

**BACHELOR OF SCIENCE IN ENGINEERING (B.S.E.)
with an Option in Industrial-Management Engineering
2006-2007**

Major Code #3-4342

The Industrial-Management Engineer

Are you interested in engineering and business? There is an increasing demand for graduates who are trained in both of these fields, since today's technically oriented industries are rapidly developing in technological complexity. An extensive knowledge of engineering fundamentals and of business practices will enable you to be involved in planning, directing, organizing, and controlling a variety of management positions in industrial organizations.

This is an interdisciplinary degree in which both the College of Business Administration and the College of Engineering provide courses that will enable the student to have a technical engineering background plus a good foundation in business and management practices. The option consists of the core engineering courses through the junior year with an addition of business courses in accounting, business law, management, inventory practices and operations research. The elective structure within this option is such that the student may specialize in either engineering, or a combination of both engineering and business.

Our industrial-management engineering curriculum is designed to give you a strong background for executive level situations and decision-making, such as:

- ◆ Evaluating the overall effectiveness of a particular process
- ◆ Determining if costs can be reduced by improvements in technical or accounting methods
- ◆ Writing contracts between companies
- ◆ Specifying technical and non-technical requirements
- ◆ Combining complex technological issues with an understanding of human behavior

Special training of the industrial-management engineer

Our courses are divided between engineering and business administration concepts. While you are taking basic mechanical engineering classes, you will also be receiving instruction in: Business Finance; Law; Accounting Operations Research; Statistics; and Business Management. In your senior year, you may wish to use your electives to concentrate more intently on business or an area of engineering.

MAJOR COURSE REQUIREMENTS FOR THE BSE-INDUSTRIAL MANAGEMENT OPTION, 2003-2004 CATALOG

Lower Division: ACCT 201; CHEM 111A; CE 205; EE 211, 211L; FIN 220; MATH 122, 123, 224; ENGR 101; MAE 172, 205; PHYS 151, 152.

Upper Division: CE 406; ECON 300; FIN 320; IS 310; MATH 370A; MGMT 300; MGMT 411 or 412 or 413; MAE 305, 310, 322, 330, 371, 373, 376, 410, 459, 476, and approved electives to total at least 136 units.

**B.S.E. - INDUSTRIAL- MANAGEMENT ENGINEERING OPTION
CURRICULUM GUIDE 2006-2007 AY**

FRESHMAN YEAR

FIRST SEMESTER

SECOND SEMESTER

<u>Course</u>	<u>Title</u>	<u>Units</u>	<u>Course</u>	<u>Title</u>	<u>Units</u>
UNIV 100	Univ. in your future	1	GEN ED*	General Education (D1b)	3
MAE 172	Engr. Graphics	3	MATH 123*	Anal. Geom. & Calc.II(B3)	4
GEN ED*	General Education (A1)	3	GEN ED*	General Education (C1)	3
MATH 122*	Anal. Geom. & Calc. I(B2)	4	PHYS 151*	Mech/Heat & Sound (B1)	4
GEN ED*	Gen. Education (A3)	3	GEN ED*	General Education (A2)	3
ENGR 101	Intro. to Engineering	1			
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		15			17

SOPHOMORE YEAR

MATH 224	Anal. Geom. & Calc.III	4	GEN ED*	General Education (D1a)	3
PHYS 152	Elec. & Magnetism	4	ACCT 201	Elem. Fin. Accounting	3
ME 205	Comp. Meth. in M.E.	2	EE 211,211L	Elec. Circuits I	4
CE 205	Anal. Mech. I -Statics	3	MAE 322	Metallurgy & Matl. Proc.	3
CHEM 111A	General Chemistry	5	BLAW 220	Intro. to Law & Business Trans.	3
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		18			16

JUNIOR YEAR

MAE 330	Engr. Thermo. I	3	MAE 305	Comp. Meth. in M.E.	3
MATH 370A	Appl. Math I	3	MAE 371	Anal. Mech. II (Dynamics)	3
ECON 300*	Fund. of Econ (D2)	3	MAE 373	Mech. of Deformable Bodies	3
MGMT 300	Principles of Mgmt	3	MAE 351 (390)	Safety & Reliability I	3
GEN ED*	General Education	3	GEN ED*	General Education	3
GEN ED*	General Education	3	BLAW 320	Legal & Regulatory Env Bus.	3
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		18			18

SENIOR YEAR

MAE 331	Engr. Thermo. I Lab	1	CE 406	Engr. Econ. & Admin.	3
MAE 376	Intro. Mech. Syst. An.	3	MAE 476	Mech. Control Systems	4
IS 410	Probability & Decision	3	MGMT 411	Production Planning or	3
GEN ED*	General Education	3	MGMT 412	Production Control or	
MAE 451 (490)	Safety & Reliability II	3	MGMT 413	Managing Quality or	
**Approved Senior Tec. Study Courses		4	MAE 459	Professional Practice Seminar	1
			**Approved Senior Technical Study Courses		3
			GEN ED	General Education	3
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		17			17

***General Education:** A minimum of nine (9) units of Upper-Division (UD) are required. Six (6) units must be Upper-Division Interdisciplinary (UDI). A minimum of nine (9) units of Capstone courses (▲), with three units of Global (●) and three (3) units of Human Diversity (◆) are required. Please consult a General Education advisor.

The above 136 units minimum program allows for a 6-unit General Education waiver (3 units in Category D2b, and 3 in either B1a, C3 or E). All IC and Category A classes must be taken for a letter grade. Students are advised to plan their programs with care in order to meet all departments within 136 units.

****Courses used for major in-depth studies must be 300- or 400-level courses and must have advance approval from the Mechanical Engineering Undergraduate Advisor, in writing.**

APPROVED SENIOR TECHNICAL IN-DEPTH STUDY COURSES

ENERGY ENGINEERING:

EE 350(3)	Energy Conversion
EE 452(3)	Electric Power Systems Analysis
ME 431(3)	Heat Transfer
EE 453(3)	Industrial Power Systems
ME 510(3)*	Solar Engineering

MANUFACTURING ENGINEERING:

MAE 361 (1)	Materials and Properties Laboratory
MAE 374 (1)	Mechanical Properties of Materials
MAE 375 (4)	Kinematics and Dynamics of Mechanisms
MAE 431 (3)	Heat Transfer Systems Design
CE 335 (3)	Fluid Mechanics
MAE 490 (3)	Special Topics
MAE 409 (3)	Modern Computational Aspects in Mechanical Engineering

*May be substituted by petition, by student eligible for graduate study. A minimum GPA of 2.7 is required overall or in the last 60 units.