

# BACHELOR OF SCIENCE IN ENGINEERING MANAGEMENT

The engineering management program at Illinois Institute of Technology is founded on the tradition of discipline and innovation established by the Armour College of Engineering.

The program offers an opportunity for students to obtain skills and competencies that are highly relevant and driven by the accelerating development of new technologies in the emerging global economy at the intersection of engineering invention and business administration.

The program's objective is to prepare students to become leaders in the corporate world shaped by innovations in engineering. Students learn fundamentals of science, engineering management, and business administration by concentrating on the development of critical thinking skills directed toward practical problem solving and informed decision making.

Students completing this program are uniquely positioned to make decisions concerning product process development in ways that combine technical, financial, marketing, human resources, and strategic considerations. Students are prepared to perform economic analyses for new products, evaluate technologies, and assess business processes. Students completing this program will be able to prepare business plans that include financial details, marketing strategies, and design decisions based on target costs and forecasted rate of return on investment capital.

Students have several possibilities to specialize in engineering disciplines. Specializations include: civil engineering, architectural engineering, materials science and engineering, and mechanical engineering, among others.

The program also includes a business curriculum that focuses on developing organization and management, critical thinking, and entrepreneurship skills.

## Required Courses

Code	Title	Credit Hours
<b>Mathematics/Computer Science Requirements</b>		<b>(20)</b>
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 251	Multivariate & Vector Calculus	4
MATH 252	Introduction to Diff Equations	4
CS 104 or CS 105	Intro to Comp Prgrm for Engrs Intro to Computer Programming	2
<b>Physics Requirements</b>		<b>(8)</b>
PHYS 123	General Physics I: Mechanics	4
PHYS 221	Gen Physics II: Elect&Magntism	4
<b>Chemistry Requirement</b>		<b>(3-4)</b>
Select three to four credit hours		3-4
<b>Introduction to the Profession</b>		<b>(2)</b>
Select an Introduction to the Profession course		2
<b>Core Engineering Specialization</b>		<b>(28)</b>
Select a minimum of 28 credit hours <sup>1</sup>		28
<b>Core Entrepreneurship Requirements</b>		<b>(24)</b>
BUS 211	Financial Accounting	3
BUS 212	Managerial Accounting	3
BUS 301	Organizational Behavior	3
BUS 371	Marketing Fundamentals	3
Select a minimum of four courses from the following:		12
BUS 305	Operation and Supply Chain Des	3
BUS 361	Entrepreneurship I	3
CAE 312	Engineering Systems Analysis (for non-CAEE specializations)	3
COM 421	Technical Communication	3
COM 428	Verbal Visual Communications	3
ECON 423	Econ Anal Capital Investments	3
EMGT 363	Creativity/Inventions/Entrepre	3
EMGT 406	Entrepreneurship & IP Mgmt	3

EMGT 470	Project Management	3
INTM 404	Marketing, Sales, & Prod Intro	3
INTM 477	Entrepreneurship Industry	3
MMAE 232	Design for Innovation (for non-MMAE specializations)	3
<b>Core Engineering or Entrepreneurship Technical Electives</b>		<b>(9)</b>
Select nine credit hours		9
<b>Interprofessional Projects (IPRO)</b>		<b>(6)</b>
See Illinois Tech Core Curriculum, section E		6
<b>Humanities and Social Sciences Requirements</b>		<b>(21)</b>
See Illinois Tech Core Curriculum, sections B and C		21
ECON 211	Principles of Economics (recommended)	3
<b>Free Electives</b>		<b>(6)</b>
Select six credit hours		6
<b>Total Credit Hours</b>		<b>127-128</b>

<sup>1</sup> Individual department requirements may vary.

## Engineering Management Specializations

Specializations include those listed below. See [engineering.iit.edu/caee](http://engineering.iit.edu/caee) for additional engineering specializations.

### Aerospace Engineering

Code	Title	Credit Hours
MMAE 200	Statics	3
MMAE 202	Mechanics of Solids	3
MMAE 304	Mechanics of Aerostructures	3
MMAE 311	Compressible Flow	3
MMAE 312	Aerodynamics of Aerospace VHLS	3
MMAE 313	Fluid Mechanics	3
MMAE 315	Aerospace Laboratory I	4
MMAE 320	Thermodynamics	3
MS 201	Materials Science	3

### Architectural Engineering

Code	Title	Credit Hours
CAE 100	Intro to Engg Drawing & Design	2
CAE 101	Intro to AutoCAD Draw Design	2
CAE 208	Thermal-Fluids Engineering I	3
CAE 209	Thermal-Fluids Engineering II	3
CAE 286	Theory&Concept of Struct Mechcs	3
CAE 287	Mechanics Structural Materials	3
CAE 312	Engineering Systems Analysis	3
CAE 331	Building Science	3
CAE 383	Electrical Electronic Circuits	3
or CAE 464	HVAC Systems Design	
CAE 461	Plumbing/Fire Protection Dsgn	3

**Biomedical Engineering: Cell and Tissue Track**

Code	Title	Credit Hours
BIOL 115	Human Biology	3
BIOL 117	Human Biology Lab	1
BME 301	Bio Fluid Mechanics	3
BME 309	Biomedical Imaging	3
BME 310	Biomaterials	3
BME 315	Instrumentation Laboratory	1
BME 330	Anlys of Biosignals and Systs	3
CAE 383 or ECE 211	Electrical Electronic Circuits Circuit Analysis I	3
CHE 202	Material Energy Balances	3
CHEM 125	Prin of Chemistry II w/Lab	4
MMAE 200	Statics	3

**Biomedical Engineering: Medical Imaging Track**

Code	Title	Credit Hours
BIOL 115	Human Biology	3
BIOL 117	Human Biology Lab	1
BME 309	Biomedical Imaging	3
BME 310	Biomaterials	3
BME 315	Instrumentation Laboratory	1
BME 330	Anlys of Biosignals and Systs	3
CHEM 125	Prin of Chemistry II w/Lab	4
CS 201	Accelerated Intro to Cmptr Sci	4
ECE 211	Circuit Analysis I	3
PHYS 224 or CHEM 237	Gen Physics III for Engrns Organic Chemistry I	3-4

**Biomedical Engineering: Neural Engineering Track**

Code	Title	Credit Hours
BIOL 115	Human Biology	3
BIOL 117	Human Biology Lab	1
BME 309	Biomedical Imaging	3
BME 315	Instrumentation Laboratory	1
BME 330	Anlys of Biosignals and Systs	3
CHEM 125	Prin of Chemistry II w/Lab	4
CHEM 237	Organic Chemistry I	4
ECE 211	Circuit Analysis I	3
ECE 216	Circuit Analysis II	3
ECE 218	Digital Systems	4

**Chemical Engineering**

Code	Title	Credit Hours
CHE 101	Intro to the Profession II	2
CHE 202	Material Energy Balances	3
CHE 301	Fluid Mechanics	3
CHE 302	Heat Mass Trnsfr Operations	3
CHE 351	Thermodynamics I	3
CHE 451	Thermodynamics II	3
CHEM 125	Prin of Chemistry II w/Lab	4
CHEM 237	Organic Chemistry I	4

CHEM 239	Organic Chemistry II	3
CHEM 343	Physical Chemistry I	3

### Civil Engineering

Code	Title	Credit Hours
CAE 100	Intro to Engg Drawing & Design	2
CAE 101	Intro to AutoCAD Draw Design	2
CAE 286	Theory&Concpt of Struct Mechcs	3
CAE 287	Mechanics Structural Materials	3
CAE 302	Fluid Mechanics and Hydraulics	3
CAE 303	Structural Design I	3
or CAE 304	Structural Analysis I	
CAE 312	Engineering Systems Analysis	3
CAE 315	Materials of Construction	3
CAE 323	Intro to Geotechnical Engineer	3
MMAE 305	Dynamics	3

### Computer Engineering

Code	Title	Credit Hours
CS 116	Object-Oriented Programming II	2
CS 331	Data Structures and Algorithms	3
ECE 211	Circuit Analysis I	3
ECE 213	Circuit Analysis II	4
ECE 218	Digital Systems	4
ECE 242	Digital Computers&Computing	3
ECE 307	Electrodynamics	4
ECE 308	Signals Systems	3
ECE 311	Engineering Electronics	4

### Computer Science

Code	Title	Credit Hours
CS 116	Object-Oriented Programming II	2
CS 330	Discrete Structures	3
or MATH 230	Introduction to Discrete Math	
CS 331	Data Structures and Algorithms	3
CS 350	Cmptr Org&Asmbly Lang Prgmmg	3
CS 351	Systems Programming	3
CS 425	Database Organization	3
CS 430	Introduction to Algorithms	3
CS 440	Prgmng Languages Translators	3
MATH 332	Elementary Linear Algebra	3
or MATH 333	Matrix Alg & Complex Variables	
MATH 474	Probability and Statistics	3
or MATH 475	Probability	

## Electrical Engineering

Code	Title	Credit Hours
CS 116	Object-Oriented Programming II	2
ECE 211	Circuit Analysis I	3
ECE 213	Circuit Analysis II	4
ECE 218	Digital Systems	4
ECE 307	Electrodynamics	4
ECE 308	Signals Systems	3
ECE 311	Engineering Electronics	4
MATH 333	Matrix Alg & Complex Variables	3
MATH 374	Probability/Statistics for ECE	3

## Materials Science and Engineering

Code	Title	Credit Hours
MMAE 200	Statics	3
MMAE 202	Mechanics of Solids	3
MMAE 232	Design for Innovation	3
MMAE 320	Thermodynamics	3
MMAE 365	Strctr & Propts of Materials I	3
MMAE 370	Materials Laboratory I	3
MMAE 463	Strctr&Propts of Mtrl II	3
MS 201	Materials Science	3
Select two courses from the following:		6
MMAE 372	Aerospace Materials Lab	3
MMAE 470	Intro to Polymer Science	3
MMAE 476	Materials Laboratory II	3
MMAE 485	Manufacturing Processes	3

## Mechanical Engineering

Code	Title	Credit Hours
MMAE 200	Statics	3
MMAE 202	Mechanics of Solids	3
MMAE 232	Design for Innovation	3
MMAE 313	Fluid Mechanics	3
MMAE 315 or MMAE 319	Aerospace Laboratory I Mechanical Laboratory I	4
MMAE 320	Thermodynamics	3
MS 201	Materials Science	3
Two MMAE electives		6