Major Computer Science and Engineering

Curriculum

Program objectives

The overall objective of the bachelor's degree program is to train and educate young professionals to the level they need to enter an appropriate master's degree program or embark upon a professional career in the computer science field.

To that end, you are expected to:

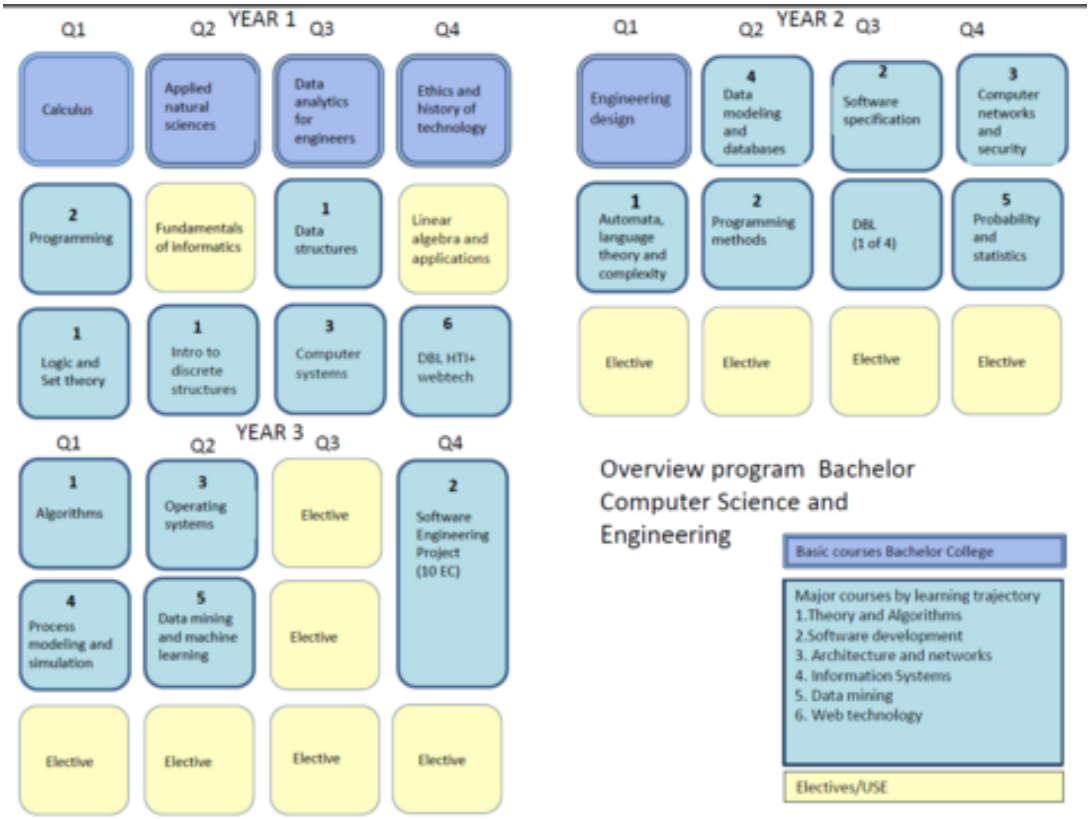
1. acquire cognitive skills relating to computer science and engineering
2. acquire practical capabilities and skills relating to software design
3. acquire professional and generic academic skills

A detailed descriptions of the learning outcomes of the program is presented in this profile [https://assets.studiegids.tue.nl/fileadmin/content/Faculteit_WenI/Bachelor_College/Major_Computer_Science_and_Engineering/Profile%20of%20grad .

Program Overview

The schedule below provides a detailed overview of the major Computer Science and Engineering program, with each study component represented by its name.

On this page, you can also find information about the learning lines (important conceptual domains) in your major.



[https://assets.studiegids.tue.nl/fileadmin/_processed_/6/0/csm_Overview%20Program%20BCS_348448d3fd.png]

[1)] One is free to choose the formal variant of basic course 3NAB0 (Yr 1, Q2): 3NBB0

[2)] Years 2 and 3 show 10x *elective or USE*. This means that the student must choose between an elective study component or a USE study component. The requirement is that, in study years 2 and 3, a total of 3 USE study components (one coherent USE package) and 7 electives must be completed.

[3)] In the major one has to choose one DBL out of four (the other DBL's might be chosen as electives in year 2 or 3): 2IO70 DBL Embedded systems, 2IO90 DBL Algorithms, 2IOI0 DBL Process mining, 2IS70 DBL App development.

[4)] With permission of the Academic Advisor component 2IPE0 (Yr 3,Q4) can be taken in Q1 or Q3 instead

Timeslots

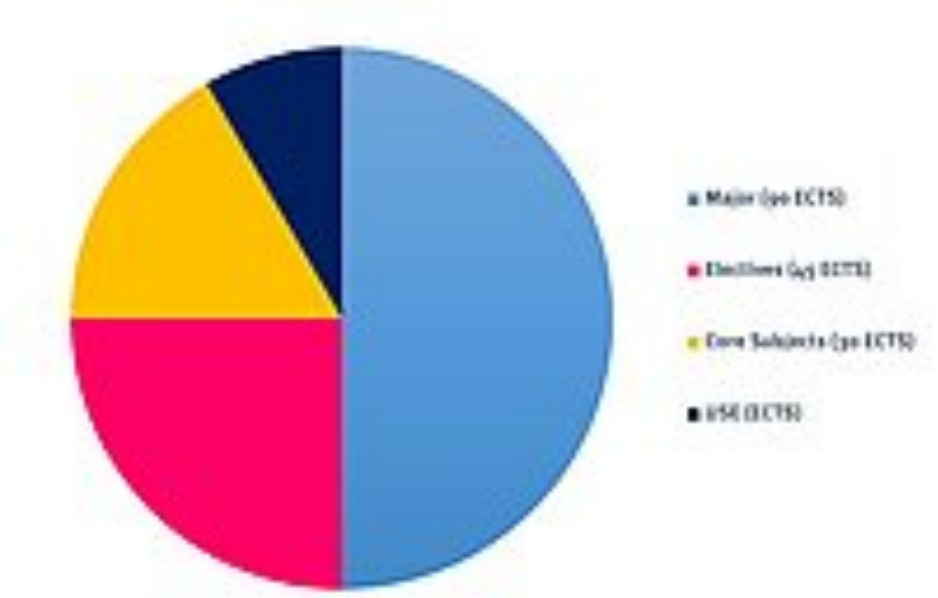
	Monday	Tuesday	Wednesday	Thursday	Friday
1+2 *(8:45-10:30)*	A1	C1	B1	E1	D1
3+4 *(10:45-12:30)*	A2	C2	B2	E2	D2
5+6 *(13:45-15:30)*	B1	E1	D1	A1	C1
7+8 *(15:45-17:30)*	B2	E2	D2	A2	C2
9+10 *(18:15-20.00)*	E3	B3	A3	D3	C3

[https://assets.studiegids.tue.nl/fileadmin/_processed_/f/3/csm_Timeslot-overzicht-2016_35a64fc432.jpg]

To prevent scheduling mix-ups, each course falls into a timeslot. Use these timeslots to create a feasible schedule that allows you to follow all lectures and tutorials and take all exams.

Basic (or Common) courses

You need to take a number of basic courses that will provide the foundation for your development as engineer. As such, they highly contribute to the third objective above, developing professional and generic academic skills. More specifically, they prepare our students to apply their specific computer science knowledge and skills in multidisciplinary settings.



[https://assets.studiegids.tue.nl/fileadmin/_processed_/e/e/csm_Bachelor_College_0c962affba.jpg]

These basic courses will give you the knowledge you need for your electives and to take elective packages outside your degree program.

The basic courses include Mathematics, Physics, Data Analytics, Design, User, Society & Enterprise and Professional Skills. Different degree programs may use different variations of a course.

Basic courses for Computer Science and Engineering

- 0SAB0 – USE basics: Ethics and history of technology
- 2WBB0 – Calculus B
- 2IAB0 – Data Analytics for engineers
- 3NAB0 – Applied Physical Sciences, conceptual
- 4WBB0 – Engineering Design

For more information about the courses, visit the Osiris course catalog [https://osiris.tue.nl/osiris_student_tueprd/OnderwijsCatalogus.do?taal=en].

Learning lines

The lists below provide a detailed overview of the learning lines within the major Computer Science and Engineering.

Theory and Algorithms

Code	Course name	Yr. Q.	Level
2IT60	Logic & SET Theory	1.1	1
2IT80	Introduction to Discrete Structures	1.2	1
2IL50	Data Structures	1.3	2
2IT90	Automata, Language Theory and Complexity	2.1	2

2IO90	DBL Algorithms	2.3	2
2ILC0	Algorithms	3.1	3

Software Development

Code	Course name	Yr. Q.	Level
2IP90	Programming	1.1	1
2IPC0	Programming Methods	2.2	3
2IX20	Software Specification	2.3	3
2IPE0	SEP (Software Engineering Project)	3.4	3

Architecture and Networks

Code	Course name	Yr. Q.	Level
2IC30	Computer Systems	1.3	1
2IO70	DBL Embedded Systems	2.3	2
2IC60	Computer Networks & Security	2.4	2
2INC0	Operating Systems	3.2	3

Information Systems

Code	Course name	Yr. Q.	Level
2ID50	Data Modeling & Databases	2.2	2
2IOI0	DBL Process Mining	2.3	2
2IIH0	Process Modeling and Simulation	3.1	3

Web Technology and Data Mining

Code	Course name	Yr. Q.	Level
2IOA0	DBL HTI + Webtech	1.4	1
2IS70	DBL App Development	2.2	2

2DI90	Probability & Statistics	2.4	2
2IIG0	Data Mining and Machine Learning	3.2	3

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