MANUFACTURING CONCENTRATION

IME 327	Test Design and Analysis in Manufacturing Engineering	4
ME 418	Implementation of Mechanical Controls	4
or ME 419	Advanced Control Systems	
ME 428	Senior Design Project I [1]	2
ME 429	Senior Design Project II [1]	2
ME 430	Senior Design Project III [1]	2
Take all of the courses in one of the following emphasis areas:		8
Mechanical Manufacturing Emphasis Area		
IME 330	Fundamentals of Manufacturing Engineering	
IME 450	Manufacturing Process and Tool Engineering	
Electronics Manufacturing Emphasis Area		
IME/MATE 458	Microelectronics and Electronics Packaging	
MATE 430 & MATE 435	Micro/Nano Fabrication and Microfabrication Laboratory	
Design and Manufacturing Elective		
Select from the following: [2]		3-5
IME 330	Fundamentals of Manufacturing Engineering [3]	
IME 335	Computer-Aided Manufacturing I	
IME 356	Manufacturing Automation	
IME 416	Automation of Industrial Systems	
IME 418	Product-Process Design	
IME 428	Engineering Metrology	
IME 430	Quality Engineering	
IME 432	Additive Manufacturing	
IME 457	Advanced Electronic Manufacturing	
IME/MATE 458	Microelectronics and Electronics Packaging [3]	
IME 527	Design of Experiments	
IME 543	Applied Human Factors	
MATE 430 & MATE 435	Micro/Nano Fabrication and Microfabrication Laboratory [3]	
MATE 440 & MATE 445	Welding Metallurgy and Joining of Advanced Materials and Joining of Advanced Materials Laboratory	
ME 305	Introduction to Mechatronics	
ME 412	Composite Materials Analysis and Design	
Total units		**25-27**

[1] ENGR 459, ENGR 460 and ENGR 461 (6) or ENGR 463, ENGR 464, and ENGR 465 (6) may substitute for ME 428, ME 429 and ME 430 (6).

[2] ME 400 and ME 500 are independent study classes and may be acceptable for technical elective credit. A course substitution form is required.

[3] If a course is taken to meet an Emphasis Area requirement, it cannot be double-counted as a Design and Manufacturing Elective.