

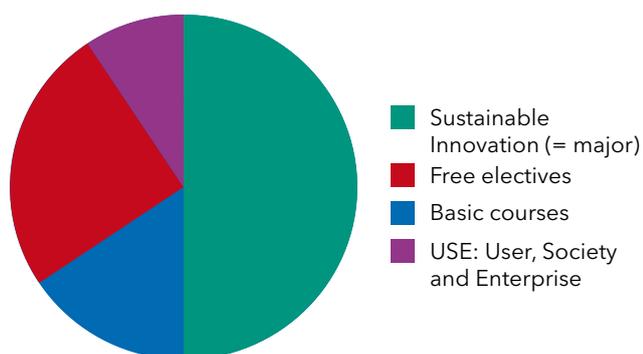
First-year courses in the Sustainable Innovation major*

TU/e

EINDHOVEN
UNIVERSITY OF
TECHNOLOGY

TU/E BACHELOR COLLEGE

Eindhoven University of Technology (TU/e) combines its bachelor education in the Bachelor College. As a student of the TU/e Bachelor College, you have the freedom to define your study program based on your own interests and ambitions. A large part of your Bachelor's program is made up of your major, in which you choose the specialized field that you want to work in later as an engineer. This forms the basis of your study program.



Major Sustainable Innovation

Half of the three-year Bachelor's program is made up by your major, which forms the basis of your study program. If you choose the Sustainable Innovation major you'll combine courses in technology and social sciences. The technology courses are in Sustainable Energy or Urban Planning and Mobility. On average you'll spend a third of your time on technology subjects, a third on social sciences subjects and a third on research methods and practical assignments. The language of communication of this major is English.

Free electives

A quarter of the Bachelor's program consists of elective courses that you can choose yourself. These allow you to change the emphasis in your program. You can opt to broaden your knowledge by following courses in a different specialization, or alternatively you can gain more in-depth knowledge in your own specialization.

* This major is formally part of the Innovation Sciences Bachelor's program

Compulsory basic courses

As well as your major you'll follow a number of basic courses such as mathematics and natural sciences. You'll also learn technological design, and you'll gain professional skills like teamworking and organization. These courses will give you the sound basis that you'll need as an engineer.

Electives - USE

Finally you choose USE (User, Society and Enterprise) courses. These show you that technology always functions in a broader context. Engineers develop technology for users, to contribute to solving societal problems and to create economic opportunities for enterprises.

The Bachelor's program Sustainable Innovation has the following structure:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
Year 1			
Calculus	Physics	Data Analytics for Engineers	USE
Sustainable Development in global context	Sustainable Technology in Society: Introduction	Research methods	Industrial Ecology
Economics of Innovation: Introduction	Technology course or Electives	Technology course	Electives
Year 2			
Design	Technology course or Electives	Electives	Technology course
Managing Sustainable Technology	Research methods 2	Managing Sustainable Technology OGO	Economic Policy
Technology course	Electives USE	Electives USE	Electives USE
Year 3			
Evaluating economic policy: social cost benefit	Innovation Sciences integration project	Bachelor's Thesis	Bachelor's Thesis
Sustainable Technology in Society: Advanced	Economics of Innovation: Advanced	Electives	Electives
Electives USE	Electives USE	Electives	Electives

Technology courses

The technology courses are in Sustainable Energy or Urban Planning and Mobility.

Obligatory technology courses for the **Sustainable Energy** specialization:

- Physics of New Energy
- Introduction Transport Phenomenon
- Thermodynamics
- Heat and Flow

Obligatory technology courses for the **Urban Planning and Mobility** specialization:

- Urban Projects and Finance
- Transportation Engineering
- Urban Planning
- Mobility and Logistics

FIRST-YEAR COURSES IN THE SUSTAINABLE INNOVATION MAJOR

In the first year of your Sustainable Innovation major you'll follow technology courses together with social sciences courses such as economics and sociology. The obligatory technology courses are in Sustainable Energy or Urban Planning and Mobility. At the start of your major you can choose which specialization you prefer. You'll find a list of the first-year courses in the Sustainable Innovation major below.

Sustainable Development in a Global Context

This introductory course provides you with knowledge about sustainable development, globalization and the interrelationship between ecological and social aspects. During the lectures you will learn about sustainable development on rich and poor countries. In tutorials you'll work on a range of case studies that help you to understand the complexity and future challenges of sustainable development. This includes for example debating a documentary about the (un)sustainability of the food system and negotiating in a role-playing game about global climate change.



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Economics of Innovation: Introduction

This course focuses on economic theories relating to innovation. Important aspects covered include the creation, protection and distribution of innovations. You'll learn to apply economic theories to issues in the field of innovation policy and innovation management.

Sustainable Technology in Society: Introduction

This course focuses on the interrelationships between technology and society, and the challenges these present for sustainable innovation. You'll study and analyze a range of cases using the most important theories from this multidisciplinary specialization.

Research Methods

In this course you learn about scientific research and the method used in empirical research. You learn how to formulate a research question, which forms of research you can use to answer it, and how to process and interpret the results of a simple research project. You also develop the skills needed to carry out research yourself.

Industrial Ecology

What is the relationship between mass trends, everyday life and the economy? That's the central question in the Industrial Ecology course, which takes a cradle-to-grave approach to studying mass trends. You'll learn about the pros and cons of aspects like life-cycle analysis, ecological footprint and input-output analysis. And you'll also learn to argue with specialists in the field about these concepts.

The technology courses that you follow are in Sustainable Energy or Urban Planning and Mobility. In the first year you follow one course from your chosen technology specialization in quarter 3.

Technology course for the Sustainable Energy specialization

The technology course for the Sustainable Energy specialisation is Thermodynamics, taught by the Mechanical Engineering department. This course focuses on the basic principles for fluid dynamics and heat and mass transfer and consists of four main themes: hydrostatics, hydrodynamics, diffusion processes and heat and mass transfer.

Technology course for the Urban Planning and Mobility specialization

The technology course for the Urban planning and mobility specialisation is taught by the Built Environment department. These courses introduce concepts of spatial planning, mobility and logistics challenges. Courses focus on the spatial and planning aspects of the urban environment, transportation, facilities, economy, recreation and tourism, and quality of life. This includes mobility and logistics modeling, financial and strategic planning in spatial planning.

ELECTIVES AND COACHING

Free electives

As well as the Sustainable Innovation courses, the Bachelor's program includes electives to match the program to your own interests. You can choose to broaden your knowledge by following courses in another field, or you can choose to gain extra in-depth knowledge within Sustainable Innovation. For example you can choose electives in the following areas:

- Smart buildings and Cities
- Innovation Management
- Psychology & Technology
- Energy
- Building Physics: Building and Environment

Intensive coaching

You're not on your own while you're studying. At TU/e, experienced coaches help you right through your program with personal advice. That starts from day one, when together with your coach you decide on the right courses to choose in the elective part of your program. That means you define your own study program, to match your own interests and ambitions. And if you discover in your first year that you'd prefer to do a different major, your coach will help you find a way to change during the year.

As well as a personal coach, you'll receive support from your student counselor and students in later years - they act as mentors to your first-year group, and will help you to make a good start on your studies.

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