



# EIT Digital's Blended Master Programme in Embedded Systems

For tomorrow's digital innovators and entrepreneurs



**coursera**

# Play a key role in the digital future and drive innovations to the global market

**Selected top universities of technology** around Europe have joined forces in the EIT Digital Master School to offer a great variety of programmes in which entrepreneurial skills are considered a core competency of top talent. Best-in-class engineers and researchers combine excellence in science and technology with outstanding entrepreneurial skills. Therefore, all programmes contain Innovation and Entrepreneurship courses, online and on campus.

*"I found my Master's course with EIT Digital very involving and fulfilling. It gave me access to two of the top universities in Europe and its faculties. The business part of the programme helped me to envisage my technical learning as real-world applications and business opportunities."*

(Shiraam Mohan, 2013 Cohort)



University partners involved in the EIT Digital Master School



## Access the world's best learning experience online, any time, any place

In line with the EU ambition to support Education and Training in Europe and beyond, EIT Digital offers online and blended courses whereby boundaries are crossed and limitations of time and place are eliminated as EIT Digital's academic partners work together with partners outside Europe.

EIT Digital is launching the online courses on the Coursera platform because it supports Coursera's bold vision to enable anyone, anywhere, to transform their lives by accessing the world's best learning experience. This deliberate shift to

attractive, academic online education is tuned to students' learning needs: at their own pace, any time, any place. EIT Digital's online education portfolio can be used as part of blended education settings, in both Master and Doctorate programmes, and for professionals it is also a way to update their knowledge. So by gradually sharing parts of its Master School Programme via Coursera, EIT Digital demonstrates its excellence and makes it accessible to a much wider audience.

# Blended Master Programme in Embedded Systems

## Online programme Internet of Things through Embedded Systems

For the first time, European top universities of the EIT Digital Master School are collaborating with Haas School of Business, part of the University of California Berkeley in the US, to offer a unique online programme: the Internet of Things through Embedded Systems, which can be followed on Coursera. A special feature is the combination of technical and entrepreneurial business insights. The online programme can provide access to the Master programme in Embedded Systems. This is what we call the blended Master. This blended Master is a good start to shape your career and bring it up to the next level. After completing the online programme you will be awarded a certificate. Since this online programme can provide access to the on-campus EIT Digital Master School, it provides a big opportunity for those who cherish the ambition to follow the whole EIT Digital Master School programme in Embedded Systems to realize their dream..

Similar to the on campus programme in Embedded Systems we select the best students. If selected, you will be invited to blend in, starting with the Winter School and continuing the second semester on campus. There are excellence grants available and internships in the second year are often paid.

After completion, you will be awarded the same double degree and EIT label as regular on-campus EIT Digital students.

**If you are interested and you want to know more about the admission criteria, contact: [masterschool@eitdigital.eu](mailto:masterschool@eitdigital.eu)**



### EIT Digital online education

- European top universities
- learner centric
- technical excellence and entrepreneurial skills
- collaborate and study with best
- EIT label
- join the on-campus programme after selection
- start of a double degree programme
- EIT Digital grants available

# Partners in the online programme Internet of Things through Embedded Systems



Eindhoven University of  
Technology, the Netherlands

University of Twente, the  
Netherlands



KTH Royal, Sweden



Haas School of Business,  
United States



University of Turku, Finland

Åbo Academy University, Finland



UGent, VUB, Belgium



Technical University of Berlin,  
Germany



# Blended Master Programme in Embedded Systems

The global launch of the first blended Master programme takes place in September 2016. Learners can join the online courses and express their interest for the double degree on-campus programme by joining one of the double degree interest groups. Admission for the on-campus part takes place in November 2016. Selection will be based on the required Coursera certificates, and on the achievements in the online courses and enrolment takes place in January 2017.

## Technical impact in the online part

The technical courses are offered by EIT Digital's academic partners Technical University of Berlin (TUB), Eindhoven University of Technology (TU/e), Twente University (UTwente), Royal Institute of Technology (KTH), University of Turku (UTU), Åbo Academy University (Åbo) and University of Gent and the Free University of Brussels in Belgium.

## Business impact in the online part

The soft skills are developed at KTH in Stockholm in cooperation with Haas School of Business, part of Berkeley, University of California. Courses like 'The Impact of Technology' or 'Innovation and Entrepreneurship' are clustered in one specialization. Learners need to conclude a specialization with a capstone project.



20 courses with over 250 web lectures together form a 30 ECTS online programme in Internet of Things through Embedded Systems, which is the equivalent of one semester of the on-campus course. Learners who have completed all the online courses and the specialization may be selected and invited to the one-week, on-campus Winter School in the EIT Digital location Eindhoven at the High Tech Campus, February 2017. This is where the blend starts.

At the Winter School, you meet your fellow students and future partners. You can test your knowledge and check whether you comply with the Master School admission criteria.

But most of all: it is an exciting experience to work together with ambitious EIT Digital Master School students and crack real-life business cases, in an international setting. Keep in mind that if you comply with the EIT Digital Master School admission criteria, there are opportunities to continue your journey on campus.

**EIT Digital's Blended Master programme in 'Internet of Things through Embedded Systems': For tomorrow's digital innovators and entrepreneurs.**



# Transform your career as an entrepreneurial embedded systems engineer



After completion of the EIT Digital Master programme in Embedded Systems, EIT Digital offers degrees which combine technical competence with skills in Innovation and Entrepreneurship. In addition to technical majors you get the chance to acquire knowledge of creative skills to play a key role in the future of your field and to drive innovations to the global market. Numerous extracurricular activities and networking opportunities with fellow students at other universities complete the picture, making this education a unique European experience.

Tomorrow's digital innovators and entrepreneurs: you will be prepared to face the challenges of your future career as well as the global challenges of the society.

## Transform your career

- Follow 1st semester online on Coursera <https://www.coursera.org/eitdigital>
- Get your Coursera certificates
- Try to be selected into the programme and get hold of one of the available grants
- Blending in: one-week winter school as part of the existing on campus programme in Eindhoven
- Follow second semester on campus: flow into the second semester on campus at a European university. Enroll in the second year of the on-campus Master programme at a European university
- Graduate!

## Meet the on line lecturers of Internet of Things through Embedded Systems

Profiles of the lecturers are published on Coursera. Take a look here: <https://www.coursera.org/eitdigital>

# Online programme

List of courses, structured into the six on campus courses that are transformed into their online equivalents:

## **1. Hardware and Cyber Physical Systems, UTU, consisting of:**

- Åbo, dr. Simon Holmbacka: Development of Real-Time Systems
- UTU, MSc. Tuan Nguyen Gia: Embedded Hardware and Operating Systems
- UTU, prof. Juha Plosila: Web Connectivity and Security in Embedded Systems

## **2. Quantitative Formal Modeling, TU/e and UTwente, consisting of\*:**

- TU/e, dr. Pieter Cuijpers: Quantitative Formal Modeling and Worst-Case Performance Analysis
- UTwente, prof. Anne Remke: Quantitative Formal Modeling and Markov Chains

## **3. System Validation, TU/e, consisting of\*:**

- TU/e, prof. Jan Friso Grooten: Automata and behavioural equivalences
- TU/e, prof. Jan Friso Grooten: Model Process behaviour
- TU/e, prof. Jan Friso Grooten: Requirements by modal formulas
- TU/e, prof. Jan Friso Grooten: Modelling Software, Protocols, and other behaviour

## **4. Introduction to the Internet of Things, TU/e, UGent, and VUB, consisting of\*\*:**

- Universiteit Gent (UGent), prof. Frank Gielen: Software Architecture for the Internet of Things
- Vrije Universiteit Brussel (VUB), prof. Martin Timmerman: Introduction to Architecting Smart IoT Devices
- VUB, prof. Martin Timmerman: Architecting Smart IoT Devices

## **5. Advanced Computer Architecture, TUB, consisting of\* \*\*:**

- TUB, prof. Ben Juurlink: Fundamentals of Computer Architecture
- TUB, prof. Ben Juurlink: Instruction Level Parallelism, Data Level Parallelism, and Thread Level Parallelism
- TUB, prof. Ben Juurlink: Advanced Memory Architectures
- TUB, prof. Ben Juurlink: Multi-core Architecture

## **6. Technological Innovation and Entrepreneurship, KTH, consisting of:**

- KTH, Dr. Martin Vendel: The Impact of Technology
- Haas School of Business, UC Berkeley, adj. prof. Andrew Isaacs: Innovation & Entrepreneurship – From basics to open innovation
- Haas, adj. prof. Andrew Isaacs: Innovation & Entrepreneurship – From Design thinking to funding
- KTH, Dr. Henrik Blomgren: Technology Marketing and Sales

\* These courses also include a final exam either in the form of a written exam at the Winter School or an assignment which will be provided online.

\*\* These courses might have a SPOC (Small Private Online Course) format for the latter two courses.

## First Year (60 EC): Entry

 Online 1st Semester - start: 2016 September	 On campus 2nd Semester - start: 2017 February	 On campus 2017 July-August: Summer School
<ul style="list-style-type: none"><li>▪ Technical Core courses</li><li>▪ Introduction to Innovation &amp; Entrepreneurship</li></ul>	<ul style="list-style-type: none"><li>▪ Electives</li><li>▪ Business Development Lab</li></ul>	<ul style="list-style-type: none"><li>▪ Innovation &amp; Entrepreneurship projects with a thematic focus</li></ul>
 On campus 2017 February: Winter School		

## Second Year (60 EC): Exit

 On campus 3rd Semester - start: 2017 September	 On campus 3rd or 4th Semester	 On campus and on site 4th Semester - start: 2018 February
<ul style="list-style-type: none"><li>▪ Technical Specialisation with thematic relevance</li></ul>	<ul style="list-style-type: none"><li>▪ Innovation &amp; Entrepreneurship thesis</li></ul>	<ul style="list-style-type: none"><li>▪ MSc Thesis (30EC)</li><li>▪ Thematically oriented and industry based thesis work</li></ul>
		2018 February: start internship / thesis



# Are you ready for the take-off?

Get involved in the Blended Master Programme in Embedded Systems and check in!

Open for participation: <https://www.coursera.org/eitdigital>



Are you striving for  
excellence?  
**Join** the EIT Digital Master  
School if you want your  
academic education to  
be entrepreneurial and  
innovative.

#### EIT Digital offers:

- PSL: Tomorrow's digital transformation pioneers
- DSL: Tomorrow's digital science and technology leaders
- MSL: Tomorrow's digital innovators and entrepreneurs

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