



HELSINKI UNIVERSITY OF TECHNOLOGY



**Master's Programme in
Mobile Computing —
Services and Security**

Master's Programme in Mobile Computing – Services and Security

Keywords such as mobile telecommunication, eCommerce, eBusiness, eAdministration and eLearning describe services that change the way we work and live our lives. All of these services are built on the same kinds of requirements. The services must be secure, usable and available 24/7. In the future these requirements must be met in an increasingly mobile environment. Designing systems that can manage this is a challenge for the future.

The Telecommunication Software and Multimedia Laboratory (TML) at the Department of Computer Science and

Engineering researches and teaches all aspects of these new services, ranging from content and user interfaces to the functionality required of the network layers.

The laboratory has strong ties to the Nordic data- and telecommunications cluster. The first true international mobile network was built in the Nordic countries. This network gave many important experiences to the companies involved, and thus two of the big players in second generation networks are from Finland and Sweden. The Nokia headquarters is at a walking distance from the University. There

are also other success stories; for example, the SSH protocol was developed at our department. The founders of F-Secure Corporation were also former students of TKK.



For additional information, please visit

Student experience



“I had an interest in Finland and Nordic countries since I was a Sophomore during my Bachelor

knowledge to be able to work in the area I was looking for. During my studies I had the opportunity to learn a lot about datacommunications and topics related to it. Some courses were flexible enough to encourage students to do research on their own topics of interest. Partly because of that I published two articles prior to my graduation.

After my first academic year, I worked as a Research Assistant at the University and developed my Thesis as a part of my work. My Thesis topic involved Mobile TV,

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Thesis Title: Internet Protocol Datacasting - Transparent Interactivity Using Different Communication Channels

studies. Moreover, mobile multimedia was a topic of great interest for me. For those reasons, immediately after obtaining my B.Sc. degree, I decided to embark to Finland to pursue a Master of Science in Technology degree at TKK.

The Master's programme is intelligently structured and it provided me with the necessary

which matched perfectly my main interests from years before. The project was supported by Elisa and Nokia.

After finishing my studies I entered Nokia Networks in Finland and I am working with issues involving multimedia end-to-end performance and optimization.”

Aims of the studies

The purpose of this Master's programme is to prepare students to work in various positions in the data- and telecommunication and network security industry. We assume that the students applying to the programme already have good programming skills and a knowledge of the concepts of datacommunication.

Our students learn how to build network based information systems with emphasis on security and mobility. In addition to tasks in research and development, many of our students work in the IT staff of international companies after their graduation. Most start their careers in technical specialist positions, and work their way up to either more demanding specialist tasks or switch to the managerial track. Studying might be quite demanding since learning facts is not enough, we require that a student is able to apply them in new environments and on new kinds of challenges.

The close ties to the industry give our students the possibility to work with world class research teams and participate in developing future products and services. Most Master's theses are written as part of research projects in different companies, usually as part of the every day work.



Helsinki University of Technology

Founded in 1849, Helsinki University of Technology (TKK) is the largest and oldest technical university in Finland. TKK consists of twelve departments, researching and teaching subjects ranging from architecture and chemistry to computer science.

TKK is located on a famous park-like campus in Otaniemi, only about nine kilometers from the centre of the capital Helsinki. Some of the buildings are designed by the famous architect Alvar Aalto, known for buildings both in Finland and abroad. Although most people can only afford to dream about seaside apartments near the nature, our students living on the campus can reach this Finnish dream.

How to apply?

The applicant should have a Bachelor of Science degree in Computer Science or Information Technology or equivalent studies completed at a university.

The annual application deadline is approximately in January for the next academic year, which begins in September. The detailed information on the application procedure, the application forms and the admission requirements are available on our website.

Further information on the contents and the courses of the programme is available on the website

<http://www.tkk.fi/Units/CSE/Studies/master/index.html>

For further information:

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Structure and contents of the programme

The Master's programme in Mobile Computing – Services and Security is a two-year programme (120 ECTS credits) leading to an officially recognized Master of Science in Technology -degree. The programme is offered by the Department of Computer Science and Engineering at the Helsinki University of Technology (TKK). The degree consists of six modules described below.

This programme combines studies of general computer science with the specific fields of technical information security, network

applications and services, Internet technologies and mobile networking. This programme addresses the communications architecture evolution, services and information technologies related to them.

Internet technologies are at the core of the technical framework of the Mobile Computing programme. The Mobile Computing programme provides a consistent Master's Programme for students interested in learning about security, networking and services on the Internet and on mobile networks.

Major: Mobile Computing – Services and Security (120 credits)

Methodological principles
(10 credits)

Master's thesis
(30 credits)

Technical information security
(20 credits)

Network services and
applications
(20 credits)

Elective studies
(20 credits)

General studies in
computer science
(20 credits)