

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

This degree map is a semester-by-semester course schedule for students majoring in [Mechanical Engineering](#). The milestones listed to the right of each semester are designed to keep you 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.

All Mechanical Engineering students are required to take the following engineering core courses: Mathematics (18 semester hours): MATH 1910, 1920, 2110, , 3120, ENGR 3400; Science (12 semester hours): CHEM 1110, 1111; PHYS 2110, 2111, 2120, 2121; Engineering Science (18 semester hours): ENGR 2000, 2001, 2010, 2110 2120, 2300, 3300; Design (5 semester hours): ENGR 3200, 4500, 4510; Humanities (9 semester hours of which three (3) hours must be a sophomore literature course from the approved Humanities/Fine Arts list); Social Science (6 semester hours); History (6 semester hours): HIST 2010, 2020 or 2030, Social Science Elective (6); Other (16 semester hours): ENGL 1010, 1020, COMM 2200; ENGR 1000, 1020, , 1151, 2230, 4201, 4900 and a three credit-hour mathematics/science elective. Total Engineering Core - 90 semester hours.

In addition to the University requirements for graduation, the following specific College graduation requirements must be met by students in the College:

1. All "D" grades earned in mathematics, science, departmental, or major courses must be repeated the very next time the courses are offered until a minimum grade of "C" is earned. However, students may graduate with a maximum of two "D" grades in these courses.
2. All Mechanical Engineering students who plan to take upper division engineering courses, 3000 and 4000 level courses must have passed the Engineering Entrance Examination (EEE) with a minimum score of 75% on each part (calculus, chemistry, and physics) of the examination. Engineering Entrance Examination: The eligibility criteria for taking the Engineering Entrance Examination are:
 - a. Minimum grade of "C" in each of the following courses: CHEM 1110, 1111; MATH 1910, 1920; PHYS 2110, 2111, 2120.
 - b. Minimum cumulative GPA of 2.5 and a minimum cumulative GPA of 2.5 for the group of courses listed in the above Item (a) at the time of taking the Engineering Entrance Examination.
 - c. Completion and submission of the engineering entrance examination eligibility form to the Dean's Office at least one week prior to the examination.
3. All graduating seniors must take and successfully complete all components of the ETS Exit Examination during the senior year.
4. Mechanical Engineering students must take ENGR 4201 EIT/FE Review Laboratory and are encouraged to take the Fundamentals of Engineering Examination ONLY with the consent of the department chair.

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.

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Fall Schedule		Milestones
Semester 1	Hrs.	Semester 1
ENGL 1010 – Freshman English I	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 - Calculus I	4	Minimum grade of "C" required before taking MATH 1920, PHYS 2110, and ENGR 2230 courses
CHEM 1110 - General Chemistry I	3	Minimum grade of "C" required before taking ENGR 3300; it is required for taking EEE
CHEM 1111 - General Chemistry Lab I	1	Minimum grade of "C" required; corequisite of CHEM 1110; it is required before taking EEE
ENGR 1020 - Freshman Engr. Seminar	1	Minimum grade of "C" required before taking ENGR 2300
ENGR 1151 - Computer Engr. Graphics	1	Minimum grade of "C" required
UNIV 1000 - University Orientation	1	
Total hours	14	

Spring Schedule		Milestones
Semester 2	Hrs.	Semester 2
ENGL 1020 - Freshman English II	3	Minimum grade of "C" required before taking History courses
MATH 1920 - Calculus II	4	Minimum grade of "C" required before taking MATH 2110 and ENGR 2000 courses; It is required before taking EEE
PHYS 2110 - General Physics I	3	Minimum grade of "C" required before taking PHYS 2120, ENGR 2110
PHYS 2111 - General Physics Lab I	1	Minimum grade of "C" required
ENGR 2230 - Engineering Programming	3	Minimum grade of "C" required before taking ENGR 2000 and ENGR 3400
COMM 2200-Public Speaking	3	
Total hours	17	

Fall Schedule		Milestones
Semester 3	Hrs.	Semester 3
MATH 2110 - Calculus III	4	Minimum grade of "C" required before taking MATH 3120 and ENGR 2000 courses; it is required before taking EEE
HIST 2010 - American History I	3	
ENGR 2110 - Statics	3	Minimum grade of "C" required before taking ENGR 2120 and CVEN 3120
PHYS 2120 - General Physics II	3	Minimum grade of "C" required before taking ENGR 2000 and ENGR 3300 courses; it is required before taking EEE
PHYS 2121 - General Physics Lab II	1	Minimum grade of "C" required before taking ENGR 2000 courses
Humanities Elective English*	3	
Total hours	17	

Spring Schedule		Milestones
Semester 4	Hrs.	Semester 4
MATH 3120 - Applied Mathematics	3	Minimum grade of "C" required; also prerequisite for ENGR 2000
ENGR 2000 - Circuits I	3	Minimum grade of "C" required before taking MEEN 3511 and MEEN 4100;
ENGR 2001 - Circuits Lab I	1	Minimum grade of "C" required
ENGR 2010 - Thermodynamics	3	Minimum grade of "C" required before taking ENGR 4150
ENGR 2120 - Dynamics	3	Minimum grade of "C" required before taking MEEN 3210 and MEEN 4700
*Humanities Elective English	3	
Total hours	16	

Each student must pass the EEE before taking 3000 or 4000 level courses

Fall Schedule		Milestones
Semester 5	Hrs.	Semester 5
ENGR 3200 - Introduction to Design	3	Minimum grade of "C" required before taking ENGR 4500
ENGR 3300 - Materials Science	2	Minimum grade of "C" required before taking MEEN 3100
ENGR 3400 - Numerical Method	3	Minimum grade of "C" required before taking MEEN 3250 and MEEN 4150
MEEN 3210 - Mechanism Design	3	Minimum grade of "C" required before taking MEEN 4230
MEEN 3511 - Measurements Lab	1	Minimum grade of "C" required before taking MEEN 4011
CVEN 3120 - Mechanics of Materials	3	Minimum grade of "C" required before taking MEEN 3220
CVEN 3121 - Mechanics of Materials Lab	1	Minimum grade of "C" required; corequisite of MEEN 3100
Total hours	16	

Spring Schedule		Milestones
Semester 6	Hrs.	Semester 6
Math/Science Elective	3	Minimum grade of "C" required to satisfy total required credits for mathematics and sciences courses
MEEN 3100 - Materials Processing	3	Minimum grade of "C" required before taking MEEN 4400; corequisite for MEEN 3521
MEEN 3220 - Design of Machine Element	3	Minimum grade of "C" required before taking MEEN 4230
MEEN 3250 - Computer-Aided-Design	3	Minimum grade of "C" required before taking MEEN 4230
MEEN 3521 - Manufacturing System Lab	1	Minimum grade of "C" required; before taking MEEN 4230
CVEN 3100 - Fluid Mechanics	3	Minimum grade of "C" required before taking MEEN 4150 and MEEN 4600
Technical Elective Course**	3	Minimum grade of "C" required to satisfy the graduation requirement
Total hours	19	

*Co-requisite or pre-requisite MEEN 3100 and MEEN 3521.

Technical Electives are: MEEN 4100, 4120, 4300, 4400, 4600, 4700 or EECE 4020. Other technical elective courses may be selected if approved by the Department Chair

Fall Schedule		Milestones
Semester 7	Hrs.	Semester 7
HIST 2020 - American History II	3	
MEEN 4011 - Mechatronics Lab	1	Minimum grade of "C" required
MEEN 4150 - Heat Transfer	3	Minimum grade of "C" required before taking MEEN 4250, MEEN 4021, and MEEN 4200
MEEN 4230 - Machine Design	3	Minimum grade of "C" required before taking MEEN 4800
ENGR 4201 - EIT Review	0	Minimum grade of "C" required
ENGR 4500 - Capstone Design Project I	1	Minimum grade of "C" required before taking ENGR 4510
ENGR 4900 - Professional Development	1	Minimum grade of "C" required
Social Science Elective*	3	
Total hours	15	

Spring Schedule		Milestones
Semester 8	Hrs.	Semester 8
		Take Senior Exit Exam and Apply for Graduation
MEEN 4021 - Thermal/Fluid System Lab	1	Minimum grade of "C" required
MEEN 4250 - Design of Thermal/Fluid Sys.	3	Minimum grade of "C" required
ENGR 4510 - Capstone Design Project II	1	Minimum grade of "C" required
Design Elective**	3	Minimum grade of "C" required to satisfy the graduation requirement
Humanities Elective English*	3	
Social Science Elective*	3	
Total hours	14	

*Approved Humanities/Social Sciences Elective

**These electives must be chosen from an approved list of upper level (3000-4000) courses with the advisor's approval MEEN 4200, MEEN 4800, other courses may be selected with the approval of the Department Chair.

Employment Information:

Mechanical engineering is the broadest of engineering disciplines. Mechanical engineers research, design, develop, manufacture, and test mechanical and thermal systems. They also oversee the manufacturing processes, and design tools that other engineers need for their work.

Representative Job Titles Related to this Major:

Acoustics and vibration engineer, automotive engineer, building systems engineer, chief mechanical engineer, consulting mechanical engineer, design engineer, energy conservation engineer, nuclear engineer, fluid mechanics engineer, heating/ventilation and air conditioning (HVAC) engineer, internal combustion engineer, marine mechanical engineer, mechanical hydraulic engineer, maintenance engineer, mechanical power engineer, power generation engineer, and tribologist.

Representative Employers:

Aerospace industries, air quality control industries, automotive and related industries, biomechanics and medical industries, chemical industries, construction industries, defense related industries, engineering consulting firms, environmental related industries, food industry, manufacturing and production companies, materials and metals industries, ocean engineering industries, pharmaceuticals industry, software engineering companies, and utilities companies,

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 anytime within the student's period of study at the University.
