

MECHANICAL ENGINEERING

Four Year Plan, FA19 Catalog

The Mechanical Engineering Program has a traditional ABET accredited four-year curriculum involving mechanics, vibrations, thermodynamics, fluid flow, heat transfer, materials, control theory and mechanical design. Graduates of this program find employment in the high-technology elector-mechanical industry as well as in the mechanical and aerospace industry.

Recommended Sequence of Required Courses: Updated June 2024

<u>FALL QUARTER</u>	<u>WINTER QUARTER</u>	<u>SPRING QUARTER</u>
Year 1		
Math 20A Calculus for Science and Engineering	Math 20B Calculus for Science and Engineering	Math 20C Calculus and Analytic Geometry for Science and Engineering
Chem 6A General Chemistry I	Phys 2A Physics—Mechanics	Phys 2B Physics—Electricity and Magnetism
GE (<i>General Education</i>)	GE	MAE 3 Introduction to Mechanical Design
GE	GE	GE
Year 2		
MATH 18* Linear Algebra	Math 20D Introduction to Differential Equations	Math 20E Vector Calculus
Phys 2C Phys—Fluids, Waves, Thermodynamics, and Optics	MAE 8 MATLAB Programming for Engineering Analysis	TE (<i>Technical Elective</i>)
MAE 20 Elements of Materials Science	MAE 30A Statics & Intro to Dynamics	MAE 30B Dynamics and Vibrations
GE	GE	MAE 131A Solid Mechanics I
Year 3		
MAE 11 Thermodynamics	MAE 101A* Introductory Fluid Mechanics	MAE 101B* Advanced Fluid Mechanics
MAE 107 Computational Methods in Engineering	MAE 143A* Signals & Systems	MAE 143B* Linear Control
MAE 105* Introduction to Mathematical Physics	MAE 160* Mech Behavior Materials or MAE 131B* Solid Mechanics II	MAE 170 Experimental Techniques
MAE 40 (<i>formerly 140</i>)	TE	GE
Year 4		
MAE 101C* Heat Transfer	MAE 156A* Mech. Design I	MAE 156B* Mech. Design II
MAE 150* Computational Methods for Design	MAE 171A* Mech Eng Lab I	TE
TE	TE	GE
GE	GE	GE

Courses offered in the recommended quarters will not overlap in day/times, midterms, finals, etc. with the other courses. However, if you move courses outside their recommended quarter, we cannot guarantee that they will not overlap with other courses. Deviation from this recommended academic plan could delay graduation. Therefore please avoid moving courses around unless necessary.

- All courses required for the major must be taken for a letter grade. The Pass/No Pass grading option is not allowed.
- Students may graduate with one D in a course required for the major.
- Twelve GE courses are listed here; individual college requirements may be higher or lower. Contact your college advisor for info
- Technical Elective (TE) courses must be upper-division or graduate courses in the engineering sciences, natural sciences or mathematics and must be selected with prior approval of the Department. Refer to the list of pre-approved TEs available at www.mae.ucsd.edu.
- Summer courses are outside the regular academic year and can be cancelled for any reason. Therefore, students should not count on those courses in the event they are cancelled and possibly delay graduation.

*** ASTERISK DENOTES A COURSE THAT MUST BE TAKEN AT LEAST BY THAT QUARTER TO GRADUATE IN FOUR YEARS.**

Subject	Course #	Title	Prerequisites	Course is prerequisite for MAE ____:	Quarter/s Usually Offered
MAE	3	Intro to Eng. Graphics and Design	Phys 2A (or 4A)	150, 156A	F, S
MAE	8	Matlab Programming for Eng. Analysis	Math 20A, Math 20B	107	F, W, S
MAE	11 (prev. 110A)	Thermodynamics	Phys 2C, CHEM 6A	101B, 113	F, W
MAE	20	Elements of Materials Science	Phys 2A (or 4A), Chem 6A, Math 20C	160	F, W
MAE	30A (prev. 130A)	Kinematics	Math 20C, Phys 2A	130B, 131A, 150, 160	F, W
MAE	30B (prev. 130B)	Dynamics & Vibrations	MAE 30A (130A)	156A	S
MAE	40 (prev. 140)	Linear Circuits	Math 20D, Math 18 (or 20F), Phys 2B	170	F, W
MAE	101A	Intro Fluid Mechanics	Phys 2A, Math 20D, Math 20E	101B, 101C, 171A	F, W
MAE	101B	Advanced Fluid Mechanics	MAE 11 (or 110A), MAE 101A	101C	W, S
MAE	101C	Heat Transfer	MAE 101A, MAE 101B, MAE 105	156B	F
MAE	105	Intro to Mathematical Physics	Phys 2A, Phys 2B, Math 20D	101C, 131B	F, S
MAE	107	Computational Methods in Engineering	MAE 8, Math 18 (or 20F)	150 (unless SE 121 is taken)	F, S
MAE	131A	Solid Mechanics I	Math 20D, MAE 30A (130A)	131B, 156A, 160	F, S
MAE	131B	Fundamentals of Solid Mechanics II	MAE 131A, MAE 105	156B	W
MAE	143A	Signals and Systems	Math 20D, Math 20E, Math 18 (or 20F)	143B	W
MAE	143B	Linear Control	MAE 143A	156B, 171A	S
MAE	150	Computer-Aided Design	MAE 3, MAE 107, MAE 30A (130A)	156A	F, W, S
MAE	156A	Fundamental Principles of Mech. Design I	MAE 3, MAE 30B (130B), MAE 131A, MAE 150, MAE 170	156B	F, W
MAE	156B	Fundamental Principles of Mech. Design II	MAE 101C, MAE 143B, MAE 156A, MAE 131B or 160		W, S
MAE	160	Mechanical Behavior of Materials	MAE 20, MAE 30A (130A), MAE 131A	156B	W
MAE	170	Experimental Techniques	Phys 2C & Phys 2CL (or MAE 40/140)	156A, 171A	F, S
MAE	171A	Mechanical Eng. Lab I	MAE 101A, MAE 143B, MAE 170		W

All courses must be taken for a letter grade (no P/NP)

For more information, please contact a MAE undergraduate advisor: mae-ugradadm@ucsd.edu