

Mechanical Engineering BSME

Overview

The **Bachelor of Science in Mechanical Engineering** is offered by the Department of Mechanical Engineering. This program provides an excellent educational experience for the students. This experience includes an emphasis on the technical, communication and teamwork skills that graduate engineers need to succeed in both the workplace and society in general. In order to achieve these goals, the department places great importance on teaching, research, scholarship, engineering practice and service to the university community and the Engineering profession. The mechanical engineering program is structured to prepare the graduate for the professional practice of engineering and/or graduate school. The curriculum emphasizes a rigorous treatment of the mathematical and scientific approach to the solution of engineering problems. It provides a coherent set of courses in energy conversion and structures/motion in mechanical systems. The program has design across the curriculum and is capped with an integrated design experience in the form of a senior project.

Mechanical Engineering students may complete an **optional concentration** in Cooperative Education Program (Co-Op).

Campus Location: Main

Program Code: EN-ME-BSME

Accreditation

The Mechanical Engineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs. ABET is a non-profit and non-governmental accrediting agency for academic programs in the disciplines of applied science, computing, engineering, and engineering technology.

+1 Bachelor to Master's Accelerated Degree Program

High-achieving undergraduates can earn both a bachelor's degree and a master's degree within five years. Students apply for this program in sophomore year, and four graduate-level courses are taken in place of undergraduate requirements during junior and senior years. After the bachelor's degree is earned, one graduate-level course is taken in the summer followed by full-time study in the subsequent Fall and Spring semesters to complete the master's degree study. The following accelerated program is available:

- Bachelor of Science in Mechanical Engineering and Master of Science in Mechanical Engineering

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Learn more about the Bachelor of Science in Mechanical Engineering.

These requirements are for students who matriculated in academic year 2025-2026. Students who matriculated prior to fall 2025 should refer to the Archives to view the requirements for their Bulletin year.

Summary of Requirements

University Requirements

All new students are required to complete the university's General Education (GenEd) curriculum.

All Temple students must take a minimum of two writing-intensive courses for a total of at least six credits. The writing-intensive course credits are counted as part of the major; they are not General Education (GenEd) or elective credits. The writing-intensive courses must be completed at Temple University and students may not transfer in credits to satisfy this requirement. The specific writing-intensive courses required for this major are:

Code	Title	Credit Hours
ENGR 2196 or ENGR 2996	Technical Communication Honors Technical Communication	3

ENGR 4296 or ENGR 4996	Capstone Senior Design Project Honors Capstone Senior Design Project	3
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Department Requirements

Code	Title	Credit Hours
Required Math & Basic Science Courses		
MATH 1041 or MATH 1941	Calculus I Honors Calculus I	4
MATH 1042 or MATH 1942	Calculus II Honors Calculus II	4
MATH 2043 or MATH 2943	Calculus III Honors Calculus III	4
MATH 2041 or MATH 2941	Differential Equations I Honors Differential Equations I	3
MEE 3421	Dynamic Systems	3
PHYS 1061 or PHYS 1961	Elementary Classical Physics I Honors Elementary Classical Physics I	4
PHYS 1062 or PHYS 1962	Elementary Classical Physics II Honors Elementary Classical Physics II	4
CHEM 1035 or CHEM 1031	Chemistry for Engineers General Chemistry I	3
CHEM 1036 or CHEM 1033 or CHEM 1953	Chemistry Laboratory for Engineers General Chemistry Laboratory I Honors Chemical Science Laboratory I	1
Required General Education Courses		
Select one of the following:		4
ENG 0802	Analytical Reading and Writing	
ENG 0812	Analytical Reading and Writing: ESL	
ENG 0902	Honors Analytical Reading and Writing	
IH 0851 or IH 0951	Intellectual Heritage I: The Good Life Honors Intellectual Heritage I: The Good Life	3
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good Honors Intellectual Heritage II: The Common Good	3
GenEd 08xx or 09xx (U.S. Society)		3
GenEd 08xx or 09xx (Global/World Society)		3
GenEd 08xx or 09xx (Human Behavior)		3
GenEd 08xx or 09xx (The Arts)		3
GenEd 08xx or 09xx (Race and Diversity)		3
Required Mechanical Engineering Courses		
MEE 1117	Fundamentals of Mechanical Engineering Design	2
MEE 2305	Instrumentation and Data Acquisition Lab	1
MEE 3306	Machine Tools and Procedures Laboratory	1
MEE 3301	Machine Theory and Design	3
MEE 3305	Materials Laboratory	1
MEE 3506	Fluid Mechanics Laboratory	1
MEE 4177	Design and Realization of a Mechanical System	3
MEE 4422 or MEE 4571	Mechanical Vibrations Advanced Thermodynamics and Combustion	3
MEE 4572	Heat and Mass Transfer	3
Mechanical Engineering Technical Electives		12
Required Engineering Courses		

ECE 2112	Electrical Devices & Systems I	3
ECE 2113	Electrical Devices & Systems I Lab	1
ENGR 1101	Introduction to Engineering and Engineering Technology	3
or ENGR 1901	Honors Introduction to Engineering	
ENGR 1102	Introduction to Engineering Problem Solving	3
ENGR 2196	Technical Communication	3
or ENGR 2996	Honors Technical Communication	
ENGR 2331	Engineering Statics	3
or ENGR 2931	Honors Engineering Statics	
ENGR 2332	Engineering Dynamics	3
ENGR 2333	Mechanics of Solids	3
ENGR 3001	Engineering Economics	3
ENGR 3201	Material Science for Engineers	3
ENGR 3553	Mechanics of Fluids	3
or ENGR 3953	Honors Mechanics of Fluids	
ENGR 3571	Classical and Statistical Thermodynamics	3
ENGR 4296	Capstone Senior Design Project (WI)	3
or ENGR 4996	Honors Capstone Senior Design Project	
Free Elective		6
Total Credit Hours		128

Suggested Academic Plan

Please note that this is a **suggested** academic plan. Depending on your situation, your academic plan may look different.

Bachelor of Science in Mechanical Engineering

Suggested Plan for New Students Starting in the 2025-2026 Academic Year

Year 1		
Fall		Credit Hours
ENGR 1101	Introduction to Engineering and Engineering Technology	3
or ENGR 1901	or Honors Introduction to Engineering	
MATH 1041	Calculus I	4
or MATH 1941	or Honors Calculus I	
MEE 1117	Fundamentals of Mechanical Engineering Design	2
PHYS 1061	Elementary Classical Physics I	4
or PHYS 1961	or Honors Elementary Classical Physics I	
ENG 0802	Analytical Reading and Writing [GW]	4
or ENG 0812	or Analytical Reading and Writing: ESL [GW]	
or ENG 0902	or Honors Analytical Reading and Writing [GW]	
Credit Hours		17
Spring		
CHEM 1035	Chemistry for Engineers	3
or CHEM 1031	or General Chemistry I	
CHEM 1036	Chemistry Laboratory for Engineers	1
or CHEM 1033	or General Chemistry Laboratory I	
or CHEM 1953	or Honors Chemical Science Laboratory I	
MATH 1042	Calculus II	4
or MATH 1942	or Honors Calculus II	
PHYS 1062	Elementary Classical Physics II	4
or PHYS 1962	or Honors Elementary Classical Physics II	
ENGR 1102	Introduction to Engineering Problem Solving	3
Credit Hours		15

Year 2		
Fall		
ECE 2112	Electrical Devices & Systems I	3
ECE 2113	Electrical Devices & Systems I Lab	1
MATH 2043 or MATH 2943	Calculus III or Honors Calculus III	4
ENGR 2331 or ENGR 2931	Engineering Statics or Honors Engineering Statics	3
ENGR 2196 or ENGR 2996	Technical Communication [WI] or Honors Technical Communication [WI]	3
IH 0851 or IH 0951	Intellectual Heritage I: The Good Life [GY] or Honors Intellectual Heritage I: The Good Life [GY]	3
Credit Hours		17
Spring		
ENGR 2332	Engineering Dynamics	3
MEE 2305	Instrumentation and Data Acquisition Lab	1
ENGR 3571	Classical and Statistical Thermodynamics	3
MATH 2041 or MATH 2941	Differential Equations I or Honors Differential Equations I	3
ENGR 2333	Mechanics of Solids	3
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good [GZ] or Honors Intellectual Heritage II: The Common Good [GZ]	3
Credit Hours		16
Year 3		
Fall		
MEE 3301	Machine Theory and Design	3
MEE 3305	Materials Laboratory	1
MEE 3421	Dynamic Systems	3
ENGR 3201	Material Science for Engineers	3
GenEd Breadth Course		3
GenEd Breadth Course		3
Credit Hours		16
Spring		
ENGR 3553 or ENGR 3953	Mechanics of Fluids or Honors Mechanics of Fluids	3
MEE 3506	Fluid Mechanics Laboratory	1
ENGR 3001	Engineering Economics	3
Mechanical Engineering Technical Elective #1		3
Mechanical Engineering Technical Elective #2		3
GenEd Breadth Course		3
Credit Hours		16
Year 4		
Fall		
MEE 4177	Design and Realization of a Mechanical System	3
MEE 4572	Heat and Mass Transfer	3
Select one of the following: ¹		3
MEE 4422	Mechanical Vibrations	
Mechanical Engineering Technical Elective #3		
MEE 3306	Machine Tools and Procedures Laboratory	1
GenEd Breadth Course		3
Free Elective		3
Credit Hours		16

Spring

ENGR 4296 or ENGR 4996	Capstone Senior Design Project [WI] or Honors Capstone Senior Design Project [WI]	3
Select one of the following: ¹		3
MEE 4571	Advanced Thermodynamics and Combustion	
Mechanical Engineering Technical Elective #3		
Mechanical Engineering Technical Elective #4		3
GenEd Breadth Course		3
Free Elective		3
Credit Hours		15
Total Credit Hours		128

¹ Students in the **Bachelor of Science in Mechanical Engineering Program** must take either of the following courses:

- MEE 4422 (technical elective; offered every Fall semester)
- OR**
- MEE 4571 (technical elective; offered every Spring semester)

Bachelor of Science in Mechanical Engineering - Temple Rome Semester Abroad Option**Year 1**

		Credit Hours
Fall		
ENGR 1101 or ENGR 1901	Introduction to Engineering and Engineering Technology or Honors Introduction to Engineering	3
MATH 1041 or MATH 1941	Calculus I or Honors Calculus I	4
MEE 1117	Fundamentals of Mechanical Engineering Design	2
PHYS 1061 or PHYS 1961	Elementary Classical Physics I or Honors Elementary Classical Physics I	4
ENG 0802 or ENG 0812 or ENG 0902	Analytical Reading and Writing [GW] or Analytical Reading and Writing: ESL [GW] or Honors Analytical Reading and Writing [GW]	4
Credit Hours		17

Spring

CHEM 1035 or CHEM 1031	Chemistry for Engineers or General Chemistry I	3
CHEM 1036 or CHEM 1033 or CHEM 1953	Chemistry Laboratory for Engineers or General Chemistry Laboratory I or Honors Chemical Science Laboratory I	1
MATH 1042 or MATH 1942	Calculus II or Honors Calculus II	4
PHYS 1062 or PHYS 1962	Elementary Classical Physics II or Honors Elementary Classical Physics II	4
ENGR 1102	Introduction to Engineering Problem Solving	3
Credit Hours		15

Year 2

		Credit Hours
Fall		
ECE 2112	Electrical Devices & Systems I	3
ECE 2113	Electrical Devices & Systems I Lab	1
MATH 2043 or MATH 2943	Calculus III or Honors Calculus III	4
ENGR 2331 or ENGR 2931	Engineering Statics or Honors Engineering Statics	3
ENGR 2196 or ENGR 2996	Technical Communication [WI] or Honors Technical Communication [WI]	3

IH 0851 or IH 0951	Intellectual Heritage I: The Good Life [GY] or Honors Intellectual Heritage I: The Good Life [GY]	3
Credit Hours		17
Spring		
Semester Abroad at Temple Rome		
ENGR 2332	Engineering Dynamics	3
ENGR 2333	Mechanics of Solids	3
ENGR 3571	Classical and Statistical Thermodynamics	3
MATH 2041	Differential Equations I	3
ITAL 1001	Italian Language I	4
Credit Hours		16
Year 3		
Fall		
ENGR 3553	Mechanics of Fluids	3
MEE 3506	Fluid Mechanics Laboratory	1
MEE 3421	Dynamic Systems	3
ENGR 3201	Material Science for Engineers	3
MEE 2305	Instrumentation and Data Acquisition Lab	1
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good [GZ] or Honors Intellectual Heritage II: The Common Good [GZ]	3
GenEd Breadth Course ¹		3
Credit Hours		17
Spring		
MEE 3301	Machine Theory and Design	3
MEE 3305	Materials Laboratory	1
Mechanical Engineering Technical Elective #1		3
Mechanical Engineering Technical Elective #2		3
ENGR 3001	Engineering Economics	3
GenEd Breadth Course ¹		3
Credit Hours		16
Year 4		
Fall		
MEE 4177	Design and Realization of a Mechanical System	3
MEE 4572	Heat and Mass Transfer	3
Select one of the following: ²		3
MEE 4422	Mechanical Vibrations	
Mechanical Engineering Technical Elective #3		
MEE 3306	Machine Tools and Procedures Laboratory	1
GenEd Breadth Course ¹		3
Free Elective		2
Credit Hours		15
Spring		
ENGR 4296 or ENGR 4996	Capstone Senior Design Project [WI] or Honors Capstone Senior Design Project [WI]	3
Select one of the following: ²		3
MEE 4571	Advanced Thermodynamics and Combustion	
Mechanical Engineering Technical Elective #3		
Mechanical Engineering Technical Elective #4		3
GenEd Breadth Course ¹		3
Free Elective		3
Credit Hours		15
Total Credit Hours		128

¹ Students participating in the College of Engineering Temple Rome semester abroad program will not be required to complete the Global/World Society General Education requirement as the abroad experience will waive the Global/World Society requirement.

² Students in the **Bachelor of Science in Mechanical Engineering Program** must take either of the following courses:

- MEE 4422 (technical elective; offered every Fall semester)
- OR**
- MEE 4571 (technical elective; offered every Spring semester)

Approved Technical Electives

Code	Title	Credit Hours
BIOE 3719	Introduction to Bioengineering	3
BIOE 3725	Cell Biology for Engineers	3
BIOE 4741	Biomaterials for Engineers	3
CEE 3048	Probability, Statistics & Stochastic Methods	3
CEE 3711	Environmental Engineering	3
ECE 3822	Engineering Computation II (Note: permission of instructor required)	3
ENGR 4121	Design of Experiments	3
ENGR 4201	Micro- to Nano-sized Machines	3
ENGR 4576	Computational Fluid Dynamics	3
MEE 3185	Mechanical Engineering Summer Work Experience	3
MEE 3422	Modeling and Control of Electromechanical Systems	3
MEE 4040	Special Topics	1 to 4
MEE 4172	High-Speed Imaging and Analysis for Engineering Applications	3
MEE 4173	Data Acquisition and Analysis for Engineers	3
MEE 4212	Tribology and Surface Engineering	3
MEE 4311	Mechanics of Composite Materials	3
MEE 4314	Impact and Crashworthiness	3
MEE 4411	Introduction to Mobile Robotics (Note: MEE 4412 is prerequisite)	3
MEE 4412	Modern Dynamics for Robotics	3
MEE 4414	Optimization and Control of Mechanical Systems (Note: MEE 3422 is prerequisite)	3
MEE 4422	Mechanical Vibrations	3
MEE 4512	Compressible Fluid Dynamics	3
MEE 4513	Aerodynamics	3
MEE 4571	Advanced Thermodynamics and Combustion	3
MEE 4574	Heating, Ventilating, and Air Conditioning	3
MEE 4575	Renewable and Alternative Energy	3
MEE 4577	Power Generation and Storage Technologies	3
MEE 4578	Fundamentals of Combustion	3
MEE 4643	Manufacturing Engineering	3
MEE 4731	Cardiovascular Fluid Dynamics	3

Accelerated Programs

Students may opt to pursue an accelerated +1 program, enabling them to complete both a bachelor's degree and master's degree in less time than the traditional route.

The following accelerated program may be of interest to students in the Mechanical Engineering BSME:

College of Engineering

- Mechanical Engineering MSME