

Civil Engineering Courses

Courses

CE 1205. Graphics Fdmtls in Engr Desgn.

Graphics Fundamentals in Engineering Design Fundamentals of multi-view projections, auxiliaries, sections, pictorial drawings, dimensioning; introduction to CAD, decision process, and geographical information systems.

Department: Civil Engineering

2 Credit Hours

4 Total Contact Hours

3 Lab Hours

1 Lecture Hour

0 Other Hours

CE 1301. Civil Engineering Fundamentals.

Principles used in the analysis, design, construction and maintenance of civil engineering infrastructure systems. Concepts of sustainability and environmental impact, civil engineering as a profession and expectations of ethical behavior.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Corequisite(s): MATH 1411

CE 1313. Engineering Measurements.

Principles and methods of surveying, hands on experience in the use of modern surveying instruments, fundamentals of global positioning system (GPS) and Geographic Information Systems (GIS), use GPS/GIS software for surveying applications. Prerequisites: MATH 1508 with a grade of C or better.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (MATH 1508 w/C or better) OR (MATH 1310 w/C or better)

CE 2315. Statics.

Statics: [TCCN ENGR 2301] Newtonian mechanics of force systems, equilibrium of particles and rigid body, forces in space, distributed forces, centroids and friction.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (MATH 1411 w/C or better) OR (MATH 1312 w/C or better) OR (MATH 2313 w/C or better) OR (MATH 2326 w/C or better) AND (PHYS 2120 w/C or better AND PHYS 2320 w/C or better) OR (PHYS 2420 w/C or better AND CE 1301 w/C or better)

CE 2326. Econ for Engrs & Scientists.

Economics for Engineers and Scientists: [TCCN ENGR 2308] Application of economics to engineering and industrial problems which require knowledge of engineering for their solution.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 2334. Mechanics of Materials.

Mechanics of Materials: [TCCN ENGR 2332] Stress and strain theories, axial loading, torsion, study of combined stresses, beam and column design, and basic structural analysis.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2315 w/C or better)

CE 2335. Geological Engineering.

The objective of the course is to introduce students to the principles of physical geology and their applications in the civil engineering profession. At the end of the course, students will have a foundation in geology such that they will be able to communicate with geologists and geophysicists or read geological reports that are pertinent to engineering projects. Emphasis in laboratories will be placed on practical engineering problems that require the use of geology and geophysics.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

CE 2338. Mechanics II (Dynamics).

Mechanics II (Dynamics): [TCCN ENGR 2302] Dynamics of particles and rigid bodies, work and energy, impulse and momentum.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2315 w/C or better) AND (MATH 1312 w/C or better)

CE 2343. Structural Analysis.

A study of framed structures, trusses, girders, and beams including applications of static and moving loads on bridges.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2334 w/C or better)

CE 2373. Engr Probability & Statistics.

Fundamental concepts of discrete and continuous random variables, distribution functions, moments, moment generating functions, statistical dependence, stochastic modeling and random events, graphical and numerical methods, descriptive and inferential statistics, point and interval estimation, hypothesis testing and regression analysis. The creation and proper utilization of statistical decision models for engineering analysis and design are stressed. Emphasis is on measurement, formulation analysis and design of physical problems. Prerequisites: MATH 2313 with a grade of C or better.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (MATH 2313 w/C or better)

CE 2375. Intro to Fluid Mechanics.

Introduction to Fluid Mechanics An introduction to the basic concepts of thermodynamics and fluid mechanics to include properties, property relationships, states, and fields. Presentation of the basic equations of thermal-fluid science, continuity, first and second laws of thermodynamics and momentum.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2315 w/C or better)

CE 2377. Electro Mechanical Systems.

Electro Mechanical Systems: [TCCN ENGR 2305] Circuit equations and network theorems. Introduction to digital logic circuits. Motors and generators. Principles of sensing, actuation, and control.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (MATH 1312 w/C or better)

CE 2385. Environmental Engr Fundamental.

Introduction to the engineering aspects of environmental systems to include such topics as water quality management, air pollution and control, solid and hazardous waste management, environmental impact assessment, and governmental regulation.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2375 w/C or better AND CHEM 1305 w/C or better)

CE 3153. Water & Waste Water Laboratory.

Laboratory analysis of water and wastes. Prerequisites: CE 3342, may be taken concurrently.

Department: Civil Engineering

1 Credit Hour

1 Total Contact Hour

1 Lab Hour

0 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 3342 w/D or better)

CE 3313. Engineering Measurements.

Engineering Measurements (2-3) Theory and practice of surveying measurements with emphasis on precision, errors, significant figures, the use of the level, transit, and engineer's tape. Restricted to major: CE. Prerequisites: CE 1205 or IE 1205 with a grade of C or better and junior standing in Civil Engineering or department approval.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 1205 w/C or better) OR (IE 1205 w/C or better)

CE 3334. Construction Management.

An understanding of construction management issues such as: procurement of work, bidding versus quality-based selection processes, how the design professionals and the construction professionals interact to construct a project.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 3336. Civil Engineering Materials.

Civil Engineering Materials (2-3) Properties of civil engineering materials, measurements and test methods, relationship of properties to performance; their structure and behavior: relationship between structure and behavior. Prerequisite: Junior standing in Civil Engineering.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2334 w/C or better)

CE 3342. Water & Waste Water Engr.

Study of basic processes involved in conventional water and wastewater treatment plants. Coverage include theory and preliminary design consideration. Prerequisites: CE 2375 with a grade of C or better.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2375 w/C or better)

CE 3343. Structural Analysis I.

Structural Analysis (2-3) A study of framed structures, trusses, girders, beams including applications of static and moving loads and bridges. Restricted to majors: CE. Prerequisites: CE 2334 or MECH 2322 and junior standing in Civil Engineering or department approval.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2334 w/D or better) OR (MECH 2322 w/D or better)

CE 3345. Design of Concrete Structures.

Reinforced concrete theory; design of beams, columns, slabs, footings, and retaining walls using current design specifications. Prerequisite: CE 3343 with a grade of "C" or better.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2343 w/D or better)

CE 3348. Geotechnical Engineering.

Physical and mechanical properties of soils, plasticity, shrinkage, permeability seepage, consolidation, shear strength, Rankine and Coulomb earth pressure and braced cuts. Prerequisites: CE 2335 with a grade of C or better, AND CE 3336 and CE 3456.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 3336 w/D or better)

Corequisite(s): CE 2335

CE 3361. Design of Steel Structures.

Concepts of the design of steel structures using the load and resistance factor design (LRFD) philosophy; design members in tension, members in compression, beams, beam-columns, and connections; and design of trusses and frames. Prerequisites: CE 2343 with a grade of C or better.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2343 w/C or better)

CE 3456. Hydrology & Hydraulic Engr.

Essential principles of hydraulics and hydrology demonstrated in the laboratory and applied to the design of hydraulic structures. Prerequisite: CE 2375 or MECH 2311, and CE 3373 or IE 3373, each with a grade of C or better.

Department: Civil Engineering

4 Credit Hours

6 Total Contact Hours

3 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2375 w/C or better) OR (MECH 2311 w/C or better)

CE 4153. Water and Waste Laboratory.

Water and Waste Laboratory (0-3) Laboratory analysis of water and wastes. Restricted to major: CE. Prerequisites: CE 4341 or CE 4342, and junior standing in Civil Engineering or department approval. CE 4341 or CE 4342 may be taken concurrently with 4153.

Department: Civil Engineering

1 Credit Hour

3 Total Contact Hours

3 Lab Hours

0 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 4341 w/D or better) OR (CE 4342 w/D or better)

CE 4158. Constr Methods & Matrls Lab.

Problem solving involving the use of materials and methods on construction projects.

Department: Civil Engineering

1 Credit Hour

3 Total Contact Hours

3 Lab Hours

0 Lecture Hours

0 Other Hours

CE 4171. Engineering Problems.

Engineering Problems (0-0-1) Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. May be repeated for credit. Restricted to major: CE. Prerequisite: Senior standing and department approval.

Department: Civil Engineering

1 Credit Hour

1 Total Contact Hour

0 Lab Hours

0 Lecture Hours

1 Other Hour

CE 4181. Co-op Work Experiences.

Co-op Work Experiences (0-0-1) Work experience in business, industrial, governmental professional, service, or other organizations to provide on-the-job training and professional preparation in the student's area of interest. A report covering the work experience must be submitted by the student to the departmental Co-op coordinator at the end of each work period. Upon completion of his or her third work period and submission of a report summarizing the total work experience, a student can use three hours of Co-op work experience in his or her degree plan in place of a technical elective or elective in the major. Prerequisites: Selection by the Co-op Coordinator, program head, and employer and junior standing in Civil Engineering.

Department: Civil Engineering

1 Credit Hour

1 Total Contact Hour

0 Lab Hours

0 Lecture Hours

1 Other Hour

CE 4182. Co-op Work Experiences.

Co-op Work Experiences (0-0-1) Work experience in business, industrial, governmental, professional, service, or other organizations to provide on-the-job training and professional preparation in the student's area of interest. A report covering the work experience must be submitted by the student to the departmental Co-op coordinator at the end of each work period. Upon completion of his or her third work period and submission of a report summarizing the total work experience, a student can use three hours of Co-op work experience in his or her degree plan in place of a technical elective or elective in the major. Prerequisite: Selection by the Co-op Coordinator, program head, and employer and junior standing in Civil Engineering.

Department: Civil Engineering

1 Credit Hour

1 Total Contact Hour

0 Lab Hours

0 Lecture Hours

1 Other Hour

CE 4183. Co-op Work Experiences.

Co-op Work Experience (0-0-1) Work experience in business, industrial, governmental, professional, service, or other organizations to provide on-the-job training and professional preparation in the student's area of interest. A report covering the work experience must be submitted by the student to the departmental Co-op Coordinator at the end of each work period. Upon completion of his or her third work period and submission of a report summarizing the total work experience, a student can use three hours of Co-op Work experience in his or her degree plan in place of a technical elective or elective in the major. Prerequisites: Selection by the Co-op Coordinator, program head, and employer, and junior standing in Civil Engineering.

Department: Civil Engineering

1 Credit Hour

1 Total Contact Hour

0 Lab Hours

0 Lecture Hours

1 Other Hour

CE 4188. Senior Design I.

Senior Design I (0-3) Conceptual and preliminary design project. Prerequisites: Department approval and minimum of 100 hours of Civil Engineering Curriculum completed.

Department: Civil Engineering

1 Credit Hour

3 Total Contact Hours

3 Lab Hours

0 Lecture Hours

0 Other Hours

CE 4195. Jr. Professional Orientation.

Junior Professional Orientation (1-0) Introduction to the Engineering profession with emphasis on job placement, professional ethics and engineering field examination. Required of all students prior to graduation. Restricted to major: CE.

Department: Civil Engineering

1 Credit Hour

6 Total Contact Hours

3 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4271. Engineering Problems.

Engineering Problems (0-0-2) Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. May be repeated for credit. Restricted to major: CE. Prerequisites: Senior standing and department approval.

Department: Civil Engineering

2 Credit Hours

2 Total Contact Hours

0 Lab Hours

0 Lecture Hours

2 Other Hours

CE 4288. Senior Design II.

Senior Design II (1-3) Final design project.

Department: Civil Engineering

2 Credit Hours

4 Total Contact Hours

3 Lab Hours

1 Lecture Hour

0 Other Hours

Classification Restrictions:

Restricted to class of SR

CE 4339. Geostuctural Design.

This course is concerned with Geostuctural Design as it applies to foundations for buildings and other structures, such as retaining walls. It also includes the design of natural slopes, the dewatering of soils, and mechanical and chemical stabilization of soils, and pavement design. Prerequisites: CE 3348

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 3348 w/D or better)

CE 4340. Transportation Engineering.

Transportation Engineering (3-0) Study of planning economics, finance, location, design and administration of transportation systems. Restricted to major: CE. Prerequisites: CE 3313 and either CE 3373 or IE 3373.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 3313 w/D or better) AND (CE 2373 w/D or better) OR (IE 3373 w/D or better)

CE 4342. Water & Wastewater Engineering.

Water and Wastewater Engineering (3-0) Study of basic processes involved in conventional water and wastewater treatment plants. Coverage includes theory and preliminary design considerations. Restricted to major: CE. Prerequisites: CE 2375 or MECH 2311.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2375 w/D or better) OR (MECH 2311 w/D or better)

CE 4348. Geotechnical Engineering.

Geotechnical Engineering (2-3) Physical and mechanical properties of soils, plasticity, shrinkage, permeability seepage, consolidation, shear strength, Rankine and Coulomb earth pressure and braced cuts. Prerequisites: CE 2334 or MECH2322, CE 3336, and GEOL 3321 or CE 3335.

Department: Civil Engineering

3 Credit Hours

5 Total Contact Hours

3 Lab Hours

2 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 2334 w/C or better) OR (MECH 2322 w/C or better) AND (CE 3336 w/C or better) AND (GEOL 3321 w/C or better) OR (CE 3335 w/C or better)

CE 4354. Electrical & Mech Construction.

Students in this course will be provided with an understanding of electrical and mechanical contracting work practices, including estimating and bidding, labor requirements, equipment requirements, material specifications, and potential problems occurring in this field of contracting.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4358. Construction Methods & Materls.

An introduction to the use of materials and methods on construction projects, including wood, steel, and concrete construction and earthwork. The course requires a final project report and presentation involving planning construction methods for a project and a national exam on general construction knowledge.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4361. Structural Design II.

Structural Design II (3-0) Design of steel structures including the application of plastic design methods using current design specifications. Restricted to major: CE. Prerequisites: CE 3343 and junior standing in Civil Engineering or department approval.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 3343 w/D or better)

CE 4371. Engineering Problems-Seminar.

Engineering Problems-Seminar (0-0-3) Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. Can be repeated for credit. Restricted to major: CE. Prerequisites: Senior standing and department approval.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

0 Lecture Hours

3 Other Hours

CE 4375. Adv. Topics in Civil Engr..

Advanced Topics in Civil Engineering (3-0) Presentation of contemporary issues and advanced topics in all areas of Civil Engineering. Prerequisite: Department Approval.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4376. Adv Topics in Civ Engr II.

Presentation of contemporary issues and advances in all areas of civil engineering.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4377. Adv Topics in Civil Engr III.

Presentation of contemporary issues and advances in all areas of civil engineering.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4381. Senior Construction Project.

Final Construction engineering and management project involving predesign, cost estimating, material selection and procurement, equipment selection and methods, onsite material staging and delivery, sequencing, scheduling, safety, close out procedures through commissioning. Students will analyze an actual project and prepare a summary report detailing all aspects of their analysis. Students will present the results of their project at the conclusion of the effort.

Department: Civil Engineering

3 Credit Hours

4 Total Contact Hours

3 Lab Hours

1 Lecture Hour

0 Other Hours

Prerequisite(s): (CE 3334 w/D or better AND CE 3336 w/D or better AND CE 3348 w/D or better AND CE 4158 w/D or better AND CE 4358 w/D or better AND CE 4382 w/D or better AND CE 4387 w/D or better AND CE 4389 w/D or better)

CE 4382. Constr. Cost Analys. & Bidding.

Students in this course will be provided with an understanding of proposal writing, construction cost estimating, bidding procedures, and bid scheduling.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4385. Construction Internship.

This internship course requires students to work at a construction company or at a government agency that is involved in construction management and engineering and that is approved by UTEP.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

0 Lecture Hours

3 Other Hours

CE 4386. Construction Law & Ethics.

This course is designed to give students a working knowledge of construction contracts, contract participants' role and responsibilities, licensing and regulatory requirements, lien laws and contractor rights, national and local labor laws, and procedures to avoid disputes. It also teaches students how to work with each of the important terms of a contract.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

CE 4387. Construction Scheduling.

Students will gain an understanding of project plans, task identification, bar chart schedules, critical path schedules, and resource management.

Prerequisites: CE 4382

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours

Prerequisite(s): (CE 4382 w/D or better)

CE 4389. Construction Safety.

Students in this course will be provided with an understanding of safe work practices, mandatory training, record keeping and maintenance, compliance with OSHA worker safety and environmental safety laws, inspection procedures, and penalties for lack of conformance to safety laws. Students will also learn procedures for recognizing hazards, performing CPR, attending site safety meetings, and conducting accident investigations.

Department: Civil Engineering

3 Credit Hours

3 Total Contact Hours

0 Lab Hours

3 Lecture Hours

0 Other Hours