INDUSTRIAL ENGINEERING - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF SCIENCE IN FINANCE

Industrial and systems engineering has a long-standing history and unique place among engineering majors as the academic discipline responsible for the economic viability of productive systems across industries. Industrial engineers are keenly aware of the goals and objectives of the enterprise. Additionally, industrial engineers receive a core curriculum in the rigorous underpinnings requisite for the quantification of uncertainty and the mitigation of financial risk to the enterprise. This 3+2 degree ensures that the successful graduate from the Mays Business School, department of finance, has a solid background in both the stochastic processes used to characterize and model the uncertainty coupled with the financial acumen requisite to ensure the economic viability of the enterprise. Students of the industrial and systems engineering program will take advantage of a series of internships and practicums that expose the undergraduate to various facets of financial stability and instability in industry. This program will produce a select and skilled group of industrial leaders that will take their place in the industrial world ensuring the viability of productive organizations around the globe.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, data engineering, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering (Note: not all programs listed are offered in Qatar). The freshman year is slightly different for chemical engineering, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

First Year

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 107 General Chemistry for Engineering Students 1,4</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 117 General Chemistry for Engineering Students Laboratory 1,4</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 103 or ENGL 104 Introduction to Rhetoric and Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 102 Engineering Lab I - Computation 1</td>
<td>2</td>
</tr>
<tr>
<td>MATH 151 Engineering Mathematics 1,2</td>
<td>4</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Semester Credit Hours</th>
<th>Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 217/PHYS 217 Experimental Physics and Engineering Lab III - Electricity and Magnetism 1</td>
<td>2</td>
</tr>
</tbody>
</table>

1 A grade of C or better is required.
2 Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.
3 Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts (see AREN curriculum for more information), 3 from social and behavioral sciences (see DAEN and IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses and cultural discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/) courses. 4 BMEN, CHEN and MSEN require 8 hours of fundamentals of chemistry which are satisfied with CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Students with an interest in BMEN, CHEN and MSEN can take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.
5 For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For MS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, or COMM 205) and/or 3 hours to UCC elective.
MATH 251 or MATH 253  
or Engineering Mathematics III  
Manufacturing and Assembly Processes I  
or Essentials of Modern Manufacturing  
Methods for Engineering Design  
PHYS 207  
Electricity and Magnetism for Engineering  
and Science  
STAT 211  
Principles of Statistics I  
Select one of the following:  
CSCE 110  Programming I  
CSCE 111  Introduction to Computer Science  
Concepts and Programming  
CSCE 120  Program Design and Concepts  
CSCE 206  Structured Programming in C  
Semester Credit Hours  
Spring  
ACCT 640  Accounting Concepts and Procedures I  
ECON 202  Principles of Economics  
ISEN 210  Deterministic Optimization Modeling and  
Design  
ISEN 230  Informatics for Industrial Engineers  
ISEN 302  Economic Analysis of Engineering Projects  
MATH 304  Linear Algebra  
MEEN 221  Statics and Particle Dynamics  
Semester Credit Hours  
Summer  
FINC 601  Financial Analysis Practicum  
FINC 602  Corporate Finance  
Semester Credit Hours  
Third Year  
Fall  
ACCT 327  Financial Reporting I  
FINC 601  Financial Analysis Practicum  
ISEN 310  Uncertainty Modeling for Industrial  
Engineering  
ISEN 320  Operations Research I  
ISEN 330  Human Systems Interaction  
MATH 308  Differential Equations  
Semester Credit Hours  
Spring  
ISEN 340  Operations Research II  
ISEN 350  Quality Engineering  
ISEN 355  System Simulation  
ISEN 370  Production Systems Engineering  
Select one of the following:  
COMM 203  Public Speaking  
COMM 205  Communication for Technical Professions  
ENGL 203  Writing about Literature  
ENGL 210  Technical and Professional Writing  
Semester Credit Hours  
Fourth Year  
Fall  
FINC 601  Financial Analysis Practicum  
University Core Curriculum (http://catalog.tamu.edu/ 
undergraduate/general-information/university-core- 
curriculum/)  
Technical elective  
Semester Credit Hours  
Spring  
ACCT 328  Financial Reporting II  
ISEN 460  Capstone Senior Design  
MEEN 222/ 
MSEN 222  Materials Science  
University Core Curriculum (http://catalog.tamu.edu/ 
undergraduate/general-information/university-core- 
curriculum/)  
High Impact Experience  
ISEN 399  Professional Development  
Semester Credit Hours  
Fifth Year  
Fall  
FINC 601  Financial Analysis Practicum  
FINC 603  Investments (Graduate Technical Elective)  
Select one of the following:  
BAEN 320  Engineering Thermodynamics  
ECEN 215  Principles of Electrical Engineering  
MEEN 315  Principles of Thermodynamics  
University Core Curriculum (http://catalog.tamu.edu/ 
undergraduate/general-information/university-core- 
curriculum/)  
Semester Credit Hours  
Spring  
ACCT 647/ 
FINC 647  Financial Statement Analysis  
FINC 605  Valuation and Financial Modeling  
Graduate Technical Elective  
Select one of the following:  
BAEN 320  Engineering Thermodynamics  
ECEN 215  Principles of Electrical Engineering  
MEEN 315  Principles of Thermodynamics  
University Core Curriculum (http://catalog.tamu.edu/ 
undergraduate/general-information/university-core- 
curriculum/)  
Semester Credit Hours  
Total Semester Credit Hours  
6  
MSF prerequisite course that counts towards ISEN degree.  
7  
Course will double count towards both undergraduate and graduate  
program.  
8  
A total of 9 hours of technical electives is required. The choice  
of courses to be taken must be made in consultation with the student’s  
advisor and/or the Industrial Engineering Advising Office.  
9  
All students are required to complete a high-impact experience in  
order to graduate. The list of possible high-impact experiences is  
available in the INEN advising office.  
10  
The MS Finance degree requires students to take 9 hours of electives  
in support of their career goals.  

The Bachelor of Science degree in Industrial Engineering requires a grade  
of C or better for required industrial engineering (ISEN) courses.
The program includes a total of 164 hours which up to 9 hours may be applied toward both the Bachelor of Science in Industrial Engineering and the Master of Science in Finance.

Total Program Hours 164