

# INDUSTRIAL ENGINEERING:

ENGINEERING SYSTEMS AND PROCESSES ACROSS DISCIPLINES



## WHAT IS INDUSTRIAL ENGINEERING?

Industrial engineers are optimization experts, focusing on the effective use of people, machines, materials, information and energy to improve processes for products and services. This unique engineering field includes the development of analytical methods and techniques that concentrate on higher productivity and better quality. Firms looking to develop more efficient processes hire industrial engineers to reduce costs and waste while increasing safety and efficiency.

## CAREERS IN INDUSTRIAL ENGINEERING

Industrial engineers are trained to work virtually anywhere in industry to improve system performance. Specific industries include manufacturing, logistics and transportation, supply chain, energy, oil and gas, healthcare, retail, hotel chains, airlines, construction companies, banks, social services and government.

### Examples of industrial engineering projects include:

- Making wait times shorter for rides at Walt Disney World to increase guest satisfaction
- Optimizing the nursing staff levels at a hospital to improve patient care
- Streamlining the manufacturing processes of automobiles to make cars more affordable
- Simplifying a supply chain for UPS so deliveries can be made more expediently
- Leading a team of engineers to design new equipment for NASA
- Improving the quality of your favorite candy bar at Hershey's to increase customer satisfaction
- Performing energy audits to enable more companies to go green
- Consulting and training people to use the latest technology to improve operations
- Designing safer and more ergonomic ways to work on the factory floor at a manufacturing plant

A 2017 salary survey produced by the National Association of Colleges and Employers found that new industrial/manufacturing engineering graduates earned an average starting salary of \$64,280.

## WHY EARN YOUR INDUSTRIAL ENGINEERING DEGREE AT THE UNIVERSITY OF HOUSTON?

### ACADEMICS

The industrial engineering department at the University of Houston Cullen College of Engineering is highly-ranked, consisting of top-performing students and world-class faculty and researchers. Undergraduate students in the industrial engineering department are taught by professors who are actively conducting research in the areas of healthcare and medical decisionmaking, homeland and port security, energy, reliability and maintenance, logistics and transportation, supply chains and manufacturing. Additionally, undergraduate students are exposed to professional and research opportunities throughout their education. Houston is home to the second-most Fortune 500 headquarters of all major U.S. cities. This means that, just minutes down the road, your new career beckons! The department recently launched the first BSIE/MBA joint degree, providing IE students the opportunity to get their industrial engineering bachelor's as well as a master of business administration while saving 24 credit hours of course work.

Learn more at [www.ie.uh.edu/undergraduate-program/overview](http://www.ie.uh.edu/undergraduate-program/overview)

### RESEARCH

The industrial engineering department at the University of Houston Cullen College of Engineering places a huge emphasis on undergraduate research, encouraging all undergraduate students to get involved with faculty-led research projects or Capstone design projects before they graduate. With an incredible array of industrial engineering research taking place inside of the engineering buildings, students have unique access to some of the world's most cutting-edge technological research and discoveries – so you have no excuse not to get involved!

Learn more at [www.ie.uh.edu/research/overview](http://www.ie.uh.edu/research/overview)

### SCHOLARSHIPS

Industrial engineering students can apply for the Sam Scharff Scholarship, Melody Snider-Porter Scholarship, Durga and Sushila Agrawal Endowment, Brij and Sunita Agrawal Scholarship, Hari and Anjali Agrawal Scholarship, Charles E. Donaghey Scholarship, Víctor Zaloom Scholarship, Scott T. Poage Matching Scholarship, Piping Technology Scholarship, and others. Merit-based scholarships are also awarded by the Cullen College of Engineering.

Scholarships are also offered by the University of Houston Office of Scholarships and Financial Aid. Additionally, the university's co-op program allows students to receive career training while financing their education.

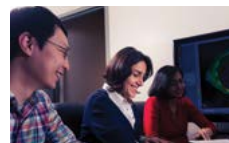
Learn more at [www.ie.uh.edu/undergraduate-program/scholarships](http://www.ie.uh.edu/undergraduate-program/scholarships)

### STUDENT ORGANIZATIONS

Students are encouraged to join academic and professional organizations to build leadership, communication and networking skills. Members of student organizations receive career guidance from engineering professionals and participate in activities that promote engineering.

Student organizations include Alpha Pi Mu, an industrial engineering national honor society and the Institute of Industrial Engineers (IIE).

Learn more at [www.ie.uh.edu/people/student-organizations](http://www.ie.uh.edu/people/student-organizations)



## FOR MORE INFORMATION

UH Department of Industrial Engineering: [www.ie.uh.edu](http://www.ie.uh.edu)  
Undergraduate Program: [www.ie.uh.edu/undergraduate-program/overview](http://www.ie.uh.edu/undergraduate-program/overview)  
Email: [ajlewis6@central.uh.edu](mailto:ajlewis6@central.uh.edu)

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UNIVERSITY of HOUSTON | ENGINEERING

# BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

FOUR-YEAR ACADEMIC MAP 2018-2019

## YEAR 1

SEMESTER 1			SEMESTER 2			Total
ENGI 1100	Introduction to Engineering	1	ENGI 1331	Computing for Engineers	3	
CHEM 1331	Fundamentals of Chemistry	3	MATH 1432	Calculus II	4	
CHEM 1111	Fundamentals of Chemistry Lab	1	PHYS 1321	University Physics I	3	
ENGL 1303	First Year Writing I	3	ENGL 1304	First Year Writing II	3	
MATH 1431	Calculus I	4	HIST 1376/77	The United States to 1877	3	
CORE	Language, Philosophy & Culture	3				
		<b>Semester Hours 15</b>			<b>Semester Hours 16</b>	<b>31</b>

## YEAR 2

SEMESTER 1			SEMESTER 2			Total
POLS 1336	U.S. & Texas Constitutions & Politics	3	INDE 3333	Engineering Economy I	3	
INDE 3330	Financial & Cost Management	3	MECE 3400	Introduction to Mechanics	4	
INDE 2333	Engineering Statistics I	3	INDE 2331	Computer Applications for Industrial Eng.	3	
MATH 2433	Calculus III	4	ENGI 2304	Technical Communications	3	
PHYS 1322	University Physics II	3	MATH 3321	Engineering Mathematics	3	
		<b>Semester Hours 16</b>			<b>Semester Hours 16</b>	<b>32</b>

## YEAR 3

SEMESTER 1			SEMESTER 2			Total
POLS 1337	U.S. Government	3	CORE	Creative Arts	3	
INDE 3382	Stochastic Models	3	INDE 3381	Linear Optimization	3	
INDE 3364	Engineering Statistics II	3	INDE 4331	Analysis of Industrial Activities	3	
INDE 3310	Quality Control and Improvement	3	INDE 4369	Facilities Planning and Design	3	
INDE 3432	Manufacturing Processes	4	INDE 3362	CAD/CAM	3	
		<b>Semester Hours 16</b>			<b>Semester Hours 15</b>	<b>31</b>

## YEAR 4

SEMESTER 1			SEMESTER 2			Total
INDE 4370	Discrete Event Simulation	3	INDE 4315	Supply Chain Management	3	
INDE 4111	Industrial Engineering Seminar	1	INDE 4372	Operations Control	3	
MECE 2334	Thermodynamics	3	INDE 4337	Human Factors & Ergonomics	3	
INDE 4320	Computer-Integrated Mfg.	3	INDE 4334	Engineering Systems Design	3	
HIST 1378/79	The United States Since 1877	3	Tech Elective	Technical Elective	3	
CORE	Social & Behavioral Sciences	3				
		<b>Semester Hours 16</b>			<b>Semester Hours 15</b>	<b>31</b>
						<b>TOTAL SEMESTER HOURS 125</b>

\*Students should meet with their academic advisor to formulate their own plan. Course offerings are subject to change.



# FAST FACTS

133

TOTAL UNDERGRAD  
STUDENTS IN IE  
DEPARTMENT

\$64,280

AVERAGE STARTING  
SALARY WITH B.S. IN  
INDUSTRIAL ENGINEERING

11

TOTAL  
FACULTY IN IE  
DEPARTMENT

138

TOTAL FACULTY  
IN CULLEN  
COLLEGE

22:1

STUDENT-TO-FACULTY  
RATIO ACROSS THE  
UNIVERSITY