BS in Civil Engineering

Graduates in Civil Engineering are likely to pursue career paths as: construction managers, engineering consultants (structural, environmental, transportation and others) or government policy developers.

Marketable Skills

1. Critical thinking: Analyze and evaluate issues in order to solve problems and develop informed opinions
2. Entrepreneurship: Develop, organize, and manage ideas and opportunities turning them into new products, services, firms, or industries
3. Leadership: Step up, think, and act critically and creatively to bring others together to accomplish a common task
4. Problem-solving: Find solutions to difficult or complex issues
5. Social responsibility: Act ethically and responsibly for the benefit of society and the public good
6. Teamwork: Participate as an effective, efficient member of a group in order to meet a common goal

The Civil Engineering program at the undergraduate level is broadly based and provides courses in the major divisions of Civil Engineering.

Educational Objectives

- Will be successful contributors and leaders in their profession and communities.
- Will be effective at communicating as professionals to a diverse technical and non-technical population.
- Will have the ability to use their education to be lifelong learners and adapt to changes in technology and society.
- Will be able to solve engineering problems in the context of society's dynamic environmental, social, political, and economic realities.

Fast Track

The Fast-Track Program (http://catalog.utep.edu/admissions/undergraduate/fast-track/#text) enables outstanding undergraduate UTEP students to receive both undergraduate and graduate credit for up to 15 hours of UTEP course work as determined by participating Master's and Doctoral programs. Not all undergraduate programs have elected to participate in the Fast Track option, so students should see their departmental graduate advisor for information about requirements and guidelines. A list of courses that have been approved for possible use at the graduate level is found here (http://catalog.utep.edu/admissions/undergraduate/fast-track/#fasttrackcoursestext).

Degree Plan

Required Credits: 128

Students are expected to satisfy all prerequisites and co-requisites for all required and elective courses at the time of registration.

Code	Title	Hours
University Core Curriculum(All courses require a grade of C or better.)		
Complete the University Core Curriculum requirements. (p. 2)		42
Civil Engineering Designated Core (All courses require a grade of C or better.)		
Required courses:		
CE 2326	Econ for Engrs & Scientists	
CHEM 1105	Laboratory for CHEM 1305	
CHEM 1305	General Chemistry	
CS 1320	Computer Programming Sci/Engr	
MATH 1508	Precalculus (Listed if completed, but not required)	
or MATH 1310	Trigonometry and Conics	
or MATH 1411	Calculus I	
PHYS 2320	Introductory Mechanics	
PHYS 2120	Laboratory for PHYS 2320	
Civil Engineering Core (All courses require a grade of C or better.)		
Required Courses:		
CE 1301	Civil Engineering Fundamentals	3
CE 1313	Engineering Measurements	3
CE 2315	Statics	3
CE 2334	Mechanics of Materials	3
CE 2335	Geological Engineering	3

CE 2338	Mechanics II (Dynamics)	3
or MECH 2340	Mechanics II -Dynamics	
or PHYS 3331	Thermal Physics	
CE 2343	Structural Analysis	3
CE 2373	Engr Probability & Statistics	3
CE 2375	Intro to Fluid Mechanics	3
CE 2385	Environmental Engr Fundamental	3
MATH 1411	Calculus I	4
MATH 1312	Calculus II	3
MATH 2313	Calculus III	3
MATH 2326	Differential Equations	3
Civil Engineering Major		
Required Courses:		
CE 3334	Construction Management	3
CE 3336	Civil Engineering Materials	3
CE 3342	Water & Waste Water Engr	3
CE 3345	Design of Concrete Structures	3
CE 3348	Geotechnical Engineering	3
CE 3361	Design of Steel Structures	3
CE 3456	Hydrology & Hydraulic Engr	4
CE 4188	Senior Design I	1
CE 4195	Jr.Professional Orientation	1
CE 4288	Senior Design II	2
CE 4339	Geostructural Design	3
CE 4340	Transportation Engineering	3
CE 4375	Adv. Topics in Civil Engr.	3
CE 4376	Adv Topics in Civ Engr II	3
Lower Division Technical Elective:		
Select one course from the following (Only 3 hours apply towards the requirement):		3
BIOL 1305	General Biology	
CHEM 1306	General Chemistry	
MATH 3323	Matrix Algebra	
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	
Upper Division Technical Elective:		
Select one course from the following or any other upper division course from the College of Engineering (excluding CE) or College of Science (Only 3 hours apply towards the requirement).		3
ACCT 2301	Principles of Accounting I	
CE 4377	Adv Topics in Civil Engr III	
CHEM 1306	General Chemistry	
MATH 3323	Matrix Algebra	
POLS 3350	Intro to Public Administration	
POLS 3351	The Public Policy Process	
POLS 4359	Urban Planning	
RWS 3359	Technical Writing	
Total Hours		**129**

I. Communication (six hours)

Code	Title	Hours

Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.

Select six hours of the following:		6
For students whose secondary education was in English:		
COMM 1611	Written and Oral Communication	
ENGL 1313	Writing About Literature	
RWS 1301	Rhetoric & Composition I	
RWS 1302	Rhetoric & Composition 2	
RWS 1601	Rhetoric, Composition & Comm	
For students whose secondary education was not in English:		
ESOL 1311	Expos Engl Compos-Spkr Esl	
ESOL 1312	Res & Crit Writng Spkr Esl	
TOTAL HOURS		**6**

II. American History (six hours)

Code	Title	Hours
Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.		
HIST 1301	History of U.S. to 1865	3
HIST 1302	History of U.S. Since 1865	3
TOTAL HOURS		**6**

III. Language, Philosophy & Culture (three hours)

Code	Title	Hours
Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.		
Select one of the following:		3
AFST 2300	Intro-African Amer Studies	
CHIC 2302	Latina/o Presence in the U.S.	
ENGL 2311	English Literature	
ENGL 2312	English Literature	
ENGL 2313	Intro to American Fiction	
ENGL 2314	Intro to American Drama	
ENGL 2318	Intro to American Poetry	
FREN 2322	Making of the "Other" Americas	
HIST 2301	World History to 1500	
HIST 2302	World History Since 1500	
PHIL 1301	Introduction to Philosophy	
PHIL 2306	Ethics	
RS 1301	Introduct to Religious Studies	
SPAN 2340	Seeing & Naming: Conversations	
WS 2300	Introduction to Womens Studies	
WS 2350	Global Feminisms	
TOTAL HOURS		**3**

IV. Mathematics (three hours)

Code	Title	Hours
Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.		
Select one of the following:		3
MATH 1309	College Algebra	
MATH 1310	Trigonometry and Conics	
MATH 1319	Math in the Modern World	
MATH 1320	Math for Social Sciences I	

MATH 1411	Calculus I	
MATH 1508	Precalculus	
MATH 2301	Math for Social Sciences II	
STAT 1380	Statistical Literacy	
STAT 2480	Elementary Statistical Methods	
TOTAL HOURS		**3**

V. Life & Physical Sciences (six hours)

Code	Title	Hours
Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences.		
Select one of the following:		
ASTR 1107	Astronomy Lab I	
ASTR 1307	Elem Astronomy-Solar System	
ASTR 1308	Elem Astr Stars & Galaxies	
BIOL 1103	Introductory Biology Lab	
BIOL 1104	Human Biology Laboratory	
BIOL 1107	Topics in Study of Life I	
BIOL 1108	Organismal Biology Laboratory	
BIOL 1203	Introductory Biology	
BIOL 1304	Human Biology	
BIOL 1305	General Biology	
BIOL 1306	Organismal Biology	
BIOL 2111	Human Anat/Physio Lab I	
BIOL 2113	Human Anat/Physio Lab II	
BIOL 2311	Human Anat/Physiology I	
BIOL 2313	Human Anat/Physiology II	
CHEM 1105	Laboratory for CHEM 1305	
CHEM 1106	Laboratory for CHEM 1306	
CHEM 1107	Intro General Chemistry Lab	
CHEM 1108	Intro Organic & Biochem Lab	
CHEM 1305	General Chemistry	
CHEM 1306	General Chemistry	
CHEM 1307	Intro to General Chemistry	
CHEM 1308	Intro Organic & Biochemistry	
ESCI 1101	Environmental Sci. Lab	
ESCI 1102	Non-major Lab for ESCI 1301	
ESCI 1301	Intro to Environmental Sci	
GEOG 1106	Laboratory for GEOG 1306	
GEOG 1306	Physical Geography	
GEOL 1103	Lab for GEOL 1313	
GEOL 1104	Lab for GEOL 1314	
GEOL 1111	Principles of Earth Sci - Lab	
GEOL 1112	Laboratory for Geology 1212	
GEOL 1211	Principles of Earth Sciences	
GEOL 1212	Principles of Earth Science	
GEOL 1230	The Blue Planet	
GEOL 1231	Natural Hazards	
GEOL 1313	Intro to Physical Geology	
GEOL 1314	Intro to Historical Geol	
HSCI 2302	Fundamentals of Nutrition	
HSCI 2303	Wellness Dynamics	

MICR 2330	Microorganisms and Disease	
PHYS 1403	General Physics I	
PHYS 1404	General Physics II	
PHYS 2120	Laboratory for PHYS 2320	
PHYS 2121	Laboratory for PHYS 2321	
PHYS 2320	Introductory Mechanics	
PHYS 2321	Introductory Electromagnetism	
TOTAL HOURS		**6**

VI. Political Science (six hours)

Code	Title	Hours
Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.		
Required Courses:		
POLS 2310	Introduction to Politics	3
POLS 2311	American Gover & Politics	3
TOTAL HOURS		**6**

VII. Social & Behavioral Sciences (three hours)

Code	Title	Hours
Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.		
Select one of the following:		3
ANTH 1301	Intro-Phys Anth/Archeolog	
ANTH 1302	Intro-Cultural Anthropology	
ANTH 1310	Cultural Geography	
ANTH 2320	Intro to Linguistics	
ASIA 2300	Asian American Studies	
CE 2326	Econ for Engrs & Scientists	
CHIC 2311	Intro to Chicano Studies	
COMM 2350	Interpersonal Communication	
COMM 2372	Mass Media and Society	
ECON 2303	Principles of Macroeconomics	
ECON 2304	Principles of Microeconomics	
EDPC 1301	Introduction to Ed Psychology	
EDU 1342	Action Research in Classrooms	
ENGL 2320	Introduction to Linguistics	
GEOG 1310	Cultural Geography	
LEAD 2300	Leadership in Action	
LING 2320	Introduction to Linguistics	
LING 2340	Lang. Inside & Out: Sel Topics	
PSYC 1301	Introduction to Psychology	
SOCI 1301	Introduction to Sociology	
SOCI 1310	Cultural Geography	
TOTAL HOURS		**3**

VIII. Creative Arts

Code	Title	Hours
Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.		
Select one of the following:		3

ART 1300	Art Appreciation	
ARTH 1305	History of Art I	
ARTH 1306	History of Art II	
CHIC 1311	Chicana/o Fine Arts Appreciat	
DANC 1304	Introduction to Dance	
FILM 1390	Intro-Art of Motion Pict.	
MUSL 1324	Music Appreciation	
MUSL 1327	Jazz to Rock	
MUSL 2321	Music, Culture, and Society	
THEA 1313	Introduction to Theatre	
TOTAL HOURS		**3**

IX. Component Area Option (six hours)

Code	Title	Hours
a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas. b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.		
BUSN 1301	Intro to Global Business	
COMM 1301	Public Speaking	3
COMM 1302	Business/Profession Comm	
CS 1310	Intro-Computational Thinking	
CS 1320	Computer Programming Sci/Engr	
EL 1301	Eng Innovation and Leadership	
ENGR 1302	Engineering Design Experience	
ENGR 1303	Applied Engineering Analysis	
LEAD 1300	Introduction to Leadership	
SCI 1301	Inquiry in Math & Science	
SPLP 1312	Comm. Var. Across the Lifespan	
UNIV 1301	Seminar/Critical Inquiry	
TOTAL HOURS		**6**

4-Year Sample Degree Plan

BS Civil Engineering (Starting with Pre-Calculus)

Code	Title	Hours
BACHELOR OF SCIENCE IN CIVIL ENGINEERING		
Summer		
(if needed)		
MATH 1508	Precalculus [7]	
or MATH 1310	Trigonometry and Conics	
FRESHMAN		
Fall		
RWS 1301	Rhetoric & Composition I [1]	3
UNIV 1301	Seminar/Critical Inquiry [1]	3
PHYS 2320	Introductory Mechanics	3
PHYS 2120	Laboratory for PHYS 2320	1
MATH 1411	Calculus I [1]	4
CE 1301	Civil Engineering Fundamentals [1]	3
Spring		
RWS 1302	Rhetoric & Composition 2 [1]	3
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305 [1]	4
CE 1313	Engineering Measurements [1]	3

CE 2315	Statics [1]	3
MATH 1312	Calculus II [1]	3
SOPHOMORE		
Fall		
HIST 1301	History of U.S. to 1865 [1]	3
CS 1320	Computer Programming Sci/Engr [1]	3
CE 2334	Mechanics of Materials [1]	3
CE 2375	Intro to Fluid Mechanics	3
Lower Division Technical Elective [2]		3
MATH 2313	Calculus III [1]	3
Spring		
HIST 1302	History of U.S. Since 1865 [1]	3
CE 2343	Structural Analysis [1]	3
Dynamics Electice (3 hrs. towards degree) [3]		3
CE 2385	Environmental Engr Fundamental [1]	3
CE 2335	Geological Engineering	3
MATH 2326	Differential Equations [1]	3
JUNIOR		
Fall		
CE 2326	Econ for Engrs & Scientists [1]	3
CE 3336	Civil Engineering Materials	3
CE 3345	Design of Concrete Structures	3
CE 2373	Engr Probability & Statistics	3
CE 3456	Hydrology & Hydraulic Engr	4
CE 4195	Jr.Professional Orientation	1
Spring		
POLS 2310	Introduction to Politics	3
CE 3348	Geotechnical Engineering	3
CE 3361	Design of Steel Structures	3
CE 3334	Construction Management	3
CE 3342	Water & Waste Water Engr	3
SENIOR		
Fall		
POLS 2311	American Gover & Politics	3
CE 4340	Transportation Engineering	3
CE 4339	Geostructural Design	3
CE 4188	Senior Design I	1
CE 4375	Adv. Topics in Civil Engr.	3
Spring		
Language Phil. & Cult. Elective [*,6,1]		3
Creative Arts Elective [*,4,1]		3
CE 4288	Senior Design II	2
CE 4376	Adv Topics in Civ Engr II	3
Upper Division Technical Elective [5]		3

Notes:

*Prerequisite Course

*+Corequisite if scheduled for the same semester.

1 A grade of "C" or better must be achieved for all Lower-Division courses, including the Arts and Humanities electives, as well as CE 2373 (IE 3373) & CE 2335 (GEOL 3321)

2 MATH 3323, PHYS 2421, CHEM 1306 OR BIOL 1305

3 CE 2338 or MECH 2340 or PHYS 3331 (PreRequisite for CE 2338 is CE 2315 and MATH 1312)

4 Select an ART course from ART 1300; ARTH 1305, 1306; DANC 1304; MUSL 1324, 1327, 2321; THEA 1313; FILM 1390

5 CE 4377, POLS 3350, POLS 3351; POL 4359, RWS 3359, ACCT 2301, MATH 3323, CHEM 1306	
6 Select a Lang. Philosophy and Culture course from ENGL 2311, 2312, 2313, 2314, 2318; FREN 2322; HIST 2301, 2302; PHIL 1301, 2306; RS 1301; SPAN 2340; WS 2300, 2350	
7 Not required for Calculus I ready students	
Total Hours	**128**

BS Civil Engineering (Starting with Calculus)

Code	Title	Hours
BACHELOR OF SCIENCE IN CIVIL ENGINEERING		
FRESHMAN		
Fall		
CE 1301	Civil Engineering Fundamentals [1]	3
MATH 1411	Calculus I [1]	4
PHYS 2320	Introductory Mechanics	3
PHYS 2120	Laboratory for PHYS 2320	1
RWS 1301	Rhetoric & Composition I [1]	3
UNIV 1301	Seminar/Critical Inquiry [1]	3
Spring		
CE 1313	Engineering Measurements [1]	3
CE 2315	Statics [1]	3
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305 [1]	4
MATH 1312	Calculus II [1]	3
RWS 1302	Rhetoric & Composition 2 [1]	3
SOPHOMORE		
Fall		
HIST 1301	History of U.S. to 1865 [1]	3
CS 1320	Computer Programming Sci/Engr [1]	3
CE 2334	Mechanics of Materials [1]	3
CE 2375	Intro to Fluid Mechanics	3
Lower Division Technical Elective [2]		3
MATH 2313	Calculus III [1]	3
Spring		
HIST 1302	History of U.S. Since 1865 [1]	3
CE 2343	Structural Analysis [1]	3
Dynamics Electice (3 hrs. towards degree) [3]		3
CE 2385	Environmental Engr Fundamental [1]	3
CE 2335	Geological Engineering	3
MATH 2326	Differential Equations [1]	3
JUNIOR		
Fall		
CE 2326	Econ for Engrs & Scientists [1]	3
CE 3336	Civil Engineering Materials	3
CE 3345	Design of Concrete Structures	3
CE 2373	Engr Probability & Statistics	3
CE 3456	Hydrology & Hydraulic Engr	4
CE 4195	Jr.Professional Orientation	1
Spring		
POLS 2310	Introduction to Politics	3
CE 3348	Geotechnical Engineering	3
CE 3361	Design of Steel Structures	3
CE 3334	Construction Management	3

CE 3342	Water & Waste Water Engr	3
SENIOR		
Fall		
POLS 2311	American Gover & Politics	3
CE 4340	Transportation Engineering	3
CE 4339	Geostructural Design	3
CE 4188	Senior Design I	1
CE 4375	Adv. Topics in Civil Engr.	3
Spring		
Creative Arts Elective [*,4,1]		3
Language Phil. & Cult. Elective [*,6,1]		3
CE 4288	Senior Design II	2
CE 4376	Adv Topics in Civ Engr II	3
Upper Division Technical Elective (3 hrs. towards degree) [5]		3
Notes:		
*Prerequisite Course		
*+Corequisite if scheduled for the same semester.		
1 A grade of "C" or better must be achieved for all Lower-Division courses, including the Arts and Humanities electives, as well as CE 2373 (IE 3373) & CE 2335 (GEOL 3321)		
2 MATH 3323, PHYS 2421, CHEM 1306 OR BIOL 1305		
3 CE 2338 or MECH 2340 or PHYS 3331 (PreRequisite for CE 2338 is CE 2315 and MATH 1312)		
4 Select an ART course from ART 1300; ARTH 1305, 1306; DANC 1304; MUSL 1324, 1327, 2321; THEA 1313; FILM 1390		
5 CE 4377, POLS 3350, POLS 3351; POL 4359, RWS 3359, ACCT 2301, MATH 3323, CHEM 1306		
6 Select a Lang. Philosophy and Culture course from ENGL 2311, 2312, 2313, 2314, 2318; FREN 2322; HIST 2301, 2302; PHIL 1301, 2306; RS 1301; SPAN 2340; WS 2300, 2350		
7 Not required for Calculus I ready students		
Total Hours		**128**