

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

**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.