

CIVIL ENGINEERING ACADEMIC MAP: DEGREE BS (128 CREDIT HOURS)

This degree map is a semester-by-semester sample course schedule for students majoring in **Civil Engineering**. The milestones listed to the right of each semester are designed to keep a student on track to graduate in four years. The schedule serves as a general guideline to help build a full schedule each semester. Milestones are courses and special requirements necessary for timely progress to complete a major. When one or more milestones are missed, a student should consult with an academic advisor to determine if another degree path would be more suitable.

The Bachelor of Science in Civil Engineering is housed in the Department of Civil and Architectural Engineering. The degree program provides broad base background in Civil Engineering which builds upon basic mathematics, science, and engineering science and design courses. Design concepts are integrated throughout the curriculum and culminate in a two-semester capstone course during the senior year. This means entering student must have a strong background in mathematics and science.

Students must have an ACT (or Equivalent SAT) of 23 and a grade of 'C' or better in (Math 1710, 1720 – Pre-calculus I and II courses). Students with an ACT score lower than 19 will be placed in courses based upon ACT (or Equivalent SAT) sub-scores in Mathematics. Students who have satisfied all placement requirements determined at the time of admission should follow the four-year curriculum as detailed in the tables below. To make steady progress towards the degree, students should complete each course with a grade of 'C' or better. To graduate, a student cannot carry more than two "D" grades.

To enroll in Upper Division engineering courses (3000-4000 level), students must have successfully completed the Engineering Entrance Examination (EEE) with a minimum score of 75% on each part (calculus, chemistry and physics). The eligibility criteria for taking the EEE are: (1) a minimum Grade Point Average of **2.0** in CHEM 1110/1111, MATH 1910, MATH 1920, PHYS 2110/2111, PHYS 2120, (2) a minimum cumulative Grade Point Average of 2.5 in the listed courses in Chemistry, Math and Physics and (3) completion and submission of the EEE eligibility form to the Dean's Office at least one week prior to the examination. The college offers the exam at least five (5) times per year. Each student is allowed three (3) attempts to pass the examination. After the second attempt, the student is required to take at least one of the following courses: CHEM 1110, MATH 1910 or MATH 1920, PHYS 2110 before the examination can be taken a third and final time. To qualify for waiver of the EEE exam, the student must have a minimum cumulative Grade Point Average of 2.5 in the listed courses in Chemistry, Math and Physics. Transfer students can take 3000 level engineering courses if they meet the prerequisites, on the condition that they pass or waive the EEE during their first semester at TSU.

Between the sophomore and senior years, students is encouraged to engage in a practical engineering work experience. This practicum is a full-time, continuous eight (8) week activity. At the beginning of the final year, students must meet with the academic advisor and file an approved graduation check list; seniors should come prepared with the latest transcript and any evaluation of transfer credits. It must be remembered that during the final year, students are unable to transfer more than six (6) credit hours. Seniors must take an exit examination (Senior Exit Exam) prior to graduation.

Tennessee State University recognizes that students have diverse learning, life, and professional experiences. The University provides opportunities for students to earn college credit toward the degree through a number of assessment options that evaluate their learning experiences. These paths are grouped under the category "Prior Learning Assessment" (PLA). Various means of earning PLA credit at TSU are the following: Advanced Placement Program, American Council of Education (ACE) Military Credit, College Level Exam Program (CLEP), DSST Credit by Examination Program (includes DANTES Examination), Institutional Course Challenge Exams (Departmental Exams), International Baccalaureate Credit, Other Military Service, Portfolio Assessment. To learn more about PLA contact your academic advisor or the Office of Student Support Services for Adult and Distance Learners at (615) 963-7001 or adultstudentsupport@tnstate.edu.

Department Chair: Dr. Lin Li, Email: lli1@tnstate.edu

Mapping Coordinator: Dr. Lin Li, Email: lli1@tnstate.edu

Department Web address: <http://www.tnstate.edu/cae/>

Fall Schedule		Milestones
Semester 1	Hrs.	Semester 1
ENGL 1010	3	Pre---Requisite Course: Must be taken before ENGL 1020, HIST 2010, HIST 2020, HIST 2030, HIST 2060 AND HIST 2700; Minimum grade "C" Required
MATH 1910*	4	Pre---Requisite Course: Must be taken before MATH 1920, PHYS 2110/2111; Minimum Grade of "C" Required
CHEM 1110/1111**	4	Minimum Grade of "C" Required
ENGR 1020	1	Pre---Requisite Course: Must be taken before ENGR 2230; Minimum Grade of "C" Required
ENGR 1151	1	Minimum Grade of "C" Required
UNIV 1000***	1	Minimum Grade of "C" Required
Total Hours	14	

*Before taking this course, students should discuss with an engineering academic advisor previous mathematics course experience(s) or scores on the ACT or SAT.

**Students must have taken either High School Chemistry earning at least a 75% or CHEM 1000/1001 and two years of High School Algebra before enrolling in CHEM 1110/1111.

***An Orientation course taken at another University does **NOT** meet this requirement. Students with less than 6 credit hours must take UNIV 100 at TSU.

Spring Schedule		Milestones
Semester 2	Hrs.	Semester 2
ENGL 1020	3	Pre---Requisite Course: Must be taken before HIST 2010, HIST 2020, HIST 2030, HIST 2060 AND HIST 2700; Minimum grade "C" Required
MATH1920	4	Pre---requisite Course: Must be taken before enrolling in MATH 2110; Minimum Grade of "C" Required
PHYS 2110	4	Pre---requisite Course: Must be taken before enrolling in ENGR 2110, PHYS 2120/2121; Minimum Grade of "C" Required
ENGR 2230	3	Pre-requisite Course: Must be taken before enrolling in ENGR 3400
Total Hours	14	

Fall Schedule		Milestones
Semester 3	Hrs.	Semester 3
		Engineering Entrance Exam and Application Required
MATH 2110	4	
PHYS 2120/2121	4	
ENGR 2110	3	Pre---requisite Course: Must be taken before enrolling in ENGR 2120, CVEN 3100, ENGR 2130/2131, and CVEN 3200; Minimum Grade of "C" Required
COMM 2200	3	
BIOL 3010/3011	3	
Total Hours	17	

*An alternate three (3) credit hour basic science course may be taken with the approval of the Department Chair. For example: BIOL 1110/1111.

Spring Schedule		Milestones
Semester 4	Hrs.	Semester 4
		All Students are required to take and pass the Engineering Entrance Exam (EEE) before enrolling in upper division (3000---4000) Engineering and major courses. The EEE can be waived by the Department for transfer student with GPA above 2.5.
MATH 3120	3	Pre---requisite Course: Must be taken before enrolling in ENGR 3400
ENGR 2120	3	Pre---requisite Course: Must be taken before enrolling in CVEN 4320; CO---requisite with CVEN 3100;Minimum Grade of "C" Required
ENGR 2130/2131	4	Pre---requisite Course: Must be taken before enrolling in CVEN 3410
ENGL LIT*	3	
HIST 2010*	3	
Total Hours	16	

*The courses within the range of ENGL 2012 through ENGL 2322 will meet this requirement.

**The Department recommends HIST 2010; however, HIST 2030, HIST 2060, HIST 207 or HIST 270 will satisfy this requirement.

Fall Schedule		Milestones
Semester 5	Hrs.	Semester 5
CVEN 3000	3	Pre---requisite Course: Must be taken before enrolling in CVEN 4361 and CVEN 4250
CVEN 3100/3101	4	Pre---requisite Course: Must be taken before enrolling in CVEN 3250 and CVEN 4250; CO---requisite with ENGR 2120.
CVEN 3400	1	Minimum Grade of "C" Suggested
ENGR 3400	3	
CVEN 3410	3	Pre---requisite Course: Must be taken before enrolling in CVEN 3420 and CVEN 3440: Minimum Grade of "C" Required
ENGR 4400	3	Minimum Grade of "C" Suggested
Total Hours	17	

*Students must select course from the following list of approved Social Behavioral electives: AFAS 2010, ANTH 2300, ECON 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and SOCI 2010.

Spring Schedule		Milestones
Semester 6	Hr.	Semester 6
CVEN 3130 /3131	4	Minimum Grade of "C" Suggested
CVEN 3200	3	Minimum Grade of "C" Suggested
CVEN 3250	3	Minimum Grade of "C" Suggested
CVEN 4361	1	Minimum Grade of "C" Suggested
HIST 2020 or HIST 2030**	3	
Humanities*	3	
Total Hours***	17	Engineering Practicum

*Students must take credit hour course from the following list of approved general education Humanities courses: AREN 2310, ART 1010, HIST 1000, THTR 1020, MUSC 1010, PHIL 1030, or RELS 2010. Students must remember not to duplicate Humanities course option from a previous semester.

**The Department recommends HIST 2020 or HIST 2030; however, HIST 2060, HIST 2070 or HIST 2700 satisfy this requirement.

***Each engineering student should complete a practicum prior to graduation. The experience can be up to eight (8) weeks in length and pre---approved by the advisor and the Department Chair.

Fall Schedule		Milestones
Semester 7	Hrs.	Semester 7
		All Civil Engineering science majors must review degree requirements with the Department Chair at least one semester prior to the one which graduation is anticipated.
ENGR 4500*	1	Pre-requisite Course: Senior Standing Required. Must be taken before enrolling in ENGR 4510; Minimum Grade of "C" Required
CVEN 4440	3	Minimum Grade of "C" Suggested
CVEN 3420	3	Minimum Grade of "C" Suggested
ENGR 4900*	1	Minimum Grade of "C" Suggested
CVEN 3350	3	Minimum Grade of "C" Suggested
CVEN 4320	3	Minimum Grade of "C" Suggested
Social Behavioral Elective***	3	
Total Hours	17	

*Only graduating seniors may enroll in these courses: ENGR 4500, CVEN 4470 and ENGR 4900.

**Students must select course from the following list of approved Social Behavioral electives: AFAS 2010, ANTH 2300, ECON 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and SOCI 2010.

Spring Schedule		Milestones
Semester 8	Hrs.	Semester 8
		Take Senior Exit Exam and Apply for Graduation
ENGR 4510*	1	Pre---Requisite: Graduating Senior Standing; Minimum Grade of "C" Required
CVEN 4250	3	Minimum Grade of "C" Suggested
ENGR 4201 *	0	Pre---Requisite: Graduating Senior Standing
CVEN Design Tech. Elective**	3	Minimum Grade of "C" Suggested
CVEN 4470*	3	Minimum Grade of "C" Suggested
Humanities***	3	
Social Science Elective****	3	
Total Hours	16	

*Only graduating seniors may enroll in: ENGR 4510, and ENGR 4201.

**Advisor approval must be obtained before enrolling in CVEN Design Tech Electives. The electives are as follows: CVEN 4280, CVEN 4350, CVEN 4050, CVEN 4090, CVEN 4110, CVEN 4220, CVEN 4430, CVEN 4290 or CVEN 4520. Applicable pre---requisites must be met to take the electives

***Students must take 3 credit hour course from the following list of approved general education Humanities courses: AREN 2310, ART 1010, HIST 1000, THTR 1020, MUSC 1010, PHIL 1030, or RELS 2010. Students must remember not to duplicate Humanities course option from a previous semester.

Employment Information:

According to the U.S. Department of Labor (DOL), Employment of civil engineers is projected to grow 20 percent from 2012 to 2022, faster than the average for all occupations. As infrastructure continues to age, civil engineers will be needed to manage projects to rebuild bridges, repair roads, and upgrade levees and dams. Civil engineers, design, construct, supervise, operate, and maintain large construction projects and systems, including roads, buildings, airports, tunnels, dams, and bridges. Civil Engineers also design and implement systems for water supply, wastewater treatment and environmental pollution control. Civil engineers generally work indoors in offices. However, many spend time outdoors at construction sites so they can monitor operations or solve problems onsite. Most work full time.

Representative Job Titles Related to this Major:

Structural Engineer, Environmental Engineer, Transportation Engineer, Geotechnical Engineer, Construction Engineer, Water Resource Engineer, Project Engineer and Project Manager.

Representative Employers:

(Locally): Gresham Smith Partners, Hospital Corporation of America (HCA), TN Department of Transportation(TDOT), AMEC Environment and Infrastructure Inc., US Army Corps of Engineers (USACE), Barge Waggoner Sumner & Cannon, Inc., Turner Construction, Skanska USA Building Inc., Federal Highway Administration, City of Nashville.

International study is available for all TSU students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the academic map; therefore, it is important to consult with the academic advisor for this major before participating in an international Program opportunity. Students interested in study abroad opportunities should contact the Office of International Programs and consult with their academic advisor.