

**ELECTRICAL ENGINEERING, CONCENTRATION—COMPUTER ENGINEERING ACADEMIC MAP: DEGREE BS
(128 CREDIT HOURS)**

This degree map is a semester-by-semester course schedule for students majoring in [Electrical 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, students should consult with an academic advisor to determine if another degree path would be more suitable.

The mission of the Department of [Electrical and Computer Engineering](#), commensurate with the mission of the University and the College of Engineering, is to provide quality Electrical Engineering, Computer and Information Systems Engineering, and Biomedical Engineering education, pursue basic and applied research in selected and focused critical areas, and engage in service to its constituents.

The goal of the undergraduate program offered by the Department of Electrical and Computer Engineering at Tennessee State University is to offer a high quality, broad-based program in electrical engineering, complemented by basic and applied research and public service, to prepare its graduates for starting positions in industry, government and/or pursue graduate study in related fields.

The Bachelor of Science in Electrical Engineering BSEE with a Concentration in Computer Engineering provides a broad based background in electrical engineering that builds upon basic sciences through engineering science and engineering design leading to a capstone design 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 scoring below a 19 on the ACT will be placed in courses based upon ACT (or Equivalent SAT) sub-scores in Mathematics courses. Student who has satisfied all placement requirements determined at the time of admission must follow the four-year curriculum as detailed in the tables below. To make steady progress towards degree student must complete each course with a grade of 'C' or better. Student must have a grade of 'D' in prerequisite courses to take the next course but must also repeat the 'D' grade the very next time that prerequisite course is offered. Student cannot graduate with more than two 'D' grades and cannot carry them to the senior year.

Milestone two (2) is the Engineering Entrance Examination (EEE) which the student must pass with, an overall score of 75% and a 75% in each subject area (calculus, chemistry and physics) in order to be able to take any 3000-4000 level engineering, major and elective course. Student must have a cumulative GPA of 2.50 at the time of application to take the EEE exam. Student must have a minimum grade of 'C' or better in each of the CHEM 1110, 1111 – General Chemistry and Lab, MATH 1910,1920 – Calculus I and II and PHYS 2110,2111, and 2120 – General Physics I and Lab and General Physics II and an overall average GPA of 2.50 in these courses.

During the period from sophomore year to senior year, student must gain practical engineering experiences for a full-time equivalent of eight (8) weeks and take the ETS (Senior Exit Exam) during the final year of graduation. Also during the senior year, student must take ENGR 4201 – Engineer-in-Training Lab and receive satisfactory grade. The student should select Humanities and Social studies courses only from the TBR approved list of course or General Education Courses listed in the TSU catalog. Technical elective courses must be taken after approval of the advisor and the department head also from approved list of courses. Student must seek approval of the academic advisor for courses to be taken every semester. At the beginning of the final year for graduation students must meet with the academic advisor and file an approved graduation check list along with latest transcript and any evaluation of transfer credits. Student cannot transfer more than 6.0 credit hours during the final year.

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: Advance Placement Program, American Council of Education (ACE) Military Credit, American Council on Education (ACE) other Assessed 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 (615) 963-7001.

Department Chair: Dr. Satinderpaul Singh Devgan, Email: sdevgan@tnstate.edu
 Mapping Coordinator: Dr. Satinderpaul Singh Devgan, Email: sdevgan@tnstate.edu
 Department Web Address: <http://www.tnstate.edu/ece/undergrad.aspx>.

Fall Schedule		Milestones
Semester 1	Hrs.	Semester 1
ENGL 1010	3	Pre-Requisite Course: Must be taken before ENGL 1020, and HIST 2010, HIST 2020, HIST 2030, HIST 2050 or HIST 2700; Minimum grade "C" Required
MATH 1910*	4	Pre-Requisite Course: Must be taken before Math 1920 and ENGR 2230; Minimum Grade of "C" Required
CHEM 1110/1111	4	Pre-Requisite Course: Must be taken before ENGR 3300
ENGR 1020	1	Pre-Requisite Course: Must be taken before Math 2110 and ENGR 2230; Minimum Grade of "C" Required
ENGR 1151	1	
UNIV 1000**	1	
Total Hours	14	

*Before taking this course, students should discuss with an engineering academic advisor previous mathematic 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 courses taken at another University does **NOT meet this requirement. Students with less than 60 credit hours must take UNIV 1000 at TSU

Spring Schedule		Milestones
Semester 2	Hrs.	Semester 2
ENGL 1020	3	Pre-Requisite Course: Must be taken before ENGL 1020, and HIST 2010, HIST 2020, HIST 2030, HIST 2050 or HIST 2700; Minimum grade "C" Required
MATH1920	4	Pre-Requisite Course: Must be taken before Math 2110; Minimum Grade of "C" Required
PHYS 2110/2111	4	Pre-Requisite Course: Must be taken before ENGR 2110; Minimum Grade of "C" Required
COMM 2200	3	
Humanities*	3	
Total Hours	17	

*Students must take a 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.

Fall Schedule		Milestones
Semester 3	Hrs.	Semester 3
MATH 2110	4	Pre-Requisite Course: Must be taken before enrolling in Math 3120, ENGR 2000 and ENGR 2001; Minimum Grade of "C" Required
PHYS 2120/2121	4	Pre-Requisite Course: Must be taken before enrolling in ENGR 2000, ENGR 2001 and 2150
ENGR 2110	3	Pre-Requisite Course: Must be taken before enrolling in Math 1920 AND ENGR 2000, 2001 and 2120; Minimum Grade of "C" Required
ENGR 2230	3	Pre-Requisite Course: Must be taken before ENGR 2000, ENGR 2001, ENGR 3061 and ENGR 3400; Minimum Grade of "C" Required
HIST 2010	3	
Total Hours**	17	Engineering Entrance Exam

*The Department recommends HIST 2010; however, HIST 2030, HIST 2050, HIST 2060 or HIST 2700 satisfy this requirement.

**All Students are required to take and pass Engineering Entrance Exam before enrolling in upper division (3000-4000) Engineering courses.

Spring Schedule		Milestones
Semester 4	Hrs.	Semester 4
MATH 3120*	3	Pre-Requisite Course: Must be taken before enrolling in EECE 2120 and ENGR 3400; Minimum Grade of "C" Required
ENGR 2000/2001*	4	Co-Requisite with MATH 3120: Pre-Requisite Course: Must be taken before enrolling in EECE 2120 and EECE 3300 Minimum Grade of "C" Required;
ENGR 2250	3	Minimum Grade of "C" Required
ENGR 2120	3	Minimum Grade of "C" Required
HIST 2020	3	
Total Hours	16	

*These courses are co-requisites and must be taken simultaneously.

Fall Schedule		Milestones
Semester 5	Hrs.	Semester 5
EECE 2120	3	Pre-Requisite Course: Must be taken before enrolling in EECE 3200 and EECE 3210; Minimum Grade of "C" Required
EECE 3100/3101	3	Pre-Requisite Course: Must be taken before enrolling in EECE 4300, and EECE 4800; Minimum Grade of "C" Required
ENGR 3200	3	Pre-Requisite Course: Must be taken before enrolling in EECE 3500, ENGR 4300 and EECE 4800 Minimum Grade of "C" Required;
ENGR 3300	2	
EECE 3061	1	Pre-Requisite Course: Must be taken before enrolling in 4310 Minimum Grade of "C" Required;
ENGR 4400	3	
Total Hours	16	

Spring Schedule		Milestones
Semester 6	Hrs.	Semester 6
EECE 3200	3	Pre-Requisite Course: Must be taken before EECE 3500; Minimum Grade of "C" Required
EECE 3300/3301	3	Pre-Requisite Course: Must be taken before EECE 4101; Minimum Grade of "C" Required
ENGR 3400	3	Minimum Grade of "C" Required
EECE 3210	3	Minimum Grade of "C" Required
ENGL 2110 or 2310*	3	
Total Hours**	18	Practicum

*The Department recommends the courses cited above; however, courses within the range of ENGL 2012 through ENGL 2322 will meet this requirement.

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

Fall Schedule		Milestones
Semester 7	Hrs.	Semester 7
ENGR 4500*	1	Pre-Requisite Course: Senior Standing; Must be taken before ENGR 4510 Minimum Grade of "C" Required
EECE 4300	3	Minimum Grade of "C" Required
EECE 4360/4361	4	Minimum Grade of "C" Required
EECE 3500	3	Minimum Grade of "C" Required
ENGR 4201*	0	Pre-Requisite: Senior Standing; Minimum Grade of "S" Required
EECE 4101	1	Minimum Grade of "C" Required
Social Science **	3	
Total Hours***	15	Program Review

* Students must be a graduating senior to enroll in these courses: ENGR 4500 and ENGR 4201.

** Select one (1) of the following courses to meet the Social Science requirement AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010.

**All Engineering majors must review degree requirements with the Department Chair at least one semester prior to the semester in which graduation is anticipated

Spring Schedule		Milestones
Semester 8	Hrs.	Semester 8
		Take Senior Exit Exam and Apply for Graduation
ENGR 4510*	1	Pre-Requisite: Must Be a Graduating Senior; Minimum Grade of "C" Required
EECE 4310	3	Minimum Grade of "C" Required
Humanities**	3	
EECE 4800	3	Minimum Grade of "C" Required
ENGR 4900*	1	Pre-Requisite: Must Be a Graduating Senior Minimum Grade of "C" Required;
Technical Elective***	3	Minimum Grade of "C" Required
Social Science****	3	
Total Hours*****	17	

*Student must be a graduating senior to enroll in these courses: ENGR 4510 and ENGR 4900.

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

***Technical electives must be approved by the Academic Advisor. The list of courses is as follows: EECE 3330, EECE 3430, EECE 4020, EECE 4100, EECE 4150, EECE 4300, EECE 4350, or EECE 4410.

****The following courses can meet the Social Science elective AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010. Students must remember not to duplicate a Humanities course option from a previous semester

*****Students planning to graduate must take the Senior Exit Exam and apply for graduation.

Employment Information:

Electrical Engineering graduates has many opportunities to pursue after graduation such as pursue graduate study in Electrical Engineering, MBA, Law or Medicine. Over 30 percent of our graduates pursue graduate study. Most other seek employment with federal agencies, defense industry such as Boeing, Lockheed Martin, Harris Corporations, and private utility companies such as NES, TVA Georgia Power, and manufacturing plants such as GM etc. Our graduates also work communication companies such as AT&T Bell Labs.

Electrical Engineering graduates also work in consulting engineering and research labs.

Representative Job Titles Related to this Major:

Job titles for Electrical Engineering graduates vary based upon prior experience in industry. Those with no experience may start as training on rotation to find the most fit for interest others start as design engineers or electrical engineer under the supervision of a senior engineer as part of a team. With experience, the titles change to reflect experience, responsibility and income leading to senior engineer title, project engineer, project manager, etc.

Representative Employers:

Representative employers include utility companies such as TVA, Georgia Power, NES, defense industry such as Lockheed Martin, Boeing, GE, Harris Corp, and Manufacturing industry such as GM, Ford Motor, SISCO, etc.

Graduate Study leading up to Ph.D. degree is available:

The department offers concentration in Electrical Engineering and Biomedical Engineering under the Master of Engineering Program and M.S. in Computer, Information and Systems Engineering. We also offer two concentration under the Ph.D. in Computer, Information and Systems Engineering. Eligible students are encouraged to pursue graduate study at Tennessee State University

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 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.

This map is not intended to be a contract; either expressed or implied, between the University and the students, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. TSU specifically reserves the right to change, delete or add to any MAP at any time within the student's period of study at the University.
