitation; environmental regulations; water and airborne diseases, transmission and control. Two hours of lecture and two hours of laboratory per week. Prerequisite: CHEM 111, CHEM 131, CIVE 232
Prerequisite(s): (CHEM 111 and CHEM 131 and CIVE 223)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 301L Environmental Engineering Lab (1 Credits)
Lecture: 0, **Lab:** 1
Introduction to sanitary microbiology and sanitary chemistry, communicable diseases, solid waste; environmental sanitation; environmental regulations; water and airborne diseases, transmission and control. Two hours of laboratory per week. Co-Requisite: CIVE 301
Prerequisite(s): (CIVE 301 (may be taken concurrently))
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 331 Engineering Economy (3 Credits)
Lecture: 3, **Lab:** 0
College/School: Col of Science, Engr & Tech
Department: (R)Dept of Engineering Tech

CIVE 332 Applied Fluid Mechanics (3 Credits)
Lecture: 2, **Lab:** 2
Fluid mechanics with engineering applications, properties of fluids, pressure, kinematics, energy, and flow through pipes. Two hours of lecture and two hours of laboratory per week. Prerequisites: MATH 242 & CIVE 232.
Prerequisite(s): (MATH 241 and CIVE 232)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 333 Hydraulics Engineering (3 Credits)
Lecture: 2, **Lab:** 2
Introduction to quantitative hydrology, open channel flow, flow in conduits, hydraulic structures, flow measurements, and pumps. Two hours of lecture and two hours of laboratory per week. Prerequisite: CIVE 332 & MATH 251
Prerequisite(s): (CIVE 332 and MATH 251)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 334 Transportation Engineering (3 Credits)
Lecture: 3, **Lab:** 0
Study of transportation engineering concepts, planning, traffic flow, capacity analysis, environmental and utility accommodations, and transportation economics analysis. Three hours of lecture per week.
Prerequisite(s): (CIVE 231)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 335 Geometric Design of Highways (3 Credits)
Lecture: 3, **Lab:** 0
Prerequisite(s): (CIVE 334 and MATH 241)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 336 Strength of Materials (3 Credits)
Lecture: 3, **Lab:** 0
Physical properties of engineering materials concepts of stress and loading shear force and bending moments. Design of structural elements. Three hours of lecture per week. Prerequisites: MATH 243, CIVE 232, and PHYS 251
Prerequisite(s): (MATH 242 and CIVE 232 and PHYS 251)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 338 Structural Analysis (3 Credits)
Lecture: 3, **Lab:** 0
Study of determinate structures with emphasis on both the analytical and graphical approaches to trusses and building frames. Three hours of lecture per week. Prerequisites: CIVE 336.
Prerequisite(s): CIVE 336
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 339 Reinforced Concrete Design (3 Credits)
Lecture: 3, **Lab:** 0
Concrete materials and properties, mixing and placement, concrete tests, design of concrete structures, elastic theory, stresses, beams, foundations, columns, and floor slabs. Three hours of lecture per week. Prerequisite: CIVE 336 and CIVE 141
Prerequisite(s): (CIVE 338)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 340 Structural Steel Design (3 Credits)
Lecture: 2, **Lab:** 2
Design in steel of tension members, beams, columns, welded and bolted connections; eccentrically loaded and moment resistant joints; plate girders. Plastic design; load and resistance factor design. Composite construction; introduction to computer-aided design Two hours of lecture and two hours of laboratory per week. Prerequisite: CIVE 338.
Prerequisite(s): CIVE 338
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 400 Problems in Civil Engineering (3 Credits)
Lecture: 3, **Lab:** 0
Design of Civil Engineering related projects, apply the necessary criteria, city code approvals, and independent experimental study. One hour of lecture and three hours of laboratory per week. Prerequisite: Consent of the instructor required. Co-Requisite 340
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 430 Engineering Practicum (6 Credits)
Lecture: 6, **Lab:** 0
Career training with professionals in major field of study. Prerequisite: Consent of the instructor required.
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 433 Alternative Energy (3 Credits)
Lecture: 3, **Lab:** 0
College/School: Col of Science, Engr & Tech
Department: (R)Dept of Engineering Tech

CIVE 434 Water and Wastewater Engineering (3 Credits)
Lecture: 2, **Lab:** 2
Water supply and treatment, wastewater characterization and treatment. Design of units process and operation, transmission and sewerage facilities. Two hours of lecture and two hours laboratory per week. Prerequisites: CIVE 301 & CIVE 333
Prerequisite(s): (CIVE 301 and CIVE 333)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 435 Building Construction (3 Credits)
Lecture: 3, **Lab:** 0
Setting out of construction work, foundations, wallings, concrete slabs, formworks, roofing structures, plumbing and drainages, bridges, commercial and industrial buildings, and estimating. Two hours of lecture per week. Prerequisites: CIVE 339 and CIVE 340.
Prerequisite(s): (CIVE 339 and CIVE 340)
College/School: Col of Science, Engr & Tech
Department: Department of Engineering

CIVE 490 Introduction to Bridge Engineering (3 Credits)
Lecture: 3, **Lab:** 0
Study of basic bridge design, loadings, structural analysis, and AASHTO design procedures. Design examples that illustrate the Load and Resistance Factor Design (LRFD) procedures, Practical applications on small- and medium-span bridges. Examples of steel beams, concrete slabs, pre-stress members, and piers will illustrate the AASHTO procedures.. Three hour of lecture per week. Pre- Requisite CIVE 338
Prerequisite(s): (CIVE 338 and CIVE 339 and CIVE 340)
College/School: Col of Science, Engr & Tech
Department: (R)Dept of Engineering Tech