

EML 4585	Design of Biomedical Systems and Devices	3	EML 4711	Gas Dynamics	3
EML 4603	Air Conditioning Design	3	EML 5103	Intermediate Thermodynamics	3
EML 5509	Mechanical Design Optimization	3	EML 5104	Classical Thermodynamics	3
EML 5519	Fault-Tolerant System Design	3	EML 5152	Intermediate Heat Transfer	3
EIN 4395	Computer Integrated Manufacturing	3	EML 5606C	Advanced Refrigeration and A/C Systems	3
⁴ Approved Math/Statistics Electives:			EML 5615C	CAD in Air Conditioning	3
EIN 3235	Evaluation of Engineering Data	3	EML 5708	Advanced Design of Thermal and Fluid Systems	3
STA 3033	Introduction to Probability and Statistics for CS	3	EML 5709	Intermediate Fluid Mechanics	3
EEL 3135	Signals and Systems	3	Mechanics, Materials and Design		
MAS 3135	Linear Algebra	3	EGM 3311	Analysis of Mechanical Systems	3
MAP 4401	Advanced Differential Equations	3	EGM 4610	Introduction to Continuum Mechanics	3
Students must maintain and achieve a grade point average of 2.0 or better in those engineering courses to be used to satisfy BSME degree requirements. This "major GPA" is computed in the manner of the overall GPA. Courses that are excluded from the calculation of the overall GPA will also be excluded from the calculation of the major GPA. Students failing to maintain a major GPA of 2.0 will be placed on major GPA probation, suspension, or dismissed from the program according to the same criteria that are utilized with the overall GPA.			EGM 4350	Finite Element Analysis in Mechanical Design	3
Students who are dismissed for the first time from the University due to low grades may appeal to the Dean for reinstatement. A second dismissal results in no possibility of reinstatement.			EGM 5315	Intermediate Analysis of Mechanical Systems	3
Laboratories			EGM 5615	Synthesis of Engineering Mechanics	3
Over and above the laboratory requirements in Physics and Chemistry, the program consists of six semester hours of required Engineering laboratory work. The students are assigned two hours of laboratory work (one hour in Instrumentation and Measurement Lab and one hour in Mechanical Lab) which are specifically devoted to solving design problems using experimental methods. The laboratory experience includes the following areas: Machining, Circuits, Fluid Mechanics, Mechanics of Materials and Materials Testing, Applications in Fluid and Thermal Science, and Instrumentation and Measurement.			EGN 5367	Industrial Materials and Engineering Design	3
The elective areas offer the following additional laboratories: Air Conditioning and Refrigeration, Biomedical Engineering, Material Sciences, Computer/Aided Design, and Computer/Integrated Manufacturing.			EMA 3066	Polymer Science and Engineering	3
Electives			EMA 4121	Physical Metallurgy	3
Four concentrations available within the Mechanical Engineering program with some of their elective offerings are listed below.			EMA 4121L	Materials Laboratory	1
Fluids/Thermal Sciences and Energy Systems			EMA 4223	Mechanical Metallurgy	3
EGM 4350	Finite Element Analysis in Mechanical Design	3	EMA 5295	Principles of Composite Materials	3
EML 3450	Energy Systems	3	EMA 5507C	Analytical Techniques of Material Sciences	3
EML 4419	Propulsion Systems	3	EMA 5935	Advanced Topics in Materials Engineering	3
EML 4421	Internal Combustion Engines	3	EML 3222	System Dynamics	3
EML 4525	Mechanical Design Synthesis and Analysis	3	EML 3301C	Instrumentation	3
EML 4601	Principles of Refrigerating and Air Conditioning	3	EML 4260	Dynamics of Machinery	3
EML 4601L	Refrigeration and A/C Lab	1	EML 4525	Mechanical Design Synthesis and Analysis	3
EML 4603	Air Conditioning Design	3	EML 4535	Mechanical Computer-Aided Design	3
EML 4608C	Mechanical Systems in Environmental Control	3	EML 4561	Introduction to Electronic Packaging	3
EML 4702	Fluid Dynamics	3	EML 5125	Classical Dynamics	3
			EML 5385	Identification Techniques of Mechanical Systems	3
			EML 5530	Intermediate CAD/CAE	3
			EML 5562	Advanced Electronic Packaging	3
			Manufacturing and Robotics		
			EIN 3600	Introduction to Robotics	2
			EIN 4391	Product Design for Manufacturing and Automation	3
			EIN 4395	Computer-Integrated Manufacturing	3
			EML 4535	Mechanical Computer-Aided Design	3
			EML 4561	Introduction to Electronic Packaging	3
			EML 4806	Modeling and Control of Robots	3
			EML 5562	Advanced Electronic Packaging	3
			Students are required to complete eleven credit hours of technical electives, three of which are approved design credits.		
			Students with special needs may take other elective courses (not listed above) with permission of the Mechanical Engineering Advisor. Students are not restricted to these four concentration areas but may choose courses, with the advisor's consent, that will form a coherent concentration area. Special topics may be counted as an elective.		
			Mechanical Engineering Program Requirements—		
			Freshman to Senior		
			First Semester: (17)		
			MAC 2311	Calculus I	4

CHM 1045	General Chemistry I	3	EML 4501	Mechanical Design II	3
CHM 1045L	General Chemistry I Lab	1	EML 4706	Design of Thermal and Fluid Systems	3
ENC 1101	Freshman Composition	3	EML 4220	Mechanical Vibrations	3
MUH 2116	Evolution of Jazz	3	EML 4551	Design Project Organization	1
	or		Engineering Elective		3
TPP 2100	Introduction to Acting	3	Eighth Semester: (13)		
	or		EML 4312	Automatic Control Theory	3
THE 2000	Theatre Appreciation	3	EML 4906L	Mechanical Lab	1
	or		EML 4905	Senior Design Project	3
CRW 2001	Creative Writing	3	Design Elective		3
	or		Engineering Elective		3
MUH 1011	Music Appreciation ¹	3	*Humanities with Writing: Choose from the following list:		
EGN 1100	Introduction to Engineering	2	PHI 2600	Introduction to Ethics	3
SLS 1501	Freshman Experience Seminar	1	ARC 2701	History of Architecture	3
Second Semester: (18)			HUM 3306	History of Ideas	3
MAC 2312	Calculus II	4	WOH 2001	World Civilization	3
PHY 2048	Physics I with Calculus	4	EUH 2030	Western Civilization-Europe in the Modern Era	3
PHY 2048L	General Physics I Lab	1	AMH 2002	Modern American Civilization	3
ENC 1102	Literary Analysis	3			
EGN 3365	Materials in Eng	3			
EGN 1033	Technology, Humans and Society	3			
Third Semester: (18)			BSME/MSME Degree Program		
MAC 2313	Multivariable Calculus	4	Students who have completed a minimum of 90 credit hours toward their BSME degree and have earned at least a 3.25 GPA may apply to the department to enroll in the combined BSME/MSME program. Acceptance to the program requires the approval of the undergraduate advisor and two mechanical engineering faculty members.		
PHY 2049	Physics with Calculus II	4	The BSME/MSME (3 +2) Program has been designed to be a continuous program. Students in 3 + 2 programs will apply for graduation with the BS and MS at the same time. Students will receive a BS degree and a MS degree on the same date, after requirements for both are completed. The student's advisor will ensure that appropriate forms are completed, and that students do not apply for BS degree graduation until both BS and MS requirements are finished. Upon the completion of BS degree requirements, students can elect to permanently leave the combined program at any time and earn only the BS degree. Once the BS is granted, students will have the same access requirements to regular graduate programs as any other student. However, the combined MS degree would not be available to those who elect to leave the combined program.		
PHY 2049L	General Physics II Lab	1	Students enrolled in the program may count up to 6 credit hours of ME graduate courses toward the elective engineering BSME requirements as well as toward the MSME degree. Only graduate lecture courses can be counted for both degrees.		
EGN 3311	Statics	3	Admission to the combined BSME/MSME program by the department does not automatically qualify students for admission to the MSME degree program. To enroll in the MSME degree program, students must meet the graduate admission requirements.		
EGM 3311	Analysis of Engineering Systems	3			
Humanities with Writing*		3			
Fourth Semester: (15)			Minor in Energy Systems		
EML 2030	Software for Mechanical Design	3	Fully enrolled non-mechanical engineering undergraduate students, who have at least a junior status with a cumulative FIU Grade Point Average of 2.0 or better, may apply to the department of Mechanical and Materials Engineering to request a minor in Energy Systems. To earn a minor in Energy Systems students must complete the 16 credit hours work listed below with a minimum grade of "C" in each course.		
MAP 2302	Differential Equations	3	EGN 3311	Statics ¹	3
EGN 3321	Dynamics	3	EGN 3321	Dynamics ¹	3
EGN 3343	Thermodynamics I	3			
Humanities and Writing*		3			
Fifth Semester: (18)					
EMA 3702	Mechanics and Materials Science	3			
EMA 3702L	Mechanics and Materials Science Lab	1			
EML 3101	Thermodynamics II	3			
EML 3126	Transport Phenomena	3			
EML 3126L	Transport Phenomena Lab	1			
EIN 3390	Manufacturing Processes	2			
EIN 3390L	Manufacturing Processes Lab	1			
EEL 3003	Electrical Engineering I	3			
EEL 3111L	Circuits Lab	1			
Sixth Semester: (16)					
EML 4140	Heat Transfer	3			
EML 3500	Mechanical Design I	3			
EML 3262	Kinematics and Mechanisms Design	3			
EML 3301L	Instrumentation and Measurement Lab	1			
EIN 3354	Engineering Economy	3			
INP 2002	Introductory Industrial/Organization Psychology	3			
	or				
ECO 2023	Principles of Microeconomics	3			
	or				
ECO 2013	Principles of Macroeconomics	3			
	or				
SYG 2010	Social Problems	3			
	or				
GEO 2000	Introduction to Geography	3			
	or				
INR 2002	Dynamics of World Politics	3			
Seventh Semester: (13)					