Communication is more important than ever!
This master’s programme focuses on how systems communicate and how networked systems can be designed to provide the intended level of service, security and functionality.

This programme provides knowledge about:
• The fundamental mechanisms of computer communications and protocols, both on local area networks and on the Internet
• Important applications such as Voice over IP, security protocols, peer-to-peer applications, etc.
• Structured techniques to create distributed computing systems and ad-hoc networks
• How to design and program distributed applications and system services for multiprocessor or multicore systems
• Methods about how to obtain the desired quality, reliability, security and performance in all the above

Three specialisations:
• Communications and Networking
• Development of distributed, multiprocessor, and high-performance applications
• Security and reliability of network-based systems
**PROGRAMME GOALS**

When designing new applications and systems, it is important to have the knowledge about how they should be built in order to provide the intended level of service, reliability and functionality. This master’s programme deals with computer communications, networking, security and distributed system issues on local area networks, wireless networks as well as on the Internet.

**COURSE PLAN**

The programme starts with three compulsory courses which form a common platform for all further studies:

- Internet technology (advanced data communications)
- Distributed systems
- Computer security

These courses are followed by four semi-compulsory courses from which at least three should be selected:

- Distributed systems, advanced course
- Network security
- Wireless networks
- Advanced topics in networks and distributed systems

The remaining six courses can be selected freely and the programme therefore offers a great deal of freedom.

**RECOMMENDED TRACKS**

Within the programme, there are three tracks defined:

- Communications and Networks track
- Security track
- Distributed Systems track

The tracks should be seen as an aid when selecting of courses, and the recommended courses for each track is shown in the figure below. The programme also allows each student to create an unique track which makes it possible to obtain a personal profile by selecting other voluntary courses.

**PREREQUISITES**

Bachelor of Science degree (B.Sc.) or Swedish “kandidatexamen” with major in Computer Science, Computer Engineering, Information Engineering or Electrical Engineering or an equivalent degree. The degree should include at least one course each in the following areas:

- Computer communications
- Programming
- Algorithms and/or data structures
- Mathematics

Please visit the official web site at Chalmers for exact details.

**HOW TO APPLY**

For information about entry requirements, application procedure and deadlines, please visit the web site: www.chalmers.se/masters.html

**DEADLINES FOR APPLICATIONS**

International Students: February 1
EU and EEA students (European Economic Area): April 15.

**CONTACT**

For information on application and admission admission@lists.chalmers.se

For general information intsekr@adm.chalmers.se

Department responsible for this programme: Computer Science and Engineering www.chalmers.se/cse

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### COURSE PLAN

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<th>Semi-compulsory courses</th>
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<td>Advanced topics in NDS</td>
<td>Intro. to Comm. eng.</td>
<td>Communications and Networks track</td>
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<td>Distributed systems</td>
<td>Network security</td>
<td>Math. and video comp.</td>
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<td>Computer security</td>
<td>Wireless networks</td>
<td>Real-time systems</td>
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<td>Advanced topics in NDS</td>
<td>Cryptography</td>
<td>Operating systems</td>
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<tr>
<td>Network security</td>
<td>Language-based security</td>
<td>Computer architecture</td>
<td>Intro. to Comm. eng.</td>
</tr>
<tr>
<td>Advanced dist. systems</td>
<td>Programming languages</td>
<td>Parallel computer eng. and design</td>
<td>Math. and video comp.</td>
</tr>
</tbody>
</table>

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### RECOMMENDED TRACKS

**Communications and Networks track**

- Intro. to Comm. eng.
- Math. and video comp.

**Security track**

- Real-time systems
- Operating systems

**Distributed Systems track**

- Computer architecture
- Parallel computer eng. and design

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**Elective courses**

- Intro. to Comm. eng.
- Math. and video comp.
- Real-time systems
- Operating systems
- Computer architecture
- Parallel computer eng. and design
- Fault-tolerant comp. sys.