MECHANICAL ENGINEERING (BS)

Contacts

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Program Website (https://www.jefferson.edu/academics/colleges-schools-institutes/kanbar-college-of-design-engineering-commerce/school-of-design-engineering/academic-programs/mechanical-engineering.html)

Program Description

- **STEM designated program**

The BSE Mechanical Engineering program, accredited by the Engineering Accreditation Commission of ABET, bestow graduates with a breadth of engineering skill and knowledge while facilitating technical depth in mechanical engineering design and manufacturing, energy and thermal-fluid sciences, mechanics, and mechatronics. Students graduate qualified to lead successful and productive careers in their discipline, work collaboratively with colleagues of other disciplines, and pursue Professional Engineering (PE) licensure, and graduate studies.

Learning Goals/Outcomes

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- 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
- An ability to communicate effectively with a range of audiences
- 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
- 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
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Curriculum: 4 Years, 128 Credits

Course	Title	Credits
First Year		
FYS 100	Pathways Seminar	1
WRIT 101	Writing Sem I: Written Comm.	3
AVIS 101	American Visions	3
DECF 102	Finding & Shaping Opportunity	3
CHEM 103	Core Concepts of Chemistry I	3
CHEM 103L	Core Concepts of Chemistry I Lab	1
MATH 111	Calculus I	4
MATH 112	Calculus II	4
PHYC 201	Physics I	3
PHYC 201L	Physics I Lab	1
ENGR 101	Introduction to Engineering	3
ENGR 102	Engineering Drawing	3
ENGR 104	Introduction to Computing	3
	Credits	**35**
Second Year		
ADIV Selection		3
WRIT 201	Writing Seminar II:Multi Comm	3
DECS 209	Sys Thinking & Sustainability	3
PHYC 203	Phys II: Waves, Elec, & Mag	3
PHYC 203L	Physics II Lab	1
MATH 213	Calculus III	4
ENGR 221	Stats & Mechanics of Materials	4
MATH 225	Differential Equations	3
ENGR 220	Applied Programming	3
ENGR 218	Engineering Dynamics	3
ENGR 305	Engineering Statistics	3
	Credits	**33**
Third Year		
GDIV Selection		3
ENGR 210	Intro to Materials Science	3
ENGR 311	Fluid Mechanics	3
ENGR 322	Fund. of Elect. Engineering I	3
ENGR 308	Integrated Engr Product Dev. I	3
ENGR 219	Fabrication Lab	0.5
ENGR 314	Numerical Meths for Engineers	3
MENG 407	Thermodynamics	3
ENGR 405	Engineering Simulations	3
MENG 301	Machine Design	3
ENGR Thermo Fluid Lab		1
	Credits	**28.5**
Fourth Year		
ETHC Selection		3
CGIS 300	Contemporary Global Issues	3
PHIL 499	Philosophies of the Good Life	3
DECM 300	Research Methods	3
MENG 405	Intro to Mechatronics	3
MENG 427	System Dynamics and Controls	3
MENG 428	Heat Transfer	3
ENGR 303	Engineering Economics	3
ENGR 498	Senior Design Project I	3
ENGR 499	Senior Design Project II	3
ENGR Heat Transfer Lab		0.5
	Credits	**30.5**
	Total Credits	**127**