

Department of Mechanical and Aerospace Engineering Approved "In Department" Technical Electives

Course	Name	Requisites: PreReq, (CoReq)	Aerospace			Mechanical	Offered	Credits	
			Catalog Years						
			2013-2020	2021 - 2022	2013 - 2022				
BME 3211	Engineering Biomechanics	EGN 3310, EGN 3321, EGM 3601	√	√	√	FA	3(3,0)		
BME 3891	Intro. to Rehab Engineering	EGN 3310, EGN 3321	√	√	√	SP	3(3,0)		
EAS 3101	Fundamentals of Aerodynamics	EML 3701	R	R	√	FA/SP	3(3,0)		
EAS 3530	Space Systems Concepts	EGN 3321, PHY 2049C, MAP 2302	√	√	√	SP	3(3,0)		
EAS 4105	Flight Mechanics	EAS 3101, (EML 4225)	R	R	√	FA	3(3,0)		
EAS 4134	High-Speed Aerodynamics	EAS 3101	R	R	--	FA/SP	3(3,0)		
EAS 4200	Analysis and Design of Aero. Structures	EGM 3601	R	R	√	FA	3(3,0)		
EAS 4300	Aerothermodynamics of Prop. Systems	EAS 4134/EML 4703	R	R	√	FA/SP	3(3,0)		
EAS 4505	Orbital Mechanics	EGN 3321, MAC 2311, MAC 2312, MAC 2313, MAP2302, PHY 2048	√	R	√	SP	3(3,0)		
EAS 4703	Small Satellite Payloads and Integration	EML 3303C/EAS 3800C	√	√	√	FA	3(3,0)		
EML 3022C	Introduction to Computer Aided Engineering	EGN 3310	√	√	√	FA/SP	3(2,3)		
EML 3101	Thermodynamics of Mechanical Systems	EGN 3343, MAC 2311C, MAC 2312, MAC 2313, MAP 2302, PHY 2048	√	√	√*	SP	3(3,0)		
EML 3262	Kinematics of Mechanisms	EGN 3321, MAC 2311, MAC 2312, MAC 2313, MAP2302, PHY 2048	√	√	√	FA	3(3,0)		
EML 3500	Machine Design I	EGM 3601	√	√	R	FA/SP	3(3,0)		
EML 3811C	Mechatronics	EGN 3373 or EEE 3307C or C.I.	√	√	√	SP	3(2,2)		
EML 4024C	Engineering Design Practice (SolidWorks)	EML 3022C	√	√	√	FA/SP	3(2,2)		
EML 4142	Heat Transfer I	EML 3034C and EML 3701	R	√	R	FA/SP	3(3,0)		
EML 4143	Heat Transfer II	EML 4142	√	√	√*	FA	3(3,0)		
EML 4260	Dynamics of Machinery	EGN 3321, EML 3034C	√	√	√	Occasional	3(3,0)		
EML 4264	Vehicle Dynamics	EGN 3321, EML 4225	√	√	√	Occasional	3(3,0)		
EML 4313	Intermediate System Dynamics & Controls	EGN 3321, MAP 2302, EGN 3373, EML 4225	√	√	√*	FA	3(3,0)		
EML 4321	Manufacturing Proc. For Mech. Comp.	EGN 3365 or EMA 3706	√	√	√	SP	3(3,0)		
EML 4327	Digital Manufacturing	EGM 3601	√	√	√	FA	3(3,0)		
EML 4411	Mechanical Power Systems	EGN 3343	√	√	√	Occasional	3(3,0)		
EML 4454	Turbines for Sustainable Power	EGM 3601, EGN 3365 or EMA 3706, EML 3701, (EML 4142)	√	√	√	FA	3(3,0)		
EML 4504	Machine Design II	EML 3500	√	√	√*	SP	3(3,0)		
EML 4600	HVAC Systems Engineering I	EGN 3343	√	√	√	FA	3(3,0)		
EML 4703	Fluid Mechanics II	EML 3701	--	--	√*	FA	3(3,0)		

"C" (2.0) or better is required in all Prerequisite courses. Please verify your catalog year with your Academic Advisor before selecting technical electives.

KEY:

"√": Acceptable for the major

√*: Acceptable as Technical Elective **ONLY** if the Select 2 of 5 section is satisfied.

"R": Required Course

"--": Not acceptable for the major

Department of Mechanical and Aerospace Engineering Approved Graduate Technical Electives					
Course	Name	Requisites:		Offered	Credits
		PreReq, (CoReq)	All MAE Majors		
BME 5216C	Mechanics of Biostructures I	Graduate Status/ C.I.		FA	3(3,2)
BME 5217C	Mechanics of Biostructures II	BME 5216		SP	3(3,2)
BME 5267	Biofluid Mechanics	MAP 2302, EML 3701, EML 4703		FA	3(3,0)
EAS 5123	Intermediate Aerodynamics	EAS 4143, (EML 5060)		Occasional	3(3,0)
EAS 5211	Aeroelasticity	EAS 3101/EML 3701, EAS 4210/EML 4220		Occasional	3(3,0)
EAS 5315	Rocket Propulsion	EAS 4134/ EML 4703		Occasional	3(3,0)
EEE 5332C	Thin Film Technology	EEE 3350/ Equivalent		Occasional	3(2,1)
EEE 5352C	Semiconductor Material & Device Charac	EEE 3350/ C.I.		Odd FA	3(2,3)
EEE 5356C	Fabrication of Solid-State Devices	EEE 3350		FA/ SP	4(3,3)
EEE 5378	CMOS Analog and Digital Circuit Design	EEE 4309C		FA	3(3,0)
EEE 5513	Digital Signal Processing Applications	EEL 4750		SP	3(3,0)
EEE 5542	Random Processes I	EEL 3552C, STA 3032		FA/ SP	3(3,0)
EEE 5557	Introduction to Radar Systems	EEL 3552C		SP	3(3,0)
EEL 5173	Linear Systems Theory	EEL 3657		SP	3(3,0)
EEL 5245C	Power Electronics	EEE 4309C		FA	3(3,0)
EEL 5437C	Microwave Engineering	EEL 3470/ C.I.		FA	4(3,3)
EEL 5462C	Antenna Analysis and Design	EEL 3470/ Equivalent		Odd FA	3(3,1)
EEL 5630	Digital Control Systems	EEL 3657		FA	3(3,0)
EEL 5669	Autonomous Robotic Systems	EEL 5173/ C.I.		Odd FA	3(3,0)
EEL 5722C	Field-Programmable Gate Array (FPGA) Dsgn	EEE 3342C		Even FA	3(3,3)
EIN 5108	Environment of Technical Organizations	Graduate Status/ C.I.		FA	3(3,0)
EIN 5117	Management Information Systems I	C.I.		SP	3(3,0)
EIN 5140	Project Engineering	Graduate Status/ C.I.		FA/ SP	3(3,0)
EIN 5248C	Ergonomics	C.I.		FA	3(2,2)
EIN 5251	Usability Engineering	STA 3032/ Equivalent		SP	3(3,0)
EIN 5346	Engineering Logistics	ESI 5306/ ESI 4312		Occasional	3(3,0)
EMA 5060	Polymer Science and Engineering	EGN 3365		Occasional	3(3,0)
EMA 5104	Intermediate Structures & Prop. of Matls	EGN 3365		FA	3(3,0)
EMA 5106	Metallurgical Thermodynamics	EGN 3365		Occasional	3(3,0)
EMA 5140	Introduction to Ceramic Materials	EGN 3365		Occasional	3(3,0)
EMA 5317	Materials Kinetics	C.I.		Occasional	3(3,0)
EMA 5584	Biomaterials	EGN 3365		Even SP	3(3,0)
EMA 5610	Laser Materials Processing	EGN 3343/ EMA 5106/ C.I.		Occasional	3(3,0)
EML 5060	Mathematical Methods in MAE	MAP 2302		FA	3(3,0)
EML 5152	Intermediate Heat Transfer	EML 4142, EML 5060		Occasional	3(3,0)
EML 5228C	Modal Analysis	EML 3303C, EML 5060		Occasional	3(3,0)
EML 5237	Intermediate Mechanics of Materials	EML 3500/ EAS 4200, EML 5060		FA	3(3,0)
EML 5271	Intermediate Dynamics	EGN 3321/ EML 3217		Occasional	3(3,0)
EML 5290	Introduction to MEMS and Micromachining	Graduate Status/ C.I.		Odd FA	3(3,0)
EML 5311	System Control	EML 4225C, (EML 5060)		Occasional	3(3,0)
EML 5402	Turbomachinery	EML 3101, EML 4703/ EAS 4134		Occasional	3(3,0)
EML 5456	Turbines for Sustainable Power	EML 5237		FA	3(3,0)
EML 5546	Engineering Design with Composite Materials	EML 5237		Occasional	3(3,0)
EML 5713	Intermediate Fluid Mechanics	EML 4703, (EML 5060)		Occasional	3(3,0)

Graduate Tuition and Fees will apply (GPA ≥ 3.0 Required)

Undergraduate Students will need an Override in order to enroll in these courses

Approval for courses not listed on this list must be obtained from the department associate chair. Updated on 8/22/2022