Master Computer Science (Informatik) - Introduction -

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Faculty IV - Electrical Engineering and Computer Science
TU Berlin

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Faculty IV in Numbers

• Around 60 professors and more than 600 research associates. (PhD students, postdocs,...)
• Around 5,000 students, 30 percent from outside Germany.
• Around 40 million Euro external research funding every year.

Formally structured into six institutes:
• Institute of Energy and Automation Technology
• Institute of High-Frequency and Semiconductor System Technologies
• Institute of Telecommunication Systems
• Institute of Computer Engineering and Microelectronics
• Institute of Software Engineering and Theoretical Computer Science
• Institute of Commercial Information Technologies and Quantitative Methods
Institutions Closely Connected to Faculty IV

- Einstein Center Digital Future (ECDF)
- Berlin Big Data Center (BBDC)
- Bernstein Center for Computational Neuroscience (BCCN), part of Einstein Center for Neuroscience
- Berlin Daimler Center for Automotive Information Technology Innovations (DCAITI),
- Fraunhofer-Institute FOCUS
- Telekom Innovation Laboratories (T-Labs)
- ...

Moreover, there are numerous basic research projects funded by the German Research Foundation (DFG) and similar funding agencies (ERC, BMBF, ...), typically directly related with the various research groups and to be found on their respective web pages.
Master´s programs at Faculty IV

- Automotive Systems
- Computational Neuroscience
- Computer Engineering
- **Computer Science (Informatik)**
- Elektrotechnik / Electrical Engineering
- ICT Innovation
- Information Systems Management (Wirtschaftsinformatik)
Master’s program Computer Science - Structure

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Elective Type</th>
<th>Study Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st semester</td>
<td>30 CP</td>
<td>Compulsory</td>
<td>Study area</td>
<td>30-42 CP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd semester</td>
<td>30 CP</td>
<td>Compulsory</td>
<td>Study areas</td>
<td>18-36 CP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd semester</td>
<td>30 CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th semester</td>
<td>30 CP</td>
<td>Master’s thesis</td>
<td></td>
<td>30 CP</td>
</tr>
</tbody>
</table>

At most 30 CP will not be considered for determining the final Master grade:
- 12 CP of these must come from the electives
- a quarter of your grades (the worst ones) is ignored for the final grade
- Note: grade of master thesis is always taken into account for final grade!
What is a Study Area?

A study area...

- accumulates modules of different chairs (Fachgebiete) under a specific focus to provide a professional deepening and profiling
- offers a better orientation within the module offerings of Faculty IV
Master’s Programs including Study Areas

- Electrical Engineering
  ET

- Computer Science
  (Informatik)
  CS(I)

- Computer Engineering
  CE

- Information Systems Management
  (Wirtschaftsinformatik)
  ISM
Computer Science (Informatik)

60-66 CP in the following study areas:

- Data and Software Engineering
- Embedded Systems and Computer Architecture
- Foundations of Computing
- Cognitive Systems
- Digital Media and Human-Computer Interaction
- Distributed Systems and Networks

30-42 CP in one study area (major)
18-36 CP in the remaining study areas plus study area Information Systems

At least one project (≥ 9 CP) and one seminar.
Useful Link

Quick access: 184947
Where to find my Courses?

... find modules:
  • MTS (Modultransfersystem)

... find courses:
  • LSF Vorlesungsverzeichnis – for time and room information
  • websites

... connect:
  • ISIS courses for the study areas
    • Foundations of Computing
    • Data and Software Engineering
    • more soon....
Master Tracks

There are some tracks that describe possibilities how to organize the study program with a particular focus.

**Note:** These are only suggestions!

It is not necessary to follow any of these.

A very partial list...

- Science of Intelligence
- Cognitive Systems
- Data Analytics
- ...

Increase of track proposals is planned.
Further Advice

• **Student Advisory Service**
  studienberatung-cs@ceecs.tu-berlin.de; Quick Access 147510

• **ZiiK – Centre for International and Intercultural Communication**
  Counselling for international students
  ziik.tu-berlin.de; Quick Access: 88939

• **Examination Board**
  eb-cs@eecs.tu-berlin.de; Quick Access: 185486

• **Student Initiative of Faculty IV - Freitagsrunde**
  www.freitagsrunde.org

• **ISIS course EECS Studium**

• **Ausbildungskommission** (six students, three professors, three research associates)
  www.eecs.tu-berlin.de/eecs/ausbildungskommission/
Study Abroad Programs

• Programs with International Affairs, Student Mobility and International Student Counselling (INT SB) – Quick Access 5190
  • Exchange Programs Europe / Erasmus+
  • Exchange Programs Overseas

• Exchange programs with Faculty IV – Quick Access 150631
  • i.a. Shanghai Jiao Tong University (China), Universidade Federal do Rio Grande de Sul (UFRGS), Pontifícia Universidade Católica do Rio Grande do Sul PUCRS (Brasil), Norwegian University of Science and Technology (NTNU), Centre for Digital Media at Simon Fraser University (Canada)
  • Subject specific!
  • Contact at Faculty IV: Wolfgang Brandenburg, Quick Access 147520
Study Abroad Programs

Exchange Programs Faculty IV: Europa (Erasmus+)

Subject specific!
Computer Science-Related Chairs (Fachgebiete)

- Ziwasch Abedjan, Big Data Management
- Sahin Albayrak, Distributed Artificial Intelligence Lab
- Marc Alexa, Computer Graphics
- David Bermbach, Mobile Cloud Computing
- Benjamin Blankertz, Neurotechnology
- Markus Brill, Efficient Algorithms
- Oliver Brock, Robotics and Biology Laboratory
- Sabine Glesner, Software Engineering for Embedded Systems
- Manfred Hauswirth, Distributed Open Systems (also Fraunhofer)
Computer Science-Related Chairs (Fachgebiete)

- Hans-Ulrich Heiß, Communication and Operating Systems
- Olaf Hellwich, Computer Vision and Remote Sensing
- Ben Juurlink, Embedded Systems Architecture
- Odej Kao, Complex and Distributed IT-Systems
- Stephan Kreutzer, Logic and Semantics
- Axel Küpper, Service-centric Networking
- Jens Lambrecht, Industry Grade Clouds and Networks
- Sergio Lucia, Internet of Things for Smart Buildings
- Thomas Magedanz, Next Generation Networks
Computer Science-Related Chairs (Fachgebiete)

- Setareh Maghsudi, Control of Convergent Access Networks
- Volker Markl, Database Systems and Information Management
- Sebastian Möller, Quality and Usability Lab
- Klaus-Robert Müller, Machine Learning / Intelligent Data Analysis
- Uwe Nestmann, Models and Theory of Distributed Systems
- Rolf Niedermeier, Algorithmics and Computational Complexity
- Klaus Obermayer, Neural Information Processing
- Manfred Opper, Methods of Artificial Intelligence
- Rafael Schaefer, Information Theory and its Applications
Computer Science-Related Chairs (Fachgebiete)

- Ina Schieferdecker, Quality Engineering of Open Distributed Systems
- Jean-Pierre Seifert, Security in Telecommunication
- Martin Skutella (Fak. II), Combinatorial Optimization and Graph Algorithms
- Henning Sprekeler, Modeling of Cognitive Systems
- Stefan Tai, Information Systems Engineering
- Florian Tschorsch, Distributed Security Infrastructures
- Toby Walsh, Algorithmic Decision Theory
- Thomas Wiegand, Image Communication
- Adam Wolisz, Telecommunication Networks
- Thomas Zinner (guest), Internet Network Architectures
Final Remarks

• Make sure your TU Email reaches you; check it regularly!
• There is a lot of freedom and little obligations in doing a CS Master at TU Berlin: Get organized and make your choice!
• Getting a closer look (entry points are the web pages) at some chairs for getting a feeling in which direction you want to specialize; it may also help to attend research seminars of the respective groups.
• Doing a Master also means to get close to current research!
• Don't forget: You also need to successfully attend a seminar and a project for getting the master.

Enjoy studying in a scientifically rich and colorful environment!