

Mechanical Engineering

Minimum credit hour requirements for the Bachelor's Degree in Mechanical Engineering: 129

FIRST YEAR					
FALL (17 Credits)		Credits	SPRING (17 Credits)		Credits
CHEM-1100	Chemistry I	4	PHYS-1100	Physics I	4
MATH-1010	Calculus I	4	MATH-1020	Calculus II	4
ENGR-1100	Introduction to Engineering Analysis	4	ENGR-1300	Engineering Processes ¹	1
ENGR-1200	Engineering Graphics & CAD ¹	1	ENGR-1600	Materials Science	4
HASS	Hum., Arts or Soc. Sci. Elective	4	HASS	Hum., Arts or Soc. Sci. Elective	4
SECOND YEAR					
FALL (16 Credits)		Credits	SPRING (17 Credits)		Credits
PHYS-1200	Physics II	4	CSCI- 1190	Beginning Programming for Engineers	1
MATH-2400	Introduction to Differential Equations ²	4	MATH-2010	Multivariate Calculus & Matrix Algebra ²	4
ENGR-2530	Strength of Materials	4	ENGR-2050	Introduction to Engineering Design ³	4
HASS	Hum., Arts or Soc. Sci. Elective	4	ENGR-2090	Engineering Dynamics	4
			ENGR-2250	Thermal and Fluids Engineering I	4
THIRD YEAR			FOURTH YEAR		
SUMMER / FALL SEMESTER OR SUMMER / SPRING SEMESTER		Credits	FALL / SPRING SEMESTER		Credits
ENGR-2300	Electronic Instrumentation	4	ENGR-4010	Professional Development III ⁷	1
ENGR-2350	Embedded Control	4	MANE-4260	Multidisciplinary Capstone Design	3
ENGR-2600	Modeling and Analysis of Uncertainty	3	MANE-4xxx	Computation Elective (Restricted)	3
MANE-4010	Thermal and Fluids Core Module ^{4a}	4	MANE-4xxx	Technical Elective (Restricted)	3
MANE-4020	Thermal and Fluids Engineering II (TFE II) Thermal and Fluids Lab (concurrent or after TFE II)	2			
MANE-4030	Mechanical Systems Core Module ^{4b}	4	MANE-4xxx	Technical Elective (Restricted)	3
MANE-4040	Elements of Mechanical Design (EMD) Mechanical Systems Lab (concurrent or after EMD)	2			
MANE-4050	Modeling & Control of Dynamic Systems ⁵	4	HASS	Hum., Arts or Soc. Sci. Elective	4
HASS	Hum., Arts or Soc. Sci. Elective	4		Free Elective	4
	Professional Development II ⁶	2		Free Elective	4
				Free Elective	4

¹ These required courses may be taken in any order.

² MATH-2010 and MATH-2400 may be taken in either semester of the second year.

³ Mechanical engineering students may use MANE-29XX Inventor's Studio 1 and ENGR-1010 Professional Development 1 combined as a substitute for ENGR- 2050 Intro to Engineering Design.

^{4a} The Thermal and Fluids Core Module consists of MANE-4010, taken either before or concurrently with MANE-4020.

^{4b} The Mechanical Design Core Module consists of MANE-4030, taken either before or concurrently with MANE-4040.

⁵ Course may be taken either semester.

⁶ For a list of courses that satisfy the PD II requirement refer to the link "Courses which satisfy the PD II requirement" on the SIS home page. It must be completed before MANE-4260.

⁷ Can be taken either semester senior year.

Computation and Technical (Restricted) Electives

- The Computation Elective must be chosen from the following list of courses: MANE-4240 Introduction to Finite Elements, MANE- 4963 Introduction to Computational Fluid Dynamics, MANE-4280 Design Optimization: Theory and Practice, or MTLE-4500 Computational Methods for Materials Design.
- The first Technical Elective must be taken from any upper-level (4000 or above) MANE course.
- The second Technical Elective may be selected from any upper-level (4000 or above) course in the School of Engineering or the School of Science. An independent study course, such as a design project or an undergraduate research project in the School of Engineering or the School of Science may also be used to satisfy this requirement.
- Computational and Technical Electives may not be taken on a Pass/No Credit basis.