At Eindhoven University of Technology (TU/e), all bachelor's degree programs are part of the Bachelor College. As a student of the TU/e Bachelor College, you will be able to put together your own course program, based on your interests, skills and ambitions. Your major will take up the largest part of your bachelor's degree program. Through your major, you pick the field you want to study and that you will be working in later as an engineer. It is the foundation of your degree program. If you choose Industrial Engineering as your major, your bachelor's degree program will look as follows:

**Industrial Engineering major**
Your major constitutes half of your bachelor's degree program. In the Industrial Engineering major, you will take courses in math, industrial engineering and integration - a combination of the different industrial engineering disciplines. On average, you will spend half your time on industrial engineering topics and half on math and integration. The major is taught in English.

**Free electives**
Free electives take up a quarter of your bachelor's degree program. You can use your electives to emphasize certain topics in your degree program. You can broaden your perspectives by selecting courses from another major or gain more in-depth knowledge in your own field.
Basic courses
In addition to the courses that are part of your major, you will also take basic courses, such as mathematics and physics, and you will learn design. You will practice your professional skills, such as teamwork and organization. These courses will give you a solid foundation as an engineer.

Electives - USE
Finally, you will select your so-called USE courses. USE stands for User, Society and Enterprise. In these courses, you will learn that technology is always part of a broader context. Engineers develop technology for users, to contribute to solutions to societal problems and to create economic opportunities for companies.

The full course schedule for the Industrial Engineering bachelor’s degree program is as follows:

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Quarter 1</th>
<th>Quarter 2</th>
<th>Quarter 3</th>
<th>Quarter 4</th>
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<tbody>
<tr>
<td></td>
<td>Calculus</td>
<td>Physics</td>
<td>Data Analytics for Engineers</td>
<td>USE</td>
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<td></td>
<td>Mathematics 1</td>
<td>Electives</td>
<td>Fundamentals of Business Information Systems</td>
<td>Electives</td>
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<tr>
<td>Year 2</td>
<td>Engineering Design</td>
<td>Fundamentals of Financial and Management Accounting</td>
<td>Marketing Perspectives on Product Innovation</td>
<td>Design of Business Information Systems</td>
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<td></td>
<td>Methodology for Industrial Engineering Research</td>
<td>Mathematics 2</td>
<td>Stochastic Operations Management</td>
<td>Manufacturing Integration Course</td>
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<tr>
<td></td>
<td>Electives</td>
<td>USE</td>
<td>Electives</td>
<td>USE</td>
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<tr>
<td>Year 3</td>
<td>Organizational Behaviour for Industrial Engineering</td>
<td>Supply Chain Management, Business Analytics and Decision Support, Strategic and Organizational Perspectives on Product Innovation (2 out of 3)</td>
<td>Final project</td>
<td>Final project</td>
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<tr>
<td></td>
<td>Quality and Reliability Engineering</td>
<td>Supply Chain Management, Business Analytics and Decision Support, Strategic and Organizational Perspectives on Product Innovation (2 out of 3)</td>
<td>Electives</td>
<td>Electives</td>
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FIRST-YEAR MAJOR COURSES FOR INDUSTRIAL ENGINEERING

Right from the start, you will have lectures, seminars, group assignments and projects. In addition to your basic courses, which mostly deal with theory, you and your fellow students will collaborate on projects. In one project, you may look at a company’s purchasing approach, while another project may ask you to view the process from a marketing or logistics perspective. Below, you will find an overview of the first-year courses of the Industrial Engineering major.

Statistics for Industrial Engineering
As many business processes can be modeled using stochastic variables, statistics is an important toolbox for Industrial Engineers to analyze a problem or situation using quantitative data. This course covers the basics of probability theory and statistics. You will learn to recognize when to use which statistical methods and apply these in the context of problem solving. The course will not only cover the statistical theory, but will pay special attention to the application of the methods, the interpretation of statistical results and the translation to decision making in Industrial Engineering problems.

Fundamentals of Work & Organizational Psychology
Competent, motivated and productive employees are a crucial asset for many organizations. Therefore, insight into the human factor in organizational processes is highly relevant for Industrial Engineering, Innovation Management, and Operations Management students. In this course, you will acquire knowledge of 1) important concepts and findings from personnel, work- and organizational psychology, 2) common research methods that are used in the domain of work- and organizational psychology, and 3) basic descriptive and inferential statistics. Straightaway, you can apply what you have learned in three large assignments.

Fundamentals of Operations Management
This course provides a basic framework for understanding operations management and its organizational and managerial context. At the end of this course, you should be able to: Explain approaches to improving processes, use relevant electronic spreadsheet tools (e.g. solver) to solve operations management problems and analyze relevant quantitative models to solve real world problems.
The course ‘Fundamentals of Product Innovation’ is built around lectures and assignments. The lectures start by explaining the overall purpose and objectives of product innovation and by detailing the stages of the product innovation process, which entail predevelopment, development and commercialization respectively. Next, the activities carried out in each stage of the product innovation process and the methods and tools that can be applied are covered step by step.

**Fundamentals of Business Information Systems**
Modern organizations need business information systems to support their internal operations and their interactions with external parties (suppliers, customers, competitors, government, etc). As such, basic knowledge on the concepts of business information system development and management is essential. Business processes and information systems are interwoven: changing a business process results in changing the information systems supporting it and vice versa. It is therefore also important that you are able to model the complex relation between business processes and information systems. In this relation, data and process models play a key role. A data model specifies which data of the business process the supporting information systems should collect, store and manipulate. A process model specifies the steps in the business process and their interdependencies that have to be supported by the information system. Both types of model can be used to develop or configure information systems that support business processes.

**Mathematics 1**
This course is sequel to the basic Calculus course, focused on topics that are relevant for Industrial Engineering. You learn logics, performing calculations with matrices, and how to solve linear systems of equations. Probability plays a role in many models. This course makes a start with elementary probability theory including the necessary set theory. You will learn the uniform, binomial, and geometric distribution as well as the required mathematics for this: sequences and series.
ELECTIVES AND COACHING

Electives
You can broaden your perspectives by selecting courses from another major or use your electives to gain more in-depth knowledge of Industrial Engineering. You can already start thinking about your electives in the first year. Of course, you do not have to make your decisions all by yourself. Experienced TU/e coaches will give you personalized advice throughout your studies and will help you choose your electives.

If you want to develop your in-depth knowledge of Industrial Engineering, you can choose electives packages around healthcare, economics, entrepreneurship, logistics, work and organizational psychology and information systems. Choose courses from another TU/e major to broaden your knowledge.

Coaching
Experienced TU/e coaches will give you personalized advice throughout your studies and will help you choose your electives. This way, you will put together a program that matches your interests and ambitions. If you find out in the first year that another TU/e major suits you better, you and your coach will look into changing majors the same year. In addition to a personal coach, your study advisor and senior students will guide you. These students are also the mentors for the group of first-year students you are assigned to. They will help you find your way around your degree program.

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