

**ENGINEERING MANAGEMENT CURRICULUM
MANUFACTURING ENGINEERING TECHNICAL SPECIALTY
2003-2004**

130 Total Hours Required for the Degree
(130 hours minimum – depending on selection of thematic sequence)

English (9 hours)	6.5%
ENG 111 College Composition	
ENG 112 Composition and Literature	
ENG 313 Intro to Technical Writing	
Mathematics/Statistics & Computer Science (19 hours)	13.7%
MTH 151 Calculus I	
MTH 251 Calculus II	
MTH 245 Differential Equations for Engineers	
CSA 163 Intro to Comp Concepts & Programming	
STA 368 Introduction to Statistics	
Fine Arts, Humanities, & Social Science (12 hours)	8.6%
ECO 201 Principles of Microeconomics*	
ECO 202 Principles of Macroeconomics*	
Miami Plan Fine Arts Elective	
COM 135 Public Express/Critical Inquiry	
(COM 136 or 231 may be substituted for COM 135 for the major but they do not fulfill the humanities requirement.)	
U.S. and World Cultures (6 hours)	4.3%
Miami Plan World Cultures Elective	
Miami Plan U.S. Cultures Elective	
Natural Science (18 hours)	13%
CHM 141,144 College Chemistry and Lab	
PHY 181, 182 The Physical World	
PHY 183, 184 The Physical World Lab	
Miami Plan Biological Science Elective	
Thematic Sequence (9 hours)	6.5%
Liberal Education sequence outside your major, focused around a theme.	
Business Core Courses* (18 hours)	13%
ACC 222 Introduction to Managerial Accounting	
MGT 291 Organizational Behavior and Theory	
MGT 302 Operations Management	
MKT 291 Principles of Marketing	
MGT Tracks (select one track):	
Materials Management Track	
MGT 432 Purchasing and Materials Management	
MKT 431 Logistics Management	
Operations Management Track	
MGT 451 Operations Planning & Scheduling	
MGT 453 Productivity Improvement	
Purchasing/Procurement Track	
MGT 432 Purchasing & Materials Management	
MGT 433 Adv Topics in Purchasing/Materials Mgt	
Human Resources Track	
MGT 303 Human Resources Management	
MGT 405 Labor Relations & Conflict Management	
Entrepreneurship Track	
BUS 408 Entrepreneurship for Engineers & Scientists	
MKT 481 Technology, Products, & Ventures	

*ECO 201,202 under Social Science are also Business Core

1. Engineering-Science (16 hours)

11.5%

These courses are fundamental to all ABET accredited engineering programs and disciplines. (There are total of 2.5 hours of design incorporated in courses marked *.)

EGR 203	Electric Circuit Analysis*	4
EGR 211	Static Modeling of Mechanical Systems*	3
EGR 223	Engineering Materials*	3
EGR 312	Mechanics of Materials*	3
EGR/PSE 314	Engineering Thermodynamics	3

2. Manufacturing Engineering Core (28 hours)

20%

These courses give the student an in-depth study in methods to design and manufacture quality products at a competitive cost. (There are total of 5 hours of design incorporated in courses marked *.)

EGR 141	Introduction to Engineering Design*	1
EGR 143	Engineer Design/Computer Graphics*	3
EGR 231	Manufacturing Processes*	3
EGR 303	Computer Aided Experimentation*	3
EGM/MGT 311	Project Management	3
EGR 334	Quality Planning and Control*	3
EGR/PSE 341	Engineering Economics	3
EGR 434	Advanced Manufacturing*	3
EGR 437	Computer-Integrated Mfg Systems*	3
CSA 372	Analysis of Stochastic Systems	3

3. Senior Capstone Engineering Design (4 hrs)

2.9%

EGR 448, 449	Senior Design Project I, II	2, 2
--------------	-----------------------------	------

This is a year-long capstone design experience in which seniors select and complete open-ended projects, many of which involved working with industry.

Engineering Design Threads in Engineering Science, Manufacturing Core, and Senior Capstone. Design is integrated into the curriculum through five unified threads among the engineering science, manufacturing courses, and capstone courses. Since EGR 211 is utilized in two different sequences the total design content in the curriculum is 12 hours.

T1: EGR 141, 143, 211 (1.5 hrs)

T2: EGR 223, 231, 334, 434, 437 (3.5 hrs)

T3: EGR 211, 312 (1 hrs)

T4: EGR 203, 303 (2 hrs)

T5: EGR 448, 449 (4 hrs)

**SAMPLE CURRICULUM
ENGINEERING MANAGEMENT
MANUFACTURING ENGINEERING TECHNICAL SPECIALTY
2003-04**

Please consult your adviser before scheduling classes. Actual course offerings may vary.

Freshman Year

First Semester

EGR 141	Introduction to Engineering Design	1
ENG 111	College Composition (MPF I)	3
MTH 151	Calculus I (MPF V)	5
PHY 181	The Physical World (MPF IVB)	4
PHY 183	The Physical World Lab (MPF IVB)	1
CSA 163	Intro to Comp Concepts & Prog (MPF V)	<u>3</u>
		17

Second Semester

EGR 143	Engineering Design & Comp Graphics	3
ENG 112	Composition and Literature (MPF I)	3
MTH 251	Calculus II	4
PHY 182	The Physical World (MPF IVB)	4
PHY 184	The Physical World Lab (MPF IVB)	1
	Miami Plan Fine Arts Course (MPF IIA)	<u>3</u>
		18

Sophomore Year

First Semester

CHM 141	College Chemistry (MPF IVB)	3
CHM 144	College Chemistry Lab (MPF IVB)	2
ECO 201	Principles of Microeconomics (MPF IIC)	3
EGR 211	Static Modeling of Mechanical Systems	3
EGR 223	Engineering Materials	3
MTH 245	Differential Equations for Engineers	<u>3</u>
		17

Second Semester

ACC 222	Introduction to Managerial Accounting	3
ECO 202	Principles of Macroeconomics (MPF IIC)	3
EGR 231	Manufacturing Processes	3
EGR 312	Mechanics of Materials	3
STA 368	Introduction to Statistics	<u>4</u>
		16

Junior Year

First Semester

EGR 203	Electric Circuit Analysis	4
EGR/PSE 341	Engineering Economics	3
ENG 313	Intro to Technical Writing	3
MGT 302	Operations Management	3
MKT 291	Principles of Marketing	<u>3</u>
		16

Second Semester

EGR 303	Computer-Aided Experimentation	3
EGR 334	Quality Planning and Control	3
MGT 291	Organizational Behavior and Theory	3
EGM/MGT 311	Project Management	3
CSA 372	Analysis of Stochastic Systems	3
	Miami Plan U.S. Cultures Course (MPF IIIA)	<u>3</u>
		18

Senior Year

First Semester

COM 135	Public Expression & Critical Inq (MPF IIB)	3
EGR 434	Advanced Manufacturing	3
EGR/PSE 314	Engineering Thermodynamics	3
EGR 448	Senior Design Project (MPC)	2
	Management Track	3
	Miami Plan Thematic Sequence Course (MPT)*	<u>3</u>
		17

Second Semester

EGR 437	Computer-Integrated Manufacturing Systems	3
EGR 449	Senior Design Project (MPC)	2
	Management Track	3
	Miami Plan Biological Science Course (MPF IVA)	3
	Miami Plan Thematic Sequence Course (MPT)*	3
	Miami Plan for World Cultures Course (MPF IIIB)+	<u>3</u>
		17

+The School of Engineering & Applied Science and its external Advisory Council suggest you consider taking IDS 159, Strength Through Cultural Diversity, to meet the World Cultures (MPF IIIB) requirement.

The Miami Plan for Liberal Education Foundation (MPF) requirement includes 6 hours of English Composition (ENG 111-112 fulfills this requirement); 12 hours in Fine Arts, Humanities, and Social Science with a minimum of 3 hours in each (COM 135 fulfills 3 hours of the humanities requirement; ECO 201, 202 fulfills 6 hours of the social science requirement); 6 hours in U.S. and World Cultures; 9 hours of Natural Science, including one laboratory course with a minimum of 3 hours in Biological Science and 3 hours in Physical Science (PHY 181-182, 183-184 and CHM 141-144 more than fulfill the Physical Science requirement; however, a biological science course is still required); 3 hours of Mathematics, Formal Reasoning or Technology (CSA 163 or MTH 151 fulfill this requirement). At least one of these foundation courses must provide a historical perspective (H). The actual order in which you take these courses is up to you. The outline above is just one sample of how the courses might be arranged. You must also complete 12 hours of Focus: Advanced Liberal Learning courses, including 9 hours in an approved Thematic Sequence (MPT) and a 3 hour Senior Capstone Experience (MPC) (EGR 448/449 fulfills this capstone requirement).

This sample curriculum lists 6 hours of the 9-hour thematic sequence requirement. It is assumed that the first 3 hours are utilized as a Miami Plan foundation requirement. Selection of some thematic sequences may reduce overall number of hours required from that shown above. Minimum of 128 hours is required for degree completion.

