

AEROSPACE & MECHANICAL ENGINEERING ELECTIVE LISTS

Approved Electives for Undergraduates

Students wishing to use courses such as Technical, Engineering Science, and/or Experimental electives that do not appear on this list should submit a petition to the AME faculty for approval before enrolling. Courses taken during intersessions will not qualify for Engineering Science/Technical Elective credit.

Courses that have not been approved in advance may not count for elective credit. A maximum of 6 credit hours from courses that are not centrally scheduled by the University with regular meeting hours (e.g., AME 3440, AME 3960, AME 3980, AME 3990, AME 4980, AME 4990) can be used for Technical, Engineering Science, and Experimental electives.

I. Engineering Science Electives

- AME courses, 3000 level and above, **not specifically listed on the required curriculum.** **NOTE:** For AME 4980 – a consent form signed by the instructor is required.
- All courses offered by the different schools in the College of Engineering and the School of Petroleum Engineering that are 3000 level and above, excluding courses that are equivalent to AME courses in the required curriculum and excluding ENGR courses.

II. Math/Science Electives

Code	Title	Credit Hours
Chemistry		
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
Any higher numbered Chemistry courses (above 3053)		
Math		
MATH 3333	Linear Algebra I	3
Any MATH 4000 Level and above		
Physics		
PHYS 3043	Physical Mechanics I	3
PHYS 3183	Electricity and Magnetism I	3
PHYS 3223	Modern Physics for Engineers	3
PHYS 3803	Introduction to Quantum Mechanics I	3
Any PHYS 4000 level and above		
Astronomy		
ASTR 3113	Galaxies and Cosmology	3
ASTR 4303	Stellar Astrophysics	3
Biology		
BIOL 5374	Scanning Electron Microscopy	4
BIOL/PBIO 5364	Transmissn Electron Microscopy	4
BIOL/PBIO 5394	Advanced Light Microscopy	4
Geology		
GEOL 3633	Introduction to Oceanography	3

III. Simulation Electives

Code	Title	Credit Hours
AME 4193	Introduction to Computer-Aided Design	3
AME 4133	Heat Transfer in Multiphase Systems	3
AME 4970	Special Topics/Seminar (Topic: Advanced Energy Systems)	1-3
AME 4970	Special Topics/Seminar (Topic: Applied Machine Learning)	1-3
AME 4970	Special Topics/Seminar (Topic: Computational Materials Science)	1-3
AME 5763	Introduction to the Finite Element Method	3
AME 5983	Computational Fluid Dynamics	3

IV. Technical Electives

Code	Title	Credit Hours
Any Engineering Science Elective listed above		
Any Math/Science Elective listed above		
Any Simulation Elective listed above		
A maximum of 3 credit hours from this list can count toward the degree:		
ENGR 4003	Engineering Practice	
ENGR 4013	Leadership and Management for Engineers	
ENGR 4023	Disruptive and Innovative Technology Ideation	
ENGR 4223	Fundamentals of Project Management	
ENGR 4513	Introduction to Sustainable Engineering	
AME 4281	Engineering Co-Op Program (Co-Op students may substitute up to 3 hours of this course for a Technical Elective)	1
<i>Other options:</i>		
Meteorology: Any METR 4000 level and above		
<i>Naval Science</i>		
N S 3223	Naval Ship Systems I: Naval Engineering Systems	3
N S 3433	Naval Ship Systems II - Naval Weapons Systems	3

V. Experimental Electives

Code	Title	Credit Hours
<i>Aerospace Engineering Experimental Electives</i>		
AME 4802	Robotics Laboratory	2
AME 4832	Micro and Nanomaterials Lab	2
AME 4980	Undergraduate Research Studies (Special Lab - NOTE: a consent form signed by the instructor is required. Course content must have experimental emphasis, and a report must be submitted.)	1-3

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Mechanical Engineering Experimental Electives

AME 3272	Windtunnel Laboratory (Spring offering)	2
AME 4442	Internal Combustion Engines Laboratory	2
AME 4822	Fluid and Thermal Laboratory	2
AME 4832	Micro and Nanomaterials Lab	2
AME 4980	Undergraduate Research Studies (Special Lab - NOTE: A consent form signed by the instructor is required. Course content must have experimental emphasis and a report must be submitted.)	1-3