Master's Degree Programme in
Embedded Computing

Åbo Akademi University

This two-year programme is designed to prepare its graduates for the challenging design tasks in the Embedded Systems Industry. The programme contains courses given by both Åbo Akademi University and the University of Turku in the areas of Embedded Systems. The programme will be designed and implemented in co-operation with the corresponding programme at University of Turku.

The Master's Degree Programme in Embedded Computing is provided by the Department of Information Technologies at Åbo Akademi University. The study environment benefits from the teaching and research experience gained as part of the Centre for Reliable Software Technology (CREST) - an excellence research centre at the Department of Information Technologies. Its research is focused on the development and analysis of software intensive systems and on the use of software based research paradigms in systems modelling and development. CREST's key competencies are in formal methods for software development, construction of embedded systems, software processes, high performance and energy efficient computing, systems biology, data mining, and CS education.

Since its founding in 2002, CREST has been appointed National Centre of Excellence by the Academy of Finland for the years 2002-2007. CREST has a worldwide network of researchers and industrial companies.

The Department of Information Technologies is located in the Turku Science Park, in the ICT building, where research groups and academic programmes meet, interact and collaborate with ICT companies - many of which are multinational and well known (Nokia, Nokia Siemens Networks, Ericsson, etc.). The study facilities are brand-new and equipped with the latest technology.

Throughout this programme the students will:
- work in a multicultural and multilingual environment
- participate in practical projects with the industry
- get the ability to work in teams
- understand and apply basic notions of project management
- become highly skilled engineers

Admission requirements

Academic requirements
A completed university level Bachelor's degree in Computer Science or Computer Engineering is required for admission.

Language requirements
Applicants to the Master's degree programmes taught in English must always prove their knowledge of the English language.

Application period
The application period for studies starting in September runs from the beginning of December until late February.

For details, please see the admission pages at www.abo.fi/master

Åbo Akademi University was founded in 1918 and is the only Swedish-language multidisciplinary university in Finland.

The university offers both undergraduate and postgraduate studies and extensive research opportunities to some 7,000 students on three campuses: Åbo, Vasa and Jakobstad.

This programme is offered by the Department of Information Technologies at the Åbo Akademi University.

Degree awarded
Master of Science degree in Technology (diplomingenjör)

Duration
2 years (120 ECTS)

Language of instruction
English

Location
Åbo Akademi University - Turku
www.abo.fi

Programme start
September

University-industry research collaboration

1. United States
2. Switzerland
3. Sweden
4. Finland
5. Singapore
6. Germany
7. Denmark
8. Belgium

Source: The Global Information Technology Report 2008-2009

Contact

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Course overview

Master of Science in Technology (120 ECTS)

Advanced module I 20 ECTS
- Advanced module I in Embedded Systems (20 ECTS)
  - *Mandatory*
    - Real-Time Systems (5 ECTS)
    - Programming Embedded Systems (5 ECTS)
    - System Modelling with System C (5 ECTS)
    - HDL Based Design (5 ECTS)

Advanced module II 30 ECTS
- Advanced module II in Embedded Systems (30 ECTS)
  - *Mandatory*
    - Modelling of Embedded Systems (5 ECTS)
    - Design Methods for Embedded Systems (5 ECTS)
    - SoC Design (5 ECTS)
  - *Selectable (15 ECTS are chosen)*
    - MPEG-4 (4 ECTS)
    - Applied Signal Processing, theory (5 ECTS)
    - Code Optimization (5 ECTS)
    - Multiprocessor Architectures (5 ECTS)
    - Reconfigurable Computing (5 ECTS)
    - System Verification (5 ECTS)
    - Seminar on Computer Systems (5 ECTS)

Master's thesis 30 ECTS
- Master's thesis in Embedded Systems (30 ECTS)

Minor subject 20 ECTS
- Innovation and Entrepreneurship module (20 ECTS)
  - *Mandatory*
    - Innovation and entrepreneurship in ICT context (5 ECTS)
    - New business models (5 ECTS)
    - Business competence and innovations (5 ECTS)
    - Innovations and global growth (5 ECTS)

Mandatory Swedish language course 5 ECTS
- Swedish as a foreign language, level 1 (5 ECTS)

Free optional studies 15 ECTS
- Optional courses in any subject (15 ECTS)

Master's thesis

After completing all the courses, students will do their thesis project either at the department by contributing to the scientific research of the university or in industry under the guidance of local or external advisors. The Master's Thesis accounts for 30 ECTS and should be written in the last year of study, i.e. during the second academic year.

Career prospects

When graduating the students will have both a good understanding of theoretical issues for starting PhD studies, as well as practical competences for a successful career as an embedded systems engineer in industry. The numerous fields in which embedded systems are applied ensure a wide range of career opportunities in Finland and abroad. Furthermore, the Career Services at Åbo Akademi University can help students enter the labour market and to advice them on issues dealing with job-hunting.