

MECHANICAL ENGINEERING, BS

Mechanical engineering appeals to students who are interested in applying their solid backgrounds in math and physical sciences to understand, design, test, and build real-world devices and processes for the improvement of society. Many ME students delight in hands-on design, test and building experiences.

Students will develop an ability to apply knowledge of mathematics, science, and general engineering to design and conduct experiments; analyze and interpret data; and design systems, components, and processes to meet desired needs.

Program Objectives

The University of Alabama Department of Mechanical Engineering has adopted the following objectives to ensure our graduates are equipped to meet known and anticipated technical challenges of our profession. Out of a commitment to continuously improve the undergraduate curriculum for the mechanical engineering program, the Department of Mechanical Engineering's faculty has adopted several educational objectives. The following objectives define the early-career accomplishments that the mechanical engineering program is designed to prepare graduates to pursue:

- Our graduates will be expected to follow one of two career paths: technical or management. We expect them to have sufficient career and professional accomplishments within 5-10 years of graduation to be considered as either an engineering expert or a leader/manager.
- Our graduates will continue to grow in expertise and knowledge by participating in activities that enhance professional development in their career path.
- Our graduates will contribute to the profession in ways that benefit society.

Student Outcomes

The mechanical engineering program at The University of Alabama will demonstrate that its graduates have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Freshman

Fall	Hours	Spring	Hours
CH 101 or 117	4	MATH 126 or 145	4
OR CH 100		PH 105 or 125	4
MATH 125 or 145	4	ENGR 161 or 171	1
Humanities (HU), literature (L), or fine arts (FA) elective or history (HI) and/or social behavioral sciences (SB) elective	3	ENGR 103 or 123	3
ME 121 or ENGR 111	1	EN 102 or 103	3
EN 101 or 103	3		
	15		15

Sophomore

Fall	Hours	Spring	Hours
AEM 201	3	AEM 264	3
MATH 227 or 247	4	AEM 311	3
ME 215	3	MATH 238	3
PH 106 or 126	4	ME 305	3
Approved science elective ²	4	MTE 271	3
	18		15

Junior

Fall	Hours	Spring	Hours
AEM 250	3	ME 350	3
AEM 251	1	ME 360	3
ECE 320	3	ME 372	3
ME 309	3	ME 383	3
ME 349	3	Approved mechanical engineering elective ³	3
Humanities (HU), literature (L), or fine arts (FA) elective or history (HI) and/or social behavioral sciences (SB) elective	3		
	16		15

Senior

Fall	Hours	Spring	Hours
ME 450	3	ME 490	3
ME 460	4	Approved mechanical engineering or technical elective ^{3,4}	3
ME 489	3	Approved mechanical engineering elective ³	3
Humanities (HU), literature (L), or fine arts (FA) elective or history (HI) and/or social behavioral sciences (SB) elective	6	Humanities (HU), literature (L), or fine arts (FA) elective or history (HI) and/or social and behavioral sciences (SB) elective	6
	16		15

Total Hours: 125

Footnotes

- ¹ All engineering students are required to take 9 hours of humanities and 9 hours of social and behavioral sciences. At least 6 hours must be from a single program.
- ² Approved science electives are taken from an approved list available from the department.
- ³ Mechanical engineering electives are offered on a regular schedule, but not necessarily every year. The student may select any two mechanical engineering electives to complete the requirements for the BS degree. A list of mechanical engineering electives is available from the department.
- ⁴ The technical elective requirement may be fulfilled with a mechanical engineering elective course or an engineering, math, or science course from the approved list or with advanced petition to the mechanical engineering department. The approved list is available from the department.

Interim Term Courses

Humanities and social science courses taken during the Interim term may be counted toward the requirements for a BS degree in mechanical engineering. However, interim courses can be used to fulfill mechanical engineering or technical elective requirements only if the specific courses have been approved in advance of registration by the department of mechanical engineering.

Our graduates accept positions in aerospace, automotive, energy, railroad, manufacturing, food/forest products, appliances, robotics, electric power, electronics, automation, heating/air-conditioning, construction, mining, defense/ military, business, law and medicine.

Types of Jobs Accepted

Entry level engineering jobs in project engineering, production supervision, product design, process design, maintenance, plant layout, technical marketing/ sales, contract supervision, engineering consulting, graduate education in engineering, business, law, medicine and dentistry.

Jobs of Experienced Alumni

Positions in project leadership, plant management, R&D management, contractors, technical sales/marketing executives, entrepreneurs, consulting firm executives/ owners, corporate executives/ managers/ owners, business management, physicians, attorneys, dentists, military officers, college faculty, and federal/ industrial researchers.

Learn more about opportunities in this field at the Career Center

Faculty

Professors

Jalili, Nader, Department Head

Agrawal, Ajay K.

Balasubramanian, Bharat

Daniewicz, Steve

Shen, Xiangrong

Shepard Jr., W. Steve

Woodbury, Keith A.

Associate professors

Allion, Paul G.

Amini, Shahriar (Sean)

Ashford, Marcus D.

Bittle, Joshua A.

Fonseca, Daniel J.

Jordon, J. Brian

Khandelwal, Bhupendra

Krishnan, Sundar Rajan

Mahmoodi, S. Nima

Momeni, Kasra

Puzinauskas, Paulius V.

Srinivasan, Kalyan Kumar

Todd, Beth Ann

Volkov, Alexey N.

Williams, Keith A.

Yoon, Hwan-Sik

Assistant professors

Cousin, Christian A.

Davami, Keivan

Kasemer, Matthew

Kim, Hyun Jin

MacPhee, David W.

Martelli, Dario

Uddi, Mruthunjaya (Jay)

Vikas, Vishesh

Wang, Xuefeng

Instructors

Carpenter, Joseph P.

Newman, Frank

Adjunct assistant professor

Rasoulzadeh, Mojdeh