MICHIGAN TECH - Mechanical & Aerospace Engineering - Technical Electives

2026-2027 Academic Year (Planned) Course offerings subject to change.

Refer to the schedule of classes in BanWeb for current offerings, pre-requisites, restrictions, and course descriptions.

AE/ME Courses By Course Number

Including other courses on the Aerospace Engineering and Manufacturing minors, and ENG courses.

See below for guidelines regarding eligible courses in other engineering departments.

Course Number	Credits	Title	Summer 2026	Fall 2026	Spring 2027	Aerospace Engineering Minor	Manufacturing Minor
AE3501	3	Aerospace Systems Engineering Practice (ME technical elective)		X		ELECTIVE	
AE3511	3	Spacecraft Engineering Practice (ME technical elective)			X	ELECTIVE	
AE3520	4	Aerodynamics (with lab, ME technical elective)			X	ELECTIVE	
AE3570	3	Space Mechanics (ME technical elective)		X		ELECTIVE	
AE4530	3	Compressible Flow (ME technical elective)		X		ELECTIVE	
AE4540	4	Aerospace Propulsion (with lab, ME technical elective)			X	ELECTIVE	
AE4550	3	Spacecraft Thermal Engineering (ME technical elective)		X		ELECTIVE	
AE4560	3	Aerospace Materials and Structures (ME technical elective)		X		ELECTIVE	
AE4580	3	Spacecraft Dynamics and Control (ME technical elective)			X	ELECTIVE	
EE4240	4	Introduction to MEMS	----------NOT OFFERED----------				PROCESS
EE4777	3	Open-Source 3-D Printing	Full Semester (online)				PROCESS
EET4144	4	Real-Time Robotics Systems	Online 4/27-5/22 In-Person Lab 5/14-5/17	X			
ENG4300	3	Engineering Project Management	Track A (online)	X	X		
ENG4505	3	Systems Analysis & Model Design		X			
ENG4515	3	Introduction to Sustainability and Resilience		X			
ME3400	3	Machine Design and Analysis	TECHNICAL ELECTIVE FOR BSAE STUDENTS ONLY, OFFERED FALL/SPRING/SUMMER				
ME3601	4	Introduction to Manufacturing	TECHNICAL ELECTIVE FOR BSAE STUDENTS ONLY, OFFERED FALL/SPRING/SUMMER				
ME3901	3	Mechanical Eng Practice III	TECHNICAL ELECTIVE FOR BSAE STUDENTS ONLY, OFFERED FALL/SPRING				
ME3911	3	Mechanical Engineering Practice IV	TECHNICAL ELECTIVE FOR BSAE STUDENTS ONLY, OFFERED FALL/SPRING				
ME4150	3	Intermediate Mechanics of Materials	----------NOT OFFERED----------				
ME4170	3	Failure of Materials in Mechanics			X	ELECTIVE	
ME4180	3	Engineering Biomechanics			X	ELECTIVE	
ME4200	3	Principles of Energy Conversion & Storage			X		
ME4201	3	Applied Thermodynamics	----------NOT OFFERED----------			ELECTIVE	
ME4202	3	Intermediate Fluid Mechanics and Heat Transfer		X		ELECTIVE	
ME4210	3	Computational Fluids Engineering		X		ELECTIVE	
ME4220	3	Internal Combustion Engines I		X			
MEEM4230	3	Compressible Flow/Gas Dynamics	---NOT OFFERED (SEE AE4530)---				
ME4235	3	Wind Energy		X			
ME4240	3	Combustion & Air Pollution	----------NOT OFFERED----------				
ME4250	3	Heating/Ventilation/Air Conditioning			X		
ME4260	3	Fuel Cell Technology			X		
ME4295	3	Introduction to Propulsion Systems for Hybrid Electric Vehicles		X			
ME4296	3	Experimental Studies in Hybrid Electric Vehicles	----------NOT OFFERED----------				
ME4404	3	Mechanism Synthesis/Dynamic Modeling			X		
ME4405	3	Intro to Finite Element Method	----------NOT OFFERED----------				
ME4430	4	Advanced Computer Aided Design and Manufacturing Methods		X			SYSTEM
ME4450	3	Vehicle Dynamics	----------NOT OFFERED----------				
ME4610	3	Advanced Machining Processes	----------NOT OFFERED----------				PROCESS
ME4615	4	Metal Forming Processes	----------NOT OFFERED----------				
ME4640	3	Micromanufacturing Processes		X			PROCESS
ME4650	3	Quality Engineering	Track A (online)	X		ELECTIVE	SYSTEM
ME4655	3	Production Planning			X		SYSTEM
ME4665	3	Introduction to Lean Manufacturing			X		SYSTEM
ME4685	3	Environmentally Responsible Design & Manufacturing	----------NOT OFFERED----------				
ME4695	3	Additive Manufacturing			X		PROCESS
ME4701	4	Analytical and Experimental Modal Analysis			X	ELECTIVE	
ME4702	3	Shock and Vibration		X		ELECTIVE	
ME4704	3	Acoustics and Noise Control			X	ELECTIVE	
ME4705	4	Introduction to Robotics and Mechatronics	----------NOT OFFERED----------			ELECTIVE	SYSTEM
ME4707	3	Autonomous Systems		X	X	ELECTIVE	SYSTEM
MEEM4720	3	Space Mechanics	---NOT OFFERED (SEE AE3570)---				
ME4730	3	Dynamic System Simulation			X		
ME4775	4	Analysis & Design of Feedback Control Systems		X		ELECTIVE	
ME4810	3	Introduction to Aerospace Engineering	---DISCONTINUED---				

MICHIGAN TECH - Mechanical & Aerospace Engineering - Technical Electives

2026-2027 Academic Year (Planned) Course offerings subject to change.

Refer to the schedule of classes in BanWeb for current offerings, pre-requisites, restrictions, and course descriptions.

AE/ME Courses By Course Number

Including other courses on the Aerospace Engineering and Manufacturing minors, and ENG courses.

See below for guidelines regarding eligible courses in other engineering departments.

Course Number	Credits	Title	Summer 2026	Fall 2026	Spring 2027	Aerospace Engineering Minor	Manufacturing Minor
ME4820	3	Introduction to Aerospace Propulsion	---NOT OFFERED (SEE AE4540)---				
ME4850	3	Naval Systems and Platforms	---DISCONTINUED---				
ME4990	3	Solar Energy Engineering			X		
ME4990	3	Nuclear Power & Propulsion	----------NOT OFFERED----------				
ME5110	3	Continuum Mechanics/Elasticity		X			
ME5130	3	Nanoscale Science and Technology	----------NOT OFFERED----------				
ME5150	3	Advanced Mechanics of Materials			X		
ME5160	3	Experimental Stress Analysis	----------NOT OFFERED----------				
ME5170	3	Finite Element and Variational Methods in Engineering	----------NOT OFFERED----------				
ME5180	3	Mechanics of Composite Materials			X	ELECTIVE	
ME5190	3	Machine Learning for Engineering Applications	----------NOT OFFERED----------				
ME5201	1	Fundamentals of SI Engines	Short Course 5/13-5/15				
ME5202	1	Fundamentals of Diesel Engines	----------NOT OFFERED----------				
ME5203	1	SI Engine Control Systems	Short Course 5/18-5/20				
ME5204	1	Diesel Engine Control Systems	----------NOT OFFERED----------				
ME5210	3	Advanced Fluid Mechanics		X			
ME5212	3	Intermediate Thermodynamics	----------NOT OFFERED----------				
ME5225	3	Advanced Power System and Pollution Control	----------NOT OFFERED----------				
ME5230	3	Advanced Heat Transfer	----------NOT OFFERED----------				
ME5240	3	Computational Fluid Dynamics			X		
ME5250	3	Internal Combustion Engines II	----------NOT OFFERED----------				
ME5255	3	Advanced Powertrain Instrumentation and Experimental Methods			X		
ME5265	3	Physical Gasdynamics	----------NOT OFFERED----------				
ME5270	3	Advanced Combustion	----------NOT OFFERED----------				
ME5275	3	Energy Storage Systems	----------NOT OFFERED----------				
ME5280	3	Phase Change and Two-Phase Flows	----------NOT OFFERED----------				
ME5295	3	Advanced Propulsion Systems for Hybrid Electric Vehicles			X		
ME5296	3	Powertrain Integration in HEV	----------NOT OFFERED----------				
ME5300	3	Cybersecurity of Industrial Control Systems		X			
ME5315	3	Cyber Security of Automotive Systems I			X		
ME5401	3	Design for Reliability	----------NOT OFFERED----------				PROCESS
ME5430	3	Human Factors - Transportation	----------NOT OFFERED----------				
ME5440	3	Advanced Vehicle Dynamics	----------NOT OFFERED----------				
ME5645	3	Numerical Analysis of Manufacturing Processes	----------NOT OFFERED----------				
ME5665	3	Micro & Nano Fabrication for Energy	----------NOT OFFERED----------				
ME5670	3	Experimental Design in Engineering	Track B (online)	X			PROCESS
ME5680	3	Optimization I		X			SYSTEM
ME5685	3	Environmentally Responsible Design & Manufacturing	----------NOT OFFERED----------				
ME5700	4	Dynamic Measurement/Signal Analysis		X			
ME5701	3	Intermediate Dynamics	----------NOT OFFERED----------				
ME5702	3	Analytical Vibroacoustics			X		
ME5703	4	Experimental Methods Vibro-Acoustics	----------NOT OFFERED----------				
ME5715	3	Linear Systems Theory and Design		X			
ME5750	3	Model-Based Embedded Control System Design		X			
ME5800	3	Advanced Engineering Mathematics with Applications	Full Semester (online)				
ME5811	3	Automotive Systems		X			
ME5812	3	Automotive Control Systems			X		
ME5990	3	Electric Propulsion Systems			X		
ME5990	3	Turbulence			X		
MSE4240	4	Introduction to MEMS	----------NOT OFFERED----------				PROCESS
MSE4310	3	Principles of Metal Casting		X			PROCESS
MSE4320	3	Corrosion and Environmental Effects			X		
MSE4430	3	Composite Materials	----------NOT OFFERED----------			ELECTIVE	

In addition to the above courses, any 4000+ level courses in the College of Engineering except MET courses are acceptable for MAE technical electives. **MET courses are not acceptable for MAE technical elective credits, except for MET 4377 and MET 4378 for ME only.** 4000+ courses in these prefixes - AE, BE, CM, CEE, EE, ENG, GE, ME, MSE - may be used by MAE students for technical elective credits (if allowed to enroll in the course by the offering department) with the following exceptions: BE4000, BE4900, BE4901, BE4910, BE4930, BE5000, BE5900, BE5930, CEE4510, CEE4900, CEE4905, CEE4910, CEE4915, CEE4916, CEE4920, CEE4930, CEE4990, CEE5190, CEE5250, CEE5390, CEE5490, CEE5560, CEE5561, CEE5562, CEE5563, CEE5590, CEE5690, CEE5890, CEE5920, CEE5930, CEE5990, CEE5991, CEE5992, CEE5994, CEE5997, CEE5998, CEE5999, CM4000, CM4020, CM 4040, CM4060, CM4080, CM4855, CM4860, CM4861, CM4900, CM4910, CM4990, CM5900, CM5950, CM5990, EE4000, EE4800, EE4805, EE4870, EE4901, EE4910, EE5290, EE5805, EE5900, EE5990, EE5991, EE5992, EE5994, ENG4060, ENG4070, ENG4900, ENG4905, ENG4910, ENG4990, ENG5060, ENG5100, ENG5200, ENG5300, ENG5400, ENG5990, ENG5998, GE4000, GE4900, GE4910, GE4916, GE4930, GE4931, GE4933, GE4934, GE4961, GE4962, GE4970, GE5187, GE5930, GE5940, GE5950, GE5960, GE5970, GE5994, GE5995, GE5998, GE5999, ME4990, ME4901, ME4911, ME4999, ME5010, ME5990, ME5994, ME5995, ME5999, ME6000, MSE4130, MSE4131, MSE4140, MSE4141, MSE4970, MSE4990, MSE5100, MSE5900, MSE5970, and MSE5990 or any other research/special topics/seminar/senior design/etc. credits (courses without a specific course description and/or syllabus). Undergraduate students cannot typically enroll in 6000-level courses. Special topics courses (4990, 5990, etc.) may be approved on an individual section/semester basis if a student/faculty member submits or creates a course syllabus for evaluation. OSM 4300 and EET 4144 are also acceptable for ME only.