

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

Mathematics/Computer Science Requirements		(20)
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 251	Multivariate and Vector Calculus	4
MATH 252	Introduction to Differential Equations	4
CS 104 or CS 105	Introduction to Computer Programming for Engineers Introduction to Computer Programming	2
Physics Requirements		(8)
PHYS 123	General Physics I: Mechanics	4
PHYS 221	General Physics II: Electricity and Magnetism	4
Chemistry Requirement		(3-4)
Select three to four credit hours		3-4
Introduction to the Profession		(2)
Select an Introduction to the Profession course		2
Core Engineering Specialization		(28)
Select a minimum of 28 credit hours ¹		28
Core Entrepreneurship Requirements		(24)
BUS 211	Measuring and Assessing Entity Financial Performance	3
BUS 212	Managerial Decision-Making and Control	3
BUS 301	Designing and Structuring the Organization for Strategic Decision-Making	3
BUS 371	Strategies for Reaching New Markets	3
Select a minimum of four courses from the following:		12
BUS 305	Contemporary Design of Business Processes and Business Models	3
BUS 361	Entrepreneurial Thinking and Practice in a Complex Organization	3
CAE 312	Engineering Systems Analysis (for non-CAEE specializations)	3
COM 421	Technical Communication	3
COM 428	Verbal and Visual Communication	3
ECON 423	Economic Analysis of Capital Investments	3
EMGT 363	Creativity, Inventions, and Entrepreneurship for Engineers and Scientists	3
EMGT 406	Entrepreneurship and Intellectual Property Management	3
EMGT 470	Project Management	3

INTM 404	Marketing, Sales, and Product Introduction	3	
INTM 477	Entrepreneurship in Industry	3	
MMAE 232	Design for Innovation (for non-MMAE specializations)	3	
Core Engineering or Entrepreneurship Technical Electives			(9)
Select nine credit hours			9
Interprofessional Projects (IPRO)			(6)
See IIT Core Curriculum, section E (p. 41)			6
Humanities and Social Sciences Requirements			(21)
See IIT Core Curriculum, sections B and C (p. 40)			21
ECON 211	Principles of Economics (recommended)	3	
Free Electives			(6)
Select six credit hours			6
Total Credit Hours			127-128

¹ Individual department requirements may vary.

Engineering Management Specializations

Specializations include those listed below. See engineering.iit.edu/caee for additional engineering specializations.

Aerospace Engineering

MMAE 200	Introduction to Mechanics	3
MMAE 202	Mechanics of Solids	3
MMAE 304	Mechanics of Aerostructures	3
MMAE 311	Compressible Flow	3
MMAE 312	Aerodynamics of Aerospace Vehicles	3
MMAE 313	Fluid Mechanics	3
MMAE 315	Aerospace Laboratory I	4
MMAE 320	Thermodynamics	3
MS 201	Materials Science	3

Architectural Engineering

CAE 100	Introduction to Engineering Drawing and Design	2
CAE 101	Introduction to AutoCAD Drawing and Design	2
CAE 208	Thermal-Fluids Engineering I	3
CAE 209	Thermal-Fluids Engineering II	3
CAE 286	Theory and Concept of Structural Mechanics	3
CAE 287	Mechanics of Structural Materials	3
CAE 312	Engineering Systems Analysis	3
CAE 331	Building Science	3
CAE 383	Electrical and Electronic Circuits	3
or CAE 464	HVAC Systems Design	
CAE 461	Plumbing and Fire Protection Design	3

Biomedical Engineering: Cell and Tissue Track

BIOL 115	Human Biology	3
BIOL 117	Human Biology Laboratory	1
BME 301	Bio-Fluid Mechanics	3
BME 309	Biomedical Imaging	3
BME 310	Biomaterials	3
BME 315	Instrumentation and Measurement Laboratory	2
BME 330	Analysis of Biosignals and Systems	3
CAE 383	Electrical and Electronic Circuits	3
or ECE 211	Circuit Analysis I	
CHE 202	Material Energy Balances	3
CHEM 125	Principles of Chemistry II with Laboratory	4
MMAE 200	Introduction to Mechanics	3

Biomedical Engineering: Medical Imaging Track

BIOL 115	Human Biology	3
BIOL 117	Human Biology Laboratory	1
BME 309	Biomedical Imaging	3
BME 310	Biomaterials	3
BME 315	Instrumentation and Measurement Laboratory	2
BME 330	Analysis of Biosignals and Systems	3
CHEM 125	Principles of Chemistry II with Laboratory	4
CS 201	Accelerated Introduction to Computer Science	4
ECE 211	Circuit Analysis I	3
PHYS 224	General Physics III for Engineers	3-4

or CHEM 237	Organic Chemistry I	
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Biomedical Engineering: Neural Engineering Track

BIOL 115	Human Biology	3
BIOL 117	Human Biology Laboratory	1
BME 309	Biomedical Imaging	3
BME 315	Instrumentation and Measurement Laboratory	2
BME 330	Analysis of Biosignals and Systems	3
CHEM 125	Principles of Chemistry II with Laboratory	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

CHE 101	Introduction to the Profession II	2
CHE 202	Material Energy Balances	3
CHE 301	Fluid Mechanics	3
CHE 302	Heat and Mass Transfer Operations	3
CHE 351	Thermodynamics I	3
CHE 451	Thermodynamics II	3
CHEM 125	Principles of Chemistry II with Laboratory	4
CHEM 237	Organic Chemistry I	4
CHEM 239	Organic Chemistry II	3
CHEM 343	Physical Chemistry I	3

Civil Engineering

CAE 100	Introduction to Engineering Drawing and Design	2
CAE 101	Introduction to AutoCAD Drawing and Design	2
CAE 286	Theory and Concept of Structural Mechanics	3
CAE 287	Mechanics of 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	Introduction to Geotechnical Engineering	3
MMAE 305	Dynamics	3

Computer Science

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	Computer Organization and Assembly Language Programming	3
CS 351	Systems Programming	3
CS 425	Database Organization	3
CS 430	Introduction to Algorithms	3
CS 440	Programming Languages and Translators	3
MATH 332	Elementary Linear Algebra	3
or MATH 333	Matrix Algebra and Complex Variables	
MATH 474	Probability and Statistics	3

or MATH 475	Probability	
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Electrical Engineering

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 and Systems	3
ECE 311	Engineering Electronics	4
MATH 333	Matrix Algebra and Complex Variables	3
MATH 374	Probability and Statistics for Electrical and Computer Engineers	3

Materials Science and Engineering

MMAE 200	Introduction to Mechanics	3
MMAE 202	Mechanics of Solids	3
MMAE 232	Design for Innovation	3
MMAE 320	Thermodynamics	3
MMAE 365	Structure and Properties of Materials I	3
MMAE 370	Materials Laboratory I	3
MMAE 463	Structure and Properties of Materials II	3
MS 201	Materials Science	3

Select two courses from the following: 6

MMAE 372	Aerospace Materials Lab	3
MMAE 470	Introduction to Polymer Science	3
MMAE 476	Materials Laboratory II	3
MMAE 485	Manufacturing Processes	3

Mechanical Engineering

MMAE 200	Introduction to Mechanics	3
MMAE 202	Mechanics of Solids	3
MMAE 232	Design for Innovation	3
MMAE 313	Fluid Mechanics	3
MMAE 315	Aerospace Laboratory I	4
or MMAE 319	Mechanical Laboratory I	
MMAE 320	Thermodynamics	3
MS 201	Materials Science	3

Two MMAE electives 6