

2014-2015 Catalogue

ENGINEERING MANAGEMENT B.S.EM.

All students must meet the University Requirements .

The curriculum leading to the degree of Bachelor of Science in Engineering Management is offered in cooperation with the School of Business Administration. Engineering management is a broad discipline concerned with the art and science of planning, organizing, directing, and controlling activities that have technical components. Designing, producing, selling, and servicing products in the marketplace require managers with both the ability to apply engineering principles and the skills to manage technical projects and people. The curriculum is designed to combine a basic education in an engineering discipline with the study of management concepts and techniques. The curriculum also includes the study of economics, along with coursework in other social science and/or humanities fields. Candidates for this degree must earn a minimum of 123 credits.

PLAN OF STUDY

The Engineering Management major offers three concentrations:

- Civil and Environmental Engineering Concentration
- Electrical Engineering Concentration
- Mechanical Engineering Concentration

CIVIL AND ENVIRONMENTAL ENGINEERING CONCENTRATION

First Year	Credits	
	Fall	Spring
CE 003 Intro to Civil & Envir Engr	2	
CHEM 031 General Chemistry 1	4	
EC 011 Principles of Macroeconomics	3	
ENGS 001 Written Expression	3	
MATH 021 Calculus I	4	
CS 020 Programming for Engineers		3
EC 012 Principles of Microeconomics		3
ENGR 002 Graphical Communication		2
MATH 022 Calculus II		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I		4
Year Total:	16	16-17

Sophomore	Credits	
	Fall	Spring
BSAD 060 Financial Accounting	3	
CE 001 Statics ¹	3	
CE 010 Geomatics ¹	4	
MATH 121 Calculus III	4	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
BSAD 061 Managerial Accounting		3
CE 132 Environmental Systems ¹		3
MATH 271 Adv Engineering Mathematics		3
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I		3
HSS Elective ²		3
Year Total:	17-18	15

Junior	Credits	
	Fall	Spring
CE 100 Mechanics of Materials	3	
CE 133 Transportation Systems	3	
CE 134 Sustainable Eng. Economics	3	
CE 160 Hydraulics	4	
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I	3	
BSAD 120 Leadership & Org Behavior		3
BSAD 141 Info,Technology & Bus Systems		3
BSAD 173 Operations Management		3
CE 151 Water & Wastewater Engineering		3
CE 170 Structural Analysis		3
Year Total:	16	15

Senior	Credits	
	Fall	Spring
BSAD 178 Quality Control or STAT 224 Stats for Quality&Productivity	3	
CE Elective ³	3	

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EE 100 Electrical Engr Concepts	4	
EMGT 185 Senior Project	3	
HSS Electives ²	3	3
BSAD 270 Quant Anyl for Managerial Dec		3
Choose two EMGT Electives ⁴		6
Year Total:	16	12
Total Credits in Sequence: 123-125		

- ¹ Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.
- ² Required Humanities and Social Science (HSS): nine credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2.
- ³ CE Concentration electives: CE 172, CE 175, CE 180, any 200-level CE course.
- ⁴ Engineering Management electives: BSAD 143, BSAD 144, BSAD 145, BSAD 170, BSAD 192, BSAD 268; and STAT 221, STAT 224, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175.

ELECTRICAL ENGINEERING CONCENTRATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1	4	
EC 011 Principles of Macroeconomics	3	
ENGR 002 Graphical Communication	2	
ENGS 001 Written Expression	3	
MATH 021 Calculus I	4	
CS 020 Programming for Engineers		3
EC 012 Principles of Microeconomics		3
EE 001 First-year Design Experience		2
MATH 022 Calculus II		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I		4
Year Total:	16	16-17

Sophomore	Credits	
	Fall	Spring
BSAD 060 Financial Accounting	3	
EE 003 Linear Circuit Analysis I ¹	3	
EE 081 Linear Circuits Laboratory I ¹	2	
MATH 121 Calculus III	4	
HSS Elective ²	3	
BSAD 061 Managerial Accounting		3
EE 004 Linear Circuit Analysis II ¹		3
EE 082 Linear Circuits Laboratory II ¹		2
MATH 271 Adv Engineering Mathematics		3
PHYS 123 Physics Problem Solving II (Optional)		0-1
PHYS 125 Physics for Engineers II		3
Year Total:	15	14-15

Junior	Credits	
	Fall	Spring
BSAD 141 Info, Technology & Bus Systems	3	
EE 120 Electronics I	3	
EE 131 Fundamentals of Digital Design	3	
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I	3	
HSS Electives ²	3	3
BSAD 173 Operations Management		3
BSAD 180 Managerial Finance		3
EE 121 Electronics II		3
EE 134 Microcontroller Systems		4
Year Total:	15	16

Senior	Credits	
	Fall	Spring
BSAD 120 Leadership & Org Behavior	3	
BSAD 178 Quality Control or STAT 224 Stats for Quality&Productivity	3	
EE 163 Solid State Phys Electronics I or EE 171 Signals & Systems	4	

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EMGT 185 Senior Project	3	
HSS Elective ²	3	
BSAD 270 Quant Anyl for Managerial Dec		3
Choose one EE course at the 200-level		3
EE Elective ³		3-4
Choose two EMGT Electives ⁴		6
Year Total:	16	15-16
Total Credits in Sequence: 123-126		

- ¹ Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.
- ² Required Humanities and Social Science: Nine credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2.
- ³ EE Conc. Electives: EE 113, EE 141, EE 163 (if not used to fulfill another requirement), EE 164, EE 171 (if not used to fulfill another requirement), EE 174, both EE 183 & EE 184, any 200-level EE course.
- ⁴ Engineering Management electives: BSAD 143, BSAD 144, BSAD 145, BSAD 170, BSAD 192, BSAD 268; and STAT 221, STAT 224, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175.

MECHANICAL ENGINEERING CONCENTRATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1	4	
EC 011 Principles of Macroeconomics	3	
ENGR 002 Graphical Communication	2	
ENGS 001 Written Expression	3	
MATH 021 Calculus I	4	
CS 020 Programming for Engineers		3
EC 012 Principles of Microeconomics		3
MATH 022 Calculus II		4
ME 001 First-Year Design Experience		2
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I		4

Year Total:	16	16-17
Sophomore		
	Fall	Spring
BSAD 060 Financial Accounting	3	
CE 001 Statics ¹	3	
MATH 121 Calculus III	4	
ME 081 Mech Engr Shop Experience	1	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
BSAD 061 Managerial Accounting		3
MATH 271 Adv Engineering Mathematics		3
ME 012 Dynamics ¹		3
ME 040 Thermodynamics ¹		3
ME 083 Computational Mech. Engr. Lab		1
HSS Elective ²		3
Year Total:	14-15	16
Junior		
	Fall	Spring
EE 100 Electrical Engr Concepts ¹	4	
MATH 124 Linear Algebra	3	
ME 111 System Dynamics	3	
ME 161 Modern Manufacturing Processes	3	
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I	3	
BSAD 141 Info,Technology & Bus Systems		3
BSAD 173 Operations Management		3
BSAD 180 Managerial Finance		3
ME 014 Mechanics of Solids		3
HSS Elective ²		3
Year Total:	16	15

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Senior	Credits	
	Fall	Spring
BSAD 120 Leadership & Org Behavior	3	
BSAD 178 Quality Control or STAT 224 Stats for Quality&Productivity	3	
EMGT 185 Senior Project	3	
ME 101 Materials Engineering	3	
HSS Electives ²	3	
BSAD 270 Quant Anyl for Managerial Dec		3
ME 171 Design of Elements		3
Choose two EMGT Electives ⁴		6
ME Electives ³		3
Year Total:	15	15
Total Credits in Sequence: 123-125		

¹ Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

² Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2.

³ ME electives: 200-level or higher.

⁴ Engineering Management electives: BSAD 143, BSAD 144, BSAD 145, BSAD 170, BSAD 192, BSAD 268; and STAT 221, STAT 224, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175.