MAE Graduate Course Offerings

	COURSE No.	COURSE TITLE	PREREQUISITES	FA	SP	SU
AERODYNAMICS	MAE 4213 +	Spacecraft Design	MAE 3253, 3113	X		
& FLIGHT	MAE 4223 +	Aerospace Engineering Laboratory	MAE 3113, 3253, 4283		X	
DYNAMICS	MAE 4243 +	Propulsion and Power Systems	ENSC 3233	X		
	MAE 4283 +	Aerospace Vehicle Stability & Control	MAE 3253,3723, ENSC 2123	X		
	MAE 4374 +	Aerospace System Design	MAE 4243, 4283, 4513		X	
	MAE 4513 +	Aerospace Structures I	MAE 3323, 3403	X		
	MAE 5083	Engineering Acoustics	Graduate standing or consent of instructor		Y	
	MAE 5783	Principles of Autonomous Decision Making	Graduate standing or consent of instructor		Y	
	MAE 5913	Advanced Aerodynamics	MAE 3233	Z		
	MAE 5923	Guidance & Control of Aerospace Vehicles	MAE 4053 or ECEN 4413	Y		
	MAE 5933	Aeroelasticity	Graduate standing or consent of instructor		Z	
	MAE 5943	Unsteady Aerodynamics & Aeroacoustics	ENSC 3233	Y		
	MAE 5953	Aerospace Systems Engineering	MAE 3253		Z	
	MAE 5963	Unmanned Aerial Systems Design and Analysis	Graduate standing or consent of instructor	Z		
	MAE 5973	Unmanned Aerial Systems Propulsion	MAE 4243 or consent of instructor		Z	
	MAE 5983	Aircraft Certification and Test	Graduate standing or consent of instructor		Y	
THERMAL	MAE 4263 +	Energy Conversion Systems	MAE 3223, 3233		X	
FLUIDS &	MAE 4273 +	Experimental Fluid Dynamics	MAE 3113, ENSC 3233	X	X	
ENERGY	MAE 4623 +,#	Biomechanics	MATH 2163, ENSC 2143, 3233		T	
	MAE 4703 +	Design of Indoor Environmental Systems	MAE 3223, 3233	X		
	MAE 4713 +	Thermal Systems Design, Simul., & Optim.	MAE 3233, 3223, 3403, ENSC 3233		X	
	MAE 5023 #	Advanced Biofluid Mechanics	MAE 3233, graduate standing or consent of instructor		R	
	MAE 5233 #	Advanced Fluid Dynamics I	ENSC 3233	X		
	MAE 5243 #	Micro Flows	Graduate standing or consent of instructor		AA	
	MAE 5253 #	Multiphase Flow	Graduate standing	X		
	MAE 5273 *	Advanced Fluid Dynamics II	MAE 5233		X	
	MAE 5633	Advanced Thermal Systems	MAE 3223, 3233, ENSC 3233	Z		
	MAE 5653	Refrigeration	MAE 3223		Y	
	MAE 5803	Advanced Thermodynamics I	MAE 3223		Z	
	MAE 5813	Intermediate Heat Transfer	MAE 3233		Z	
	MAE 5823	Radiation Heat Transfer	MAE 3233, graduate standing or consent of instructor	Y		
	MAE 5843	Conduction Heat Transfer	ENSC 3233	X		
	MAE 5853	Computational Heat Transfer	MAE 3233, graduate standing, & knowledge of FORTRAN		AA	
	MAE 5863	Bldg. Heat Transfer & Simulation	MAE 3223, 3233, ENSC 3233		AA	
	MAE 5873	Advanced Indoor Environmental Systems	MAE 4703		AA	
	MAE 6233	Turbulent Fluid Dynamics	MAE 5233		S	
	MAE 6263 #	Computational Fluid Dynamics	Graduate standing and MAE 5233		AA	
	MAE 6843	Convection Heat Transfer	MAE 5233		Y	
DYNAMICS &	MAE 4053 +	Automatic Control Sys. (ECEN 4413)	MAE 3723 or ECEN 3723	X	X	
CONTROL	MAE 4063 +	Mechanical Vibrations	MAE 3723	Y		
	MAE 4733 +	Mechatronics Design	MAE 3113, 3403	X		
	MAE 5073	Advanced Mechanical Vibrations	MAE 4063 or consent of instructor		Z	
	MAE 5413	Optimal Control (X List ECEN 5413)	MAE 5713 or ECEN 5713		Z	
	MAE 5433	Robotics, Kinematics, Dyn. & Ctrl (ECEN 5433)	MAE 4053 or ECEN 4413 or consent of instructor		Y	
	MAE 5463	Nonlinear System Analysis and Control (ECEN 5463)	MAE 4053 or ECEN 4413		Z	
	MAE 5473	Digital Control Systems (ECEN 5473)	MAE 4053 or ECEN 4413	X		
	MAE 5483	Advanced Mechatronics Design (ECEN 5483)	MAE 4733 or consent of the instructor		Z	
	MAE 5513	Stochastic Systems (X List ECEN 5513)	MAE 4053 or 4063 or ECEN 3513 & 4503, or STAT 4033	X		
	MAE 5523	Estimation Theory (X List ECEN 5523)	MAE 5513 or ECEN 5513		Y	
	MAE 5703	Optimization (X List ECEN 5703, CHE 5703, IEM 5023)	Graduate standing	X		
	MAE 5713	Linear Systems (X List ECEN 5713)	Graduate standing or consent of instructor		X	
	MAE 5733	Neural Networks (X List ECEN 5733, CHE 5733)	Graduate standing		X	
	MAE 5773	Intelligent Systems (X List ECEN 5773)	MAE 5733 or ECEN 5733	Y		
	MAE 6423	System Identification (X List ECEN 6423)	MAE 5473 or 5713 or ECEN 5473 or ECEN 5713	Y		
	MAE 6453	Adaptive Control (X List ECEN 6453)	MAE 5473 or 5713, or ECEN 5473 or ECEN 5713	Z		
	MAE 6483	Robust Multivariable Control Systems (ECEN 6483)	MAE 5713 or ECEN 5713		Z	

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AA = As available
R = Every three years beginning 2013
S = Every three years beginning 2014
T = Every three years beginning 2015

X = Every term (as shown above)
Y = Even year term
Z = Odd year term

* = Beginning Spring 2015
+ = Approved for Graduate credit
# = Option for Specialization in Biomechanics/Biofluids/Biomaterials

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Revised 10/03/2013

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APPLIED	MAE 4333 +	Mechanical Metallurgy	ENSC 3313	X	X	
MECHANICS	MAE 4353 +	Mechanical Design II	MAE 3033, 3323, 3403		X	
& DESIGN	MAE 4363 +	Advanced Methods in Design	MAE 3113, 3323		X	
	MAE 5063 #	Soft Tissue Mechanics	MAE 3323 or consent of instructor (Fall 2015)	T		
	MAE 5503	Advanced Composites	ENSC 2113, 2143 or consent of instructor (Fall 2016)	R		
	MAE 5533	Theory of Elasticity	MAE 3323		X	
	MAE 5553	Fatigue and Fracture Mechanics	MAE 4333 or consent of instructor		AA	
	MAE 5563	Finite Element Methods	Graduate standing or consent of instructor	X		
	MAE 5573 #	Continuum Mechanics	Consent of instructor (Fall 2014)	S		
	MAE 5593 #	Theory of Viscoelasticity	Consent of instructor	AA	AA	
	MAE 5663	Advanced Finite Element Analysis	MAE 5563 or consent of instructor	AA	AA	
	MAE 5753	Advanced Experimental Mechanics of Solids	MAE 5573 or consent of instructor	AA		
	MAE 5763	Wave Motion & Vibration of Continuous Media	MAE 5573 or consent of instructor		AA	
MATERIALS &	MAE 4313 +	Adv. Processing of Engineered Materials	ENSC 3313		AA	
MANUFACTURING	MAE 5113	Diffraction in Materials	Graduate standing or consent of instructor	Z		
	MAE 5123	Adv. Material Removal Processes	ENSC 3313, MAE 3123 & grad. standing or consent of inst.		Y	
	MAE 5133 #	Mechanical Behavior of Materials	ENSC 3313		Y	
	MAE 5143	Tribology	Graduate standing or consent of instructor	AA		
	MAE 5153	Precision Engineering I	Graduate standing or consent of instructor		AA	
	MAE 5183	Nanostructured Materials	ENSC 3313		S	
	MAE 5543 #	Modern Materials	ENSC 3313	Z		
	MAE 5583	Corrosion Engineering	ENSC 3313		R	
	MAE 5683	Thermodynamics & Thermostatistics of Materials	ENSC 3313		T	
	MAE 5693	Phase Transformations in Materials	Graduate standing or consent of instructor	Y		
	MAE 5993	Microstructural Mechanics	Graduate standing or consent of instructor	Y		
	MAE 6123	Advanced Processing of Materials	Graduate standing or consent of instructor	AA		
	MAE 6133	Surface Mechanics	Consent of instructor		Z	
	MAE 6143	Thermal Analysis of Manuf. Processes	Graduate standing or consent of instructor		AA	

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