

	SUMMER /1	FALL /2	WINTER /4
YEAR 1			ENGR 201 1.50 Professional Practice & Resp. Prerequisite: none
			ENGR 202 1.50 Sust. Dev. Enviro. Stewardship Prerequisite: none
			ENGR 213 3.00 Applied Ord. Differential Eq. Prereq: MATH 204 previously or concurrently; MATH 205
			ENGR 233 3.00 Applied Advanced Calculus Prerequisite: MATH 204; MATH 205
			ENGR 242 3.00 Statics Prerequisite: ENGR 213 previously or concurrently; PHYS 204; MATH 204.
			MIAE 211 3.50 Mech. Engineering Drawing Prerequisite: none
YEAR 2	ENCS 282 3.00 Tech. Writing & Comm. Prerequisite: The Engineering Writing Test (EWT) or ENCS 272 must be completed prior to registering.	ENGR 251 3.00 Thermodynamics I Prerequisite: MATH 203	ENGR 361 3.00 Fluid Mechanics I Prerequisite: ENGR 213, 233, 251
	ENGR 243 3.00 Dynamics Prerequisite: ENGR 213, 242	ENGR 371 3.00 Probability & Stats in Eng. Prerequisite: ENGR 213, 233	MIAE 380 3.00 Product Design & Development Prerequisite: MECH 211 or MIAE 211
	ENGR 244 3.75 Mechanics of Materials Prerequisite: ENGR 213; ENGR 242 or 245; ENGR 233 previously or concurrently	MIAE 215 3.50 Prog. for Mech & Indu Eng. Prerequisite: MATH 204	MECH 321 3.50 Properties & Failure of Material Prerequisite: MECH 221 or MIAE 221
	ENGR 311 3.00 Trans. Cal. & Partial Diff. Eq. Prerequisite: ENGR 213, 233	MIAE 221 3.00 Materials Science Prerequisite: CHEM 205	MECH 343 3.50 Theory of Machines Prerequisite: ENGR 213, 233, 243
		MIAE 313 3.50 Machine Drawing and Design Prerequisite: MECH 211 or MIAE 211	MECH 370 3.50 Modelling, Simulation, Ctrl Sys. Prerequisite: PHYS 205; ENGR 213; ENGR 311 previously or concurrently; ENGR 245 or 243
YEAR 3		ENGR 301 3.00 Engr. Manage. Principles Econ Prerequisite: none	ENGR 391 3.00 Numerical Methods in Eng. Prerequisite: ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231
		MIAE 311 3.00 Manufacturing Processes Prerequisite: MECH 313 or MIAE 313	MECH 351 3.50 Thermodynamics II Prerequisite: ENGR 251
		MIAE 312 1.00 EDML Lab Prerequisite: MIAE 311 previously or concurrently.	MECH 368 3.50 Electronics for Mech. Engineers Prerequisite: PHYS 205; ENGR 311 previously or concurrently
		MECH 344 3.00 Machine Element Design Prerequisite: ENGR 244; MECH 313 or MIAE 313; MECH 343 previously or concurrently	MECH 371 3.75 Analysis & Design Ctrl Sys. Prerequisite: ENGR 311; MECH 370
		MECH 352 3.50 Heat Transfer I Prerequisite: ENGR 311, 361	MECH 390 3.50 Mech Eng. Design Project Prerequisite: ENCS 282; MECH 311 or MIAE 311; MECH 343; MIAE 380; MECH 344 prev. or concurrently
		MECH 361 3.50 Fluid Mechanics II Prerequisite: ENGR 361	
YEAR 4		MECH 375 3.50 Mechanical Vibrations Prerequisite: AERO 371 or MECH 370	ENGR 392 3.00 Impact of Technology on Society Prerequisite: ENCS 282; ENGR 201, 202
		General Studies (Undergraduate Calendar, Sec. 71.110) 3.00	
		Technical Electives (Undergraduate Calendar, Sec. 71.40.1) Review your advisement report for the number of credits required. --- Speak with your Undergraduate Program Assistant if you have any further questions	
		MECH 490 Capstone Mechanical Engineering Design Project Prerequisite: 75 credits in the program; ENGR 301; MECH 344, 390 4.00	

DETAILED COURSE INFORMATION
Mechanical Engineering 2021-22

COURSE	TITLE	CREDIT	PRE-REQUISITE	CO-REQUISITE	SUM 1	SUM 2	FALL	WIN
AERO 417	Standards, Regulations and Certification	3.00	ENGR 201		X		X	
AERO 431	Principles of Aeroelasticity	3.00	ENGR 243, 361; MECH 375				X	
AERO 446	Aerospace Vehicle Performance	3.00	MECH 361					X
AERO 455	Computational Fluid Dynamics for Aerospace Applications	3.75	ENGR 311, 391; MECH 361					X
AERO 462	Turbomachinery and Propulsion	3.00	MECH 351, 361				X	
AERO 464	Aerodynamics	3.00	MECH 361				X	X
AERO 465	Gas Turbine Design	3.50	AERO 462					X
AERO 480	Flight Control Systems	3.50	AERO 371 or ELEC 372 or MECH 371 or SOEN 385				X	
AERO 482	Avionic Navigation Systems	3.00	ENGR 371 or COMP 233; AERO 371 or ELEC 372 or MECH 370 or SOEN 385				X	
AERO 485	Introduction to Space Systems	3.00	MECH 351, 361					X
AERO 486	Aircraft Stress Analysis	3.00	ENGR 243, 244				X	
AERO 487	Design of Aircraft Structures	3.00	AERO 486					X
ENCS 282	Technical Writing and Communication	3.00	Engineering Writing Test (EWT), or ENCS 272 (min. G)		X	X	X	X
ENGR 201	Professional Practice and Responsibility	1.50			X	X	X	X
ENGR 202	Sustainable Development and Environmental Stewardship	1.50			X		X	X
ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205	MATH 204	X		X	X
ENGR 233	Applied Advanced Calculus	3.00	MATH 204, 205		X	X	X	X
ENGR 242	Statics	3.00	MATH 204; PHYS 204	ENGR 213	X		X	X
ENGR 243	Dynamics	3.00	ENGR 213, 242		X		X	X
ENGR 244	Mechanics of Materials	3.75	ENGR 213 ; ENGR 242 or 245	ENGR 233	X	X		X
ENGR 251	Thermodynamics I	3.00	MATH 203			X	X	X
ENGR 301	Engineering Management Principles and Economics	3.00			X	X	X	X
ENGR 311	Transform Calculus and Partial Differential Equations	3.00	ENGR 213, 233		X	X	X	X
ENGR 361	Fluid Mechanics I	3.00	ENGR 213, 233, 251		X	X	X	X
ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, 233		X	X	X	X
ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 2		X	X	X	X
ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, 202		X	X	X	X
ENGR 411	Special Technical Report	1.00	ENCS 282; permission of the Department		X		X	X
ENGR 412	Honours Research Project	3.00	ENCS 282; 75cr in the program; min. CGPA 3.00; permission of the Departme		X		X	X
Gen. Ed.	General Education Elective	3.00	List of courses available in the Undergraduate Calendar, Sec. 71.110					
INDU 372	Quality Control and Reliability	3.00	ENGR 371					X
INDU 410	Safety Engineering	3.00	MECH 311 or MIAE 311				X	
INDU 411	Computer Integrated Manufacturing	3.50	MECH 311 or MIAE 311					X
MECH 321	Properties and Failure of Materials	3.50	MECH 221 or MIAE 221					X
MECH 343	Theory of Machines	3.50	ENGR 213, 233, 243				X	X
MECH 344	Machine Element Design	3.00	ENGR 244; MECH 313 or MIAE 313	MECH 343			X	X
MECH 351	Thermodynamics II	3.50	ENGR 251				X	X
MECH 352	Heat Transfer I	3.50	ENGR 311 , 361				X	X
MECH 361	Fluid Mechanics II	3.50	ENGR 361				X	X
MECH 368	Electronics for Mechanical Engineers	3.50	PHYS 205	ENGR 311			X	X
MECH 370	Modelling and Analysis of Dynamic Systems	3.50	PHYS 205; ENGR 213; ENGR 245 or 243	ENGR 311		X	X	X
MECH 371	Analysis and Design of Control Systems	3.75	ENGR 311 ; MECH 370				X	X
MECH 375	Mechanical Vibrations	3.50	AERO 371 or MECH 370			X	X	X
MECH 390	Mechanical Engineering Design Project	3.00	ENCS 282, MECH 311 or MIAE 311; MECH 343; MIAE 380	MECH 344			X	X
MECH 411	Instrumentation and Measurements	3.50	ENGR 311; AERO 371 or MECH 370				X	
MECH 412	Computer-Aided Mechanical Design	3.50	MECH 313 or MIAE 313				X	
MECH 414	Computer Numerically Controlled Machining	3.50	MECH 311 or MIAE 311; MECH 412					X
MECH 415	Advanced Programming for Mechanical and Industrial Engineers	3.00	MECH 215 or MIAE 215				X	
MECH 421	Mechanical Shaping of Metals and Plastics	3.50	MECH 221 or MIAE 221					X
MECH 422	Mechanical Behaviour of Polymer Composite Materials	3.00	ENGR 233, 244; MECH 221 or MIAE 221				X	
MECH 423	Casting, Welding, Heat Treating and Non-Destructive Testing	3.50	MECH 221 or MIAE 221				X	
MECH 424	MEMS – Design and Fabrication	3.50	MECH 311 or MIAE 311; MECH 343					X
MECH 425	Manufacturing of Composites	3.50	MECH 311 or MIAE 311				X	
MECH 426	Stress and Failure Analysis of Machinery	3.00	ENGR 233, 244; AERO 481 or MECH 321					X
MECH 444	Guided Vehicle Systems	3.00	MECH 375		n/a	n/a	n/a	n/a
MECH 447	Fundamentals of Vehicle System Design	3.50	MECH 343				X	
MECH 452	Heat Transfer II	3.50	MECH 351, 352, 361					X
MECH 453	Heating, Ventilation and Air Conditioning Systems	3.00	MECH 352					X
MECH 454	Vehicular Internal Combustion Engines	3.00	MECH 351, 361					X
MECH 460	Finite Element Analysis	3.75	ENGR 244, 391					X
MECH 461	Gas Dynamics	3.50	MECH 361			X	X	
MECH 463	Fluid Power Control	3.50	ENGR 361; MECH 371				X	
MECH 468	Wind Turbine Engineering	3.00	MECH 343, 361					X
MECH 471	Microcontrollers for Mechatronics	3.50	ENGR 311; MECH 368					X
MECH 472	Mechatronics and Automation	3.50	MECH 215 or MIAE 215	MECH 371				X
MECH 473	Control System Design	3.50	ELEC 372 or MECH 371				X	
MECH 474	Mechatronics	3.75	ELEC 372 or MECH 371					X
MECH 476	Generative Design and Manufacturing in Engineering	3.00	MECH 313 or MIAE 313	AERO 390 or MECH 390	n/a	n/a	n/a	n/a
MECH 490	Capstone Mechanical Engineering Design Project	4.00	75cr. in the program; ENGR 301; MECH 344, 390				X	
MECH 498	Topics in Mechanical Engineering	3.00			n/a	n/a	n/a	n/a
MIAE 211	Mechanical Engineering Drawing	3.50			X		X	X
MIAE 215	Programming for Mechanical and Industrial Engineers	3.50	MATH 204			X	X	X
MIAE 221	Materials Science	3.00	CHEM 205				X	X
MIAE 311	Manufacturing Processes	3.00	MECH 313 or MIAE 313		X		X	X
MIAE 312	Engineering Design and Manufacturing Processes Lab	1.00			X		X	X
MIAE 313	Machine Drawing and Design	3.50	MECH 211 or MIAE 211				X	X
MIAE 380	Product Design and Development	3.00	MECH 211 or MIAE 211				X	X

Note: In the case of discrepancies between this and the current Undergraduate Calendar, please contact your Undergraduate Program Assistant for clarification.