



Information and Communication Technology: Software Engineering

4-year Bachelor programme | Deventer



IT is everywhere! Ordering tickets for a concert, applying for a student

loan, calling your friend who is away on a study trip – this and more can all be done online

nowadays. IT specialists play a key role in keeping such day-to-day activities running smoothly.

The Saxion **Software Engineering** programme is an excellent

preparation for a dynamic career. Are you keen to design and develop creative applications?

Dutch education focusses on fostering student independence, team spirit and presentation skills. On top of that, Saxion's programmes are known for interweaving theory with practical experience. The Software Engineering programme forms an excellent basis for a career in the world of IT. You could decide to look for a job in The Netherlands, but you could also launch your career abroad. As an IT specialist, you will be welcomed with open arms anywhere in the world.

general

Within the four year programme of Software Engineering you will learn to design and develop software: from idea to realization. Learn all about subjects such as: programming, designing and developing methods for software, web and mobile applications, server-side software, search engines, system architecture, networks, databases, security etc. You can specialize in different subjects such as Artificial Intelligence, Big Data Technologies, Advanced App Development or the Internet of Things.

First and second year

The first term of your degree revolves around gaining a general overview of the work field of a soft-

ware Engineer, Dutch culture and society and working together with your classmates in a multicultural team. You will spend the rest of the first two years studying subjects which are directly related to Software Engineering. In each period you will attend lectures, seminars, workshops and work in projects.

Third and fourth year

The third year starts with an internship. This is the opportunity for you to gain practical experience in a company of your own choice. After your internship you take a deepening or broadening minor. This could be an interdisciplinary project in Smart Solutions, a semester abroad at another university or another program at our university. You will complete your studies with a graduation project, which involves a research project at an IT department or a (IT) company.

Practically oriented

Saxion takes a competence-oriented and problem guided approach to teaching, meaning that theory and practical experience are interwoven whenever possible. Students are continually challenged to apply their theoretical knowledge in practical situations, both individually and as part of an international project team.

As an internationally operating software engineer you are relying on sharing your expertise with others, by informing, presenting and advising colleagues and clients. Therefore, we help you to develop your 'soft' skills such as communication, leadership, ethics, project-based working and working in international interdisciplinary teams.

Upon graduation you receive the title of Bachelor of Science. By that time you are fully prepared for a career in the world of IT. Thanks to the huge demand for IT specialists, a wide range of jobs are available for software architects, software developers, front-end developers, big data engineers, data scientists, testers and software analysts in The Netherlands or abroad. You could set to work within the IT department of a large organization, within a specialized IT company or you could start your own business. You could also launch your career in your home country.

It's up to you to decide where you want to build your career. And if you prefer to continue with your studies, that's no problem. The Netherlands has plenty of opportunities to further expand your knowledge.

graduated



Coaching

During your study, you are not expected to do everything completely by yourself. A study career counsellor is around to help you to settle in, both in The Netherlands and at Saxion. The study career counsellor also supervises the progress of your studies to maximise your success and provides guidance on your future career prospects.

International programme

Software Engineering is run by the School of Creative Technology (ACT) and is taught in English. If you decide to choose Software Engineering, you will be studying together with many international students. Nowadays

there are 34 nationalities studying at our IT program. You will have a great time combining learning, student life and studying with people from different cultures. In The Netherlands 25% of Dutch IT companies have staff shortage. Therefore many Dutch IT companies are used to work in multicultural teams or they collaborate with companies abroad. In those companies the main language is English. For Software Engineers with good social skills it is easy to find companies in the Netherlands for internship and graduation assignments. There is plenty of work for software engineers in The Netherlands!



'My name is Nhi Do, I am a second year Software Engineering student from Vietnam. If you want to see the effort of your work immediately, then Software Engineering is what you have been looking for! It is the Dutch education that attracted me from the very beginning: from theory to practice, from individual assignments to teamwork. All of this strongly supports the occupational field of Software Engineering that I chose to dive into. Studying abroad is something that has changed my life completely.'

Nhi Do



Subject descriptions

- **Introduction to Programming**

During this course you'll get acquainted with basic programming concepts, such as variables, conditions, loops and lists by accumulating some practical experience with programming (in Java). After this course you are able to write your own (small) Java programs!

- **Professional Skills program**

In this program you can choose topics from a wide range based on your personal preferences. They are created to improve your personal development skills. The topics are categorized in: personal leadership, future organizational skills, problem solving skills, goal oriented communication.

Curriculum bachelor HBO-IT /Software Engineering track

	Semester 1		Semester 2	
Year 1	Introduction to programming	Databases	Object oriented programming	Web Applications
	Organisation & IT	Introduction to infrastructures	Operating systems	Requirements engineering
	Professional skills program 1	Project 1	Professional skills program 2	Project 2
Year 2	Web Technology	System design	DevOps & Security	Introduction User Experience (Optional)
	Complex datastructures	Parallel computing	Native mobile apps	Advanced Data Management (Optional)
	Professional skills program 3	Project 3	Professional skills program 4	Project HBO-IT Corp
Year 3	Internship		Minor Co-creation IT & Research (Saxion Smart Solutions) or General Saxion minor Minor/pre-master at other Dutch university (KOM) International minor	
Year 4	Specialisation: Advanced App Development Big Data technologies Internet of Things		Graduation Project	

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- **Object Oriented Programming**

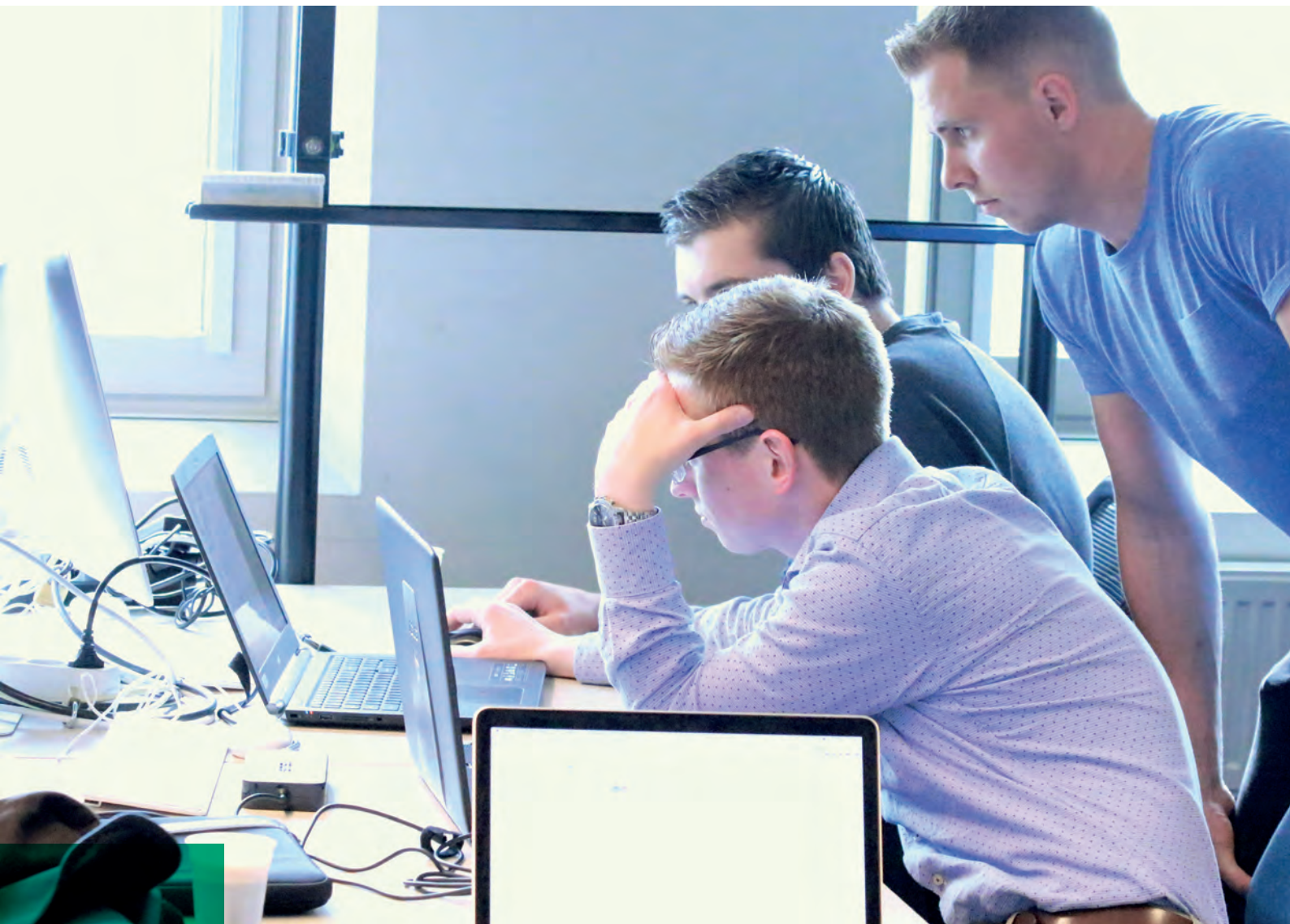
In this course you will learn object-oriented programming in the Java programming language. The module further expands on the knowledge that you have obtained during Introduction to Programming and you will learn how to structure your software using object-oriented techniques.

- **Complex datastructures**

In this course we focus on a few common solutions for common problems. We will look at common data structures such as maps, graphs, trees, stacks and queues. Also widely used algorithms, like search and sorting algorithms are examined. We will also carefully look at the complexity of certain algorithms.

- **Databases**

During this course we learn how to use and design databases. The following topics will be discussed: Querying a database (SQL); Defining and modifying databases; Database design using Entity Relationship diagrams; Apply databases during software development; Advanced features of relational databases (views, triggers, indexes, transactions); Certainly we take a closer look at the more modern NoSQL database implementations.



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- **Parallel Computing**

Parallel processes are becoming more and more important due to the advance of multi-core architectures, which makes parallel execution of software attractive. The processing of Big Data shows that partitioning the data and distributing it over several processing units is very good strategy for tackling these problems which would otherwise not have been possible to solve.

- **Web Technology**

Nowadays many software applications are web based. Users do not have to download and install applications any more, but are able to directly work via the web. In this course you will learn how to build web applications and websites. The student is able to build a web application based on the Java Servlet Specification and learn how to build a website conform to the W3 standards using HTML5, CSS3 and Javascript. You will also learn how to build a REST-service using NodeJS and Express. Other topics are jQuery, Bootstrap and AJAX.

- **Internship**

During your internship, you'll be working at a company on IT assignments. The company adviser (from the company) and your internship supervisor (from Saxion) will provide guidance and supervision. Your internship period lasts 5 calendar months.





- **Minor**

In this semester you take a deepening or broadening minor. This could be an interdisciplinary Smart Solutions project at Saxion, a semester abroad at another university or another program at our university.

- **Specialisation**

In the first semester of your fourth year you specialize yourself within Software Engineering by choosing an elective programme on Big Data Technology, Advanced App Development, Internet of Things or another trending development.

- **Graduation assignment**

In your last semester, you will complete your studies with a graduation project. Your graduation assignment is a final test of competency. The student largely independently solves a problem in the professional field. The student presents and defends his/her thesis in front of a committee, including the company coach (if applicable) and school coaches. The student demonstrates to have the competencies of a starting professional on the University-level (bachelor degree).

‘Students must have adequate English language skills.’

General Saxion entry requirements

Students from all international programmes must demonstrate that they have the ability, motivation and determination to successfully complete the programme. Students must have adequate English language skills. For Software Engineering the entry requirement is academic IELTS of 6.0 or an equivalent in another language test.

The student must be admissible to Higher education through a diploma of secondary education/high school diploma with good results.

For Software Engineering there are no specific entry requirements like Mathematics, although analytic skills are preferable.

About Saxion

With locations in Apeldoorn, Deventer and Enschede and approximately 26,000 students, Saxion is one of the largest institutes of higher education in the east of The Netherlands. Over the past few years, the number of English-taught programmes has grown considerably. Saxion currently has about 3,500 international students from all over the world: Germany, Finland, Spain, Russia, China and many other countries. Saxion Enschede and Deventer are both located next to the railway station, giving students easy access to all parts of The Netherlands and the rest of Europe. The locations are within walking distance from the city centres.



Saxion partners



Get Ready for a Smart World

Technological innovations have an impact not only on your social life but on your future professional life too.

At Saxion University of Applied Sciences, we teach you how these innovations impact your future professional field and how you can apply technology to perform your work even better, so no matter which programme you choose, you will be prepared for a world that is getting smarter.

Studying at Saxion also means growing as a person. Who are you as a person? Where do your talents lie and what do you want to excel at? We will help you develop a moral compass, build your self-confidence and broaden your horizon. You will learn a lot by doing a work placement or by taking a minor in another programme here, elsewhere in the Netherlands or abroad.

This way, you will learn to take responsibility and prepare yourself for a business endeavour or a challenging job. You are in control!

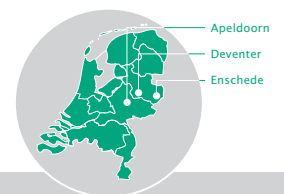
More information

To enrol in the HBO Information and Communication Technology programme Software Engineering, first of all you need to meet our general entry requirements. Please check saxion.edu/entry-requirements for more information. If you have any questions about the requirements or the programme itself, feel free to contact Rogier Hommels or Margriet de Vos of the School of Creative Technology: e-mail: bachelorit.act@saxion.nl

Would you like to apply? Start your application procedure at saxion.edu/application-form.

Saxion Deventer

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information

