

MMAE Graduate Course Frequencies

Important: This chart should be used as a guide rather than an absolute and is subject to change.

Course	Course Title	Area	Frequency	09 Fall	10 Spr	10 Fall	11 Spr	11 Fall	12 Spr	12 Fall	13 Spr
MMAE433	Design of Thermal System	Thermal Sciences	2	x		x		x		x	
MMAE445	CAD/CAM with Numerical Control	Design & Manufacturing	2	x		x		x		x	
MMAE451	Finite Element Methods in Engineering	Solids Mechanics	2		x		x		x		x
MMAE465/554	Electrical, Magnetic, and Optical Properties of Materials	Materials Science & Eng	2		x		x		x		x
MMAE468	Introduction to Ceramic Materials	Materials Science & Eng	2	x		x		x		x	
MMAE470	Introduction to Polymer Science	Materials Science & Eng	2	x		x		x		x	
MMAE475	Powder Metallurgy	Materials Science & Eng	TBD								
MMAE482	Composites	Materials Science & Eng	2		x		x		x		x
MMAE485	Manufacturing Processes	Materials Science & Eng	2	x		x		x		x	
MMAE486	Properties of Ceramics	Materials Science & Eng	TBD								
MMAE501	Engineering Analysis I	Engineering Analysis	1	x	x	x	x	x	x	x	x
MMAE502	Engineering Analysis II	Engineering Analysis	2		x		x		x		x
MMAE503	Advanced Engineering Analysis	Engineering Analysis	TBD								
MMAE507	Introduction to Continuum Mechanics	Engineering Analysis	4			x				x	
MMAE508	Perturbation Methods	Engineering Analysis	4	x				x			
MMAE510	Fundamentals of Fluid Mechanics	Fluid Dynamics	2	x		x		x		x	
MMAE511	Dynamics of Compressible Fluids	Fluid Dynamics	5		x					x	
MMAE512	Dynamics of Viscous Fluids	Fluid Dynamics	5			x					x
MMAE513	Turbulent Flows	Fluid Dynamics	4				x				x
MMAE514	Stability of Viscous Flows	Fluid Dynamics	5		x					x	
MMAE515	Engineering Acoustics	Fluid Dynamics	5		x					x	
MMAE516	Advanced Experimental Methods in Fluid Mechanics	Fluid Dynamics	5	x					x		
MMAE517	Computational Fluid Dynamics	Fluid Dynamics	4				x				x
MMAE518	Spectral Methods in Computational Fluid Dynamics	Fluid Dynamics	5			x					x
MMAE520	Advanced Thermodynamics	Thermal Sciences	4		x				x		
MMAE521	Statistical Thermodynamics	Thermal Sciences	TBD								
MMAE523	Fundamentals of Power Generation	Thermal Sciences	5				x				
MMAE524	Fundamentals of Combustion	Thermal Sciences	3	x			x				
MMAE525	Fundamentals of Heat Transfer	Thermal Sciences	2		x		x		x		x
MMAE526	Heat Transfer: Conduction	Thermal Sciences	TBD								
MMAE527	Heat Transfer: Convection and Radiation	Thermal Sciences	TBD								
MMAE528	Liquid-Vapor Phase-Change Phenomena	Thermal Sciences	6		x						x
MMAE529	Theory of Plasticity	Solid Mechanics	TBD								
MMAE530	Advanced Mechanics of Solids	Solid Mechanics	2	x		x		x		x	
MMAE531	Theory of Elasticity	Solid Mechanics	TBD								
MMAE532	Finite Element Methods II	Solid Mechanics	2	x		x		x		x	
MMAE533	Fatigue and Fracture Mechanics	Solid Mechanics	TBD								
MMAE535	Design and Analysis of Brittle Structures	Solid Mechanics	TBD								
MMAE536	Experimental Solid Mechanics	Solid Mechanics	4				x				x
MMAE538	Computational Techniques in Finite Element Methods	Solid Mechanics	TBD								
MMAE540	Robotics	Dynamics & Control	4	x				x			
MMAE541	Advanced Dynamics	Dynamics & Control	2		x		x		x		x
MMAE543	Modern Control Systems	Dynamics & Control	4				x				x
MMAE544	Optimization Techniques in Computer-Aided Design	Design & Manufacturing	TBD	x							
MMAE545	Advanced CAD/CAM	Design & Manufacturing	2		x		x		x		x
MMAE546	Advanced Manufacturing Engineering	Design & Manufacturing	2	x		x		x		x	
MMAE547	Computer Integrated Manufacturing Technologies	Design & Manufacturing	2		x		x		x		x
MMAE548	Principles of Minimum-Weight Design	Design & Manufacturing	TBD								
MMAE549	Tribology	Design & Manufacturing	TBD								
MMAE551	Experimental Mechatronics	Dynamics & Control	4			x				x	
MMAE552	Practical Machine Design	Design & Manufacturing	TBD								
MMAE555	Introduction to Navigation Systems	Dynamics & Control	6					x			
MMAE556	Nanoscale Imaging and Manipulation	Design & Manufacturing	4			x				x	
MMAE557	Computer-Integrated Manufacturing Systems	Design & Manufacturing	2	x		x		x		x	
MMAE560	Statistical Quality and Process Control	Design & Manufacturing	2		x		x				
MMAE561	Solidification	Materials Science & Eng	4					x			
MMAE562	Design of Modern Alloys	Materials Science & Eng	8	x							
MMAE563	Advanced Mechanical Metallurgy	Materials Science & Eng	3			x			x		
MMAE564	Dislocations and Strengthening Mechanisms	Materials Science & Eng	3		x		x	x			x
MMAE565	Materials Laboratory II	Materials Science & Eng	2	x		x		x		x	
MMAE566	Problems in High-Temperature Materials	Materials Science & Eng	6		x						x
MMAE567	Fracture Mechanisms	Materials Science & Eng	4			x				x	
MMAE568	Diffusion	Materials Science & Eng	8					x			
MMAE569	Advanced Physical Metallurgy	Materials Science & Eng	4			x				x	
MMAE570	Computational Methods in Materials Processing	Materials Science & Eng	TBD								
MMAE571	Microstructural Characterization of Materials	Materials Science & Eng	TBD					x			
MMAE573	Transmission Electron Microscopy	Materials Science & Eng	5					x			
MMAE574	Ferrous Transformations	Materials Science & Eng	TBD								
MMAE575	Ferrous Products: Metallurgy and Manufacture	Materials Science & Eng	TBD								
MMAE576	Materials and Process Selection	Materials Science & Eng	6				x				
MMAE577	Lasers in Manufacturing	Materials Science & Eng	TBD								
MMAE578	Fiber Composite Materials	Solids Mechanics	4		x				x		
MMAE579	Characterization of Polymers	Materials Science & Eng	6						x		
MMAE580	Structure and Properties of Polymers	Materials Science & Eng	6				x				
MMAE581	Theory of Mechanical Behavior of Polymers	Materials Science & Eng	6		x						x
MMAE584	Forging and Forming	Materials Science & Eng	TBD								
MMAE589	Applications in Reliability Engineering I	Design & Manufacturing	2	x		x		x		x	
MMAE590	Applications in Reliability Engineering II	Design & Manufacturing	2		x		x		x		x