

# Internet of Things

**The future of IoT? The future is IoT! A new world in which all our devices are connected to each other and interact and exchange data over the internet without any human intervention. The connections extend beyond standard devices, such as desktops, laptops, smartphones and tablets, to any range of non-internet-enabled physical devices and everyday objects. These devices often need to operate in one system. So, all the IoT solutions need a well-thought-out, reliable architecture to work. The IoT architecture is about connectivity, scalability and security.**

In this programme, we will discuss the whole IoT architecture. An IoT overview is given and various components of IoT are discussed, eg. Edge computing, IoT Hub and Artificial Intelligence (IA). Besides the technical aspects, human aspects, ethics and privacy are taken into account. There is also an IoT project in cooperation with small and medium sized enterprises and research centres.

During the programme, we use the IoT components of Microsoft Azure.

At the end of the programme you:

- have an overview of the architecture of an IoT system;
- can apply edge computing to process sensor output and actuator input;
- can connect an edge computer to the cloud;
- can store data from the edge computers into cloud databases;
- can apply Artificial Intelligence (AI) techniques to the data;
- can implement security standards in an IoT environment;
- can apply the architecture of an IOT system in a project;
- can take ethics and privacy into consideration in the IoT system development.

## Course outline

Would you like to know which courses are part of this programme? Take a look at the ECTS course catalogue (please look at 'exchange programmes') for detailed information.

## Language

English

## Location

NB: The programme is offered in Assen, a town 30 km south of Groningen. However, not many exchange students live in Assen, and Hanze UAS doesn't offer student accommodation in Assen. If you want to live in Assen, you need to find a room yourself. If you want to be part of an international student community and make use of the many services / activities offered to students in Groningen, we would advise you to live in Groningen and commute between Groningen and Assen (20 minutes by train). In that case you will have to take into account travel costs: a return ticket Groningen – Assen by train costs app. € 12 / day.

## Duration

One semester (30 ECTS credits).

Students who apply for this programme are expected to do the whole programme of 30 ECTS credits.

## Course period

Autumn semester (September - February)

## Tuition fees

### Exchange students

Exchange students (students from partner universities) don't need to pay tuition fees.

### Certificate students

Costs for certificate students (students not from partner universities) can be found under [hanze.nl/tuitionfees](http://hanze.nl/tuitionfees)

## Admission requirements

Students need to have obtained 105 ECTS credits at undergraduate level in Electrical and Electronic Engineering or Information Technology (ICT).

### Language requirements

Exchange students need to have a good level of English, comparable to IELTS 6.0, TOEFL 550 or CEFRL B2.

Certificate students need to give proof of English proficiency: IELTS 6.0 or TOEFL 550.

## Application (deadline)

### Application deadline

1 June (Autumn Semester)

*Students from Bangladesh, Pakistan and Nepal need to apply before 1 May*

For more information regarding practical matters (application, housing, tuition fees), you can contact the International Service Desk.

## Notes

Students are expected to apply for the whole programme of 30 ECTS. The outline for this programme can vary from week to week. The programme is intensive and students who apply for this programme are expected to be available and present for the duration of the programme.