

## BSMEE - Approved Technical Elective List

*2021-22 Catalog Requirements*

Mechanical Majors are required to take 15 units of coursework from this list of approved technical electives. This total must include 9 units of 400-level AME-prefix coursework (courses in bold below).

**Students admitted under the 2017-18 catalog are required to complete at least one course (within the 15 total) that is designated math intensive (MI) in the list below.**

- A maximum of 3 units of internship credit (AME 493), 3 units of independent study (AME 499) and 3 units of directed research (AME 492) can count toward the technical elective requirement.
- Students may propose a 300/400 level sci or engr class to be considered for pre-approval as a tech elective.
- Some students may also be eligible to take graduate level coursework to apply as technical electives.
- Students are responsible for all prerequisites (check catalog).
- Math: Any 300/400 level class applying to math minor may count as a non-AME tech elective.

	ABE	411	Physiology Biomed Eng
	ABE	423	Biosystems Anal Design
	ABE	447	Sensors and Controls
	ABE	452	Globalization, Sustainability and Innovation
	AME	320	Aerodynamics
	AME	321	Aircraft Performance
	AME	323	Gasdynamics
	<b>AME</b>	<b>425</b>	<b>Aerospace Propulsion</b>
	<b>AME</b>	<b>426</b>	<b>Rocket Propulsion</b>
	<b>AME</b>	<b>427</b>	<b>Stab/ Control Aero</b>
	<b>AME</b>	<b>429</b>	<b>Interplanetary Mission Design</b>
	<b>AME</b>	<b>430</b>	<b>Intermediate Thermo</b>
MI	<b>AME</b>	<b>431</b>	<b>Num Meth Fluid Mech.</b>
	<b>AME</b>	<b>433</b>	<b>Prin/ Appl Fluid Mech.</b>
	<b>AME</b>	<b>434</b>	<b>Internal Combustion Engines</b>
	<b>AME</b>	<b>442</b>	<b>HVAC Sytem Desgin</b>
	<b>AME</b>	<b>444</b>	<b>Applied Thermodynamcis</b>
	<b>AME</b>	<b>445</b>	<b>Renewable Energy Sys.</b>
	<b>AME</b>	<b>446</b>	<b>Fuel Cell Design</b>
	<b>AME</b>	<b>451</b>	<b>Vehicle Dynamics</b>
	<b>AME</b>	<b>452</b>	<b>Planar Multibody Dynamics</b>
	<b>AME</b>	<b>454</b>	<b>Spacecraft Attitude Dyn. + Ctrl.</b>
	<b>AME</b>	<b>457</b>	<b>Orbital Mechanics &amp; Space Flight</b>
	<b>AME</b>	<b>460</b>	<b>Mechanical Vibrations</b>
	<b>AME</b>	<b>462</b>	<b>Composite Materials</b>
MI	<b>AME</b>	<b>463</b>	<b>Finite Element Anal w/ ANSYS</b>
	<b>AME</b>	<b>466</b>	<b>Biomechanical Eng</b>
	<b>AME</b>	<b>469</b>	<b>Engr Design and Materials Selection</b>
	<b>AME</b>	<b>472</b>	<b>Reliability Eng.</b>
	<b>AME</b>	<b>480</b>	<b>Intro. Nuclear Eng.</b>
	<b>AME</b>	<b>483</b>	<b>Micro Biomechanics</b>
	<b>AME</b>	<b>487</b>	<b>Guided Self- Studies Mechatronics</b>
	<b>AME</b>	<b>488</b>	<b>Micro/Nano Trans Physics &amp; Design</b>
	<b>AME</b>	<b>489 A</b>	<b>Fab Tech Micro- &amp; Nanodevices</b>
	<b>AME</b>	<b>489 B</b>	<b>Bio Micro/ Nano Appl.</b>
	BME	416	Principles of Biomed Eng.
	BME	330	Biomedical Instrumentation
	BME	417	Meas/ Data Anal Biomed Eng
	BME	447	Sensors and Controls
	BME	480	Translational Biomedical Engineering
	CE	333	Elemental Structural Analysis
	CE	423	Hydrology
	CE	439	Dev Next Gen Li-ion Batteries
	CE	476 A	Water Treatment System Design
	ECE	320 A	Circuit Theory
	ECE	351 C	Electronic Circuits
	ECE	373	Object-Oriented Software Design

	ECE	442	Digital Control Systems	
	ECON	339	Economic Statistics	
	ENGL	308	Technical Writing	if not used to fulfill MCWA
	ENGR	423	Customer Driven Prod Dev & Lean Startups	
	ENGR	481	A Innovation, Translation and Entrepreneurship	
	G EN	402	Prob Stat Concepts Geolog Media	
	G EN	427	GeoMechanics	
	G EN	446	Earthquake Engineering	
	GEOS	419	Physics of the Earth	
MI	<b>MATH</b>	<b>Any 300/400 level class applying to math minor may count as a non-AME tech elective.</b>		
	MNE	422	Engineering Sustainable Dev	
	MSE	350	Numerical Methods in MSE (Python)	
	MSE	414	Solidification of Castings	
	MSE	420	Materials in Applied Solar Energy	
	MSE	424	Physics Chem Ceramic Materials	
	MSE	434	Elect & Optical Prop of Materials	
	MSE	435	Corrosion/ Degradation	
	MSE	446	Semiconductor Proc	
	MSE	450	Materials Selection for the Environ	
	MSE	455	Physical Metal & Processing Alloys	
	MSE	460	Materials Science of Polymers	
	MSE	462	Material Aspects of Composite Materials	
	MSE	414	Solidification of Castings	
MI	OPTI	434	Electical & Optical Prop of Mat	
	OPTI	440	Medical Physics	
	OPTI	450	Fundamentals of Remote Sensing	
MI	PHYS	321	Theoretical Mechanics	
MI	PHYS	440	Medical Physics	
MI	PTYS	403	Physics of the Solar System	
	PTYS	419	Physics of the Earth	
MI	SIE	305	Probability and Statistics	
	SIE	321	Probabilistic Models in Oper Research	
	SIE	367	Engineering Management II	
	SIE	383	Integrated manufacturing Systems	
	SIE	406	Quality Engineering	
	SIE	408	Systems Reliability Engr.	
	SIE	410	A Human Factors & Ergonomics in Design	
	SIE	414	Law for Engineers and Scientists	
	SIE	415	Techincal Sales & Mktg.	
	SIE	422	Engr Decision Making w/ Uncertainty	
MI	SIE	430	Engineering Statistics	
	SIE	431	Simulation Modeling and Analysis	
	SIE	452	Space Systems Engineering	
	SIE	454	A Systems Eng Process	
	SIE	456	Fund. Of Guidance/ Aero. Systems	
	SIE	457	Project Management	
	SIE	464	Cost Estimation	
	SIE	474	Decision Support System	
	SIE	482	Lean Engineering	
	SIE	483	Computer Integrated Manufacturing	
	SIE	484	Development of New Venture Plans	
	SIE	487	New Venture Dev & Industry Analysis	