MMAE Graduate Course Frequencies

Updated: June 2010

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

Course	Course Title	Area	Leader	Frequency	09 Fall	10 Spr	10 Fall	11 Spr	11 Fall	12 Spr	12 Fall	13 Spr
MMAE 433	Design of Thermal System	Thermal Sciences	Yagoobi	2	x		x		x		x	
MMAE 445	CAD/CAM with Numerical Control	Design & Manufacturing	Qian	2	x		x		x		x	
MMAE 451	Finite Element Methods in Engineering	Solids Mechanics	Gosz	2		x		x		x		x
MMAE 455	Cardiovascular Fluid Mechanics	Fluid Dynamics	Shadden	TBD			x					
MMAE 468	Introduction to Ceramic Materials	Materials Science & Eng	Gonczy	2	x		x		x		x	
MMAE 470	Introduction to Polymer Science	Materials Science & Eng	Duvall	2	x		x		x		x	
MMAE 475	Powder Metallurgy	Materials Science & Eng	Nash P	TBD								
MMAE 482	Composites	Materials Science & Eng	Benedyk	2		x		x		x		x
MMAE 485	Manufacturing Processes	Materials Science & Eng	Tin	2	x		x		x		x	
MMAE 486	Properties of Ceramics	Materials Science & Eng	Gonczy	TBD								
MMAE 501	Engineering Analysis I	Engineering Analysis	Cassel	1	x	x	x	x	x	x	x	x
MMAE 502	Engineering Analysis II	Engineering Analysis	Nair	2		x		x		x		x
MMAE 503	Advanced Engineering Analysis	Engineering Analysis	Nair	TBD								
MMAE 507	Introduction to Continuum Mechanics	Engineering Analysis	Nair	4			x				x	
MMAE 508	Perturbation Methods	Engineering Analysis	Cassel	4	x				x			
MMAE 510	Fundamentals of Fluid Mechanics	Fluid Dynamics	Nagib	2	x		x		x		x	
MMAE 511	Dynamics of Compressible Fluids	Fluid Dynamics	Raman	5		x					x	
MMAE 512	Dynamics of Viscous Fluids	Fluid Dynamics	Rempfer	6				x				
MMAE 513	Turbulent Flows	Fluid Dynamics	Nagib	4				x				x
MMAE 514	Stability of Viscous Flows	Fluid Dynamics	Rempfer	5		x					x	
MMAE 515	Engineering Acoustics	Fluid Dynamics	Raman	5							x	
MMAE 516	Advanced Experimental Methods in Fluid Mechanics	Fluid Dynamics	Williams	5	x					x		
MMAE 517	Computational Fluid Dynamics	Fluid Dynamics	Cassel	TBD			x					x
MMAE 518	Spectral Methods in Computational Fluid Dynamics	Fluid Dynamics	Rempfer	5			x					x
MMAE 520	Advanced Thermodynamics	Thermal Sciences	Ruiz	4					x			
MMAE 521	Statistical Thermodynamics	Thermal Sciences	TBD	TBD								
MMAE 522	Nuclear, Fossil Fuel, and Sustainable Energy Systems	Thermal Sciences	Ostrogorsky	TBD			x					
MMAE 523	Fundamentals of Power Generation	Thermal Sciences	Clack	5				x				
MMAE 524	Fundamentals of Combustion	Thermal Sciences	Ruiz	3	x			x				
MMAE 525	Fundamentals of Heat Transfer	Thermal Sciences	Yagoobi	2		x		x		x		x
MMAE 526	Heat Transfer: Conduction	Thermal Sciences	Ostrogorsky	TBD		x						
MMAE 527	Heat Transfer: Convection and Radiation	Thermal Sciences	TBD	TBD								
MMAE 528	Liquid-Vapor Phase-Change Phenomena	Thermal Sciences	Yagoobi	6								x
MMAE 529	Theory of Plasticity	Solid Mechanics	TBD	TBD								
MMAE 530	Advanced Mechanics of Solids	Solid Mechanics	Vural	2	x		x		x		x	
MMAE 531	Theory of Elasticity	Solid Mechanics	Nair	TBD			x					
MMAE 532	Finite Element Methods II	Solid Mechanics	Gosz	2	x				x		x	
MMAE 533	Fatigue and Fracture Mechanics	Materials Science & Eng	Mostovoy	TBD		x						
MMAE 535	Design and Analysis of Brittle Structures	Solid Mechanics	TBD	TBD								
MMAE 536	Experimental Solid Mechanics	Solid Mechanics	Vural	TBD				x				x
MMAE 538	Computational Techniques in Finite Element Methods	Solid Mechanics	TBD	TBD								
MMAE 540	Robotics	Dynamics & Control	Spenko	4	x				x			
MMAE 541	Advanced Dynamics	Dynamics & Control	Pervan	2		x		x		x		x
MMAE 543	Modern Control Systems	Dynamics & Control	Peet	2		x		x		x		x
MMAE 544	Optimization Techniques in Computer-Aided Design	Design & Manufacturing	Qian	2				x		x		x
MMAE 545	Advanced CAD/CAM	Design & Manufacturing	Qian	2		x			x		x	
MMAE 546	Advanced Manufacturing Engineering	Design & Manufacturing	Wu	2	x		x		x		x	
MMAE 547	Computer Integrated Manufacturing Technologies	Design & Manufacturing	Cesarone	2		x		x		x		x
MMAE 548	Principles of Minimum-Weight Design	Design & Manufacturing	TBD	TBD								
MMAE 549	Tribology	Design & Manufacturing	TBD	TBD								
MMAE 551	Experimental Mechatronics	Dynamics & Control	Spenko	4							x	
MMAE 552	Practical Machine Design	Design & Manufacturing	TBD	TBD								
MMAE 553	3D Sensing and Modeling in Product Realization	Design & Manufacturing	Qian	TBD								
MMAE 554	Electrical, Magnetic, and Optical Properties of Materials	Materials Science & Eng	Kallend	2		x		x		x		x
MMAE 555	Introduction to Navigation Systems	Dynamics & Control	Pervan	4			x				x	
MMAE 556	Nanoscale Imaging and Manipulation	Design & Manufacturing	Qian	4							x	
MMAE 557	Computer-Integrated Manufacturing Systems	Design & Manufacturing	Cesarone	2	x		x		x		x	
MMAE 560	Statistical Quality and Process Control	Design & Manufacturing	Tatara	2		x		x				
MMAE 561	Solidification	Materials Science & Eng	Tin	6					x			
MMAE 562	Design of Modern Alloys	Materials Science & Eng	Nash P	8	x							
MMAE 563	Advanced Mechanical Metallurgy	Materials Science & Eng	Mostovoy	3			x			x		
MMAE 564	Dislocations and Strengthening Mechanisms	Materials Science & Eng	TBD	4				x			x	
MMAE 565	Materials Laboratory II	Materials Science & Eng	Tin	2	x		x		x		x	
MMAE 566	Problems in High-Temperature Materials	Materials Science & Eng	Tin	6		x						x
MMAE 567	Fracture Mechanisms	Materials Science & Eng	Nash G	4							x	
MMAE 568	Diffusion	Materials Science & Eng	Nash P	8					x			
MMAE 569	Advanced Physical Metallurgy	Materials Science & Eng	Nash P	4			x				x	
MMAE 570	Computational Methods in Materials Processing	Materials Science & Eng	TBD	TBD								
MMAE 571	Microstructural Characterization of Materials	Materials Science & Eng	TBD					x (Summer)				
MMAE 573	Transmission Electron Microscopy	Materials Science & Eng	TBD	5					x			
MMAE 574	Ferrous Transformations	Materials Science & Eng	TBD	TBD								
MMAE 576	Materials and Process Selection	Materials Science & Eng	Tin	6				x				
MMAE 577	Lasers in Manufacturing	Materials Science & Eng	TBD	TBD								
MMAE 578	Fiber Composite Materials	Solids Mechanics	Vural	4		x			x			
MMAE 581	Theory of Mechanical Behavior of Polymers	Materials Science & Eng	Duvall	6								x
MMAE 589	Applications in Reliability Engineering I	Design & Manufacturing	Cesarone	2	x		x		x		x	
MMAE 590	Applications in Reliability Engineering II	Design & Manufacturing	Cesarone	2		x		x		x		x
MMAE 709	Overview of Reliability Engineering	Design & Manufacturing	Thakkar	TBD			x					
MMAE 710	Dynamics & Non-Linear Finite Element Analysis	Solids Mechanics	Gosz	TBD								
MMAE 713	Engineering Economic Analysis	Design & Manufacturing	Cesarone	TBD			x					
MMAE 715	Project Management	Design & Manufacturing	Cesarone	TBD	x							
MMAE 720	Introduction to Design Assurance	Design & Manufacturing	Cesarone	TBD								