Programme syllabus

Degree Programme in Media Technology  
Civilingenjörsutbildning i medieteknik  
300.0 credits

Valid for students admitted to the education from autumn 19 (HT - Autumn term; VT - Spring term).

This is a translation of the Swedish, legally binding, programme syllabus.

Programme objectives

The educational programme has a technical, scientific base with a foundation in mathematics and natural science. Media Technology focuses on services and products aimed primarily at the consumer market. Therefore, the programme also offers relevant knowledge from social and behavioural science and insights into the contents and design of media. Specialized knowledge is given about technology for static media forms (text and image), dynamic media forms (audio, video) and interactive media forms (internet, games, dialogue systems, etc).

Each student must acquire deeper knowledge within one or two areas of media technology through the choice of specialization for study year 3 and master programme for study years 4–5.

In addition to this comes the Higher Education Ordinance goals for the degree.

Knowledge and understanding

The Media Technology programme will give the student the fundamental knowledge and abilities needed to successfully work with and from an engineering perspective solve technical, organisational, methodological, design-related, and user-related problems within the media field. The programme gives knowledge about the technical as well as multi-disciplinary foundation that media and their technology for production, distribution, and consumption rely upon.

Skills and abilities

The Media Technology programme will give the student prerequisites to, with a comprehensive perspective, critically, independently and creatively identify, formulate, and handle complex problems, analyse and critically evaluate different technical, organisational, and design-related solutions. The student will also have the ability to plan and implement qualified assignments within given constraints and considering sustainability. The programme will also give a foundation for further education on the research level and an ability to participate in research and development work and thereby contribute to the
knowledge development within the area. The student will develop an understanding of and an ability to work in teams and to cooperate in groups with participants from different backgrounds. The student will also be able to continuously develop his/her skills and abilities.

**Ability to make judgements and adopt a standpoint**

The Media Technology will gain the ability to integrate knowledge from different disciplines and experiences as well as to model, plan and evaluate products, services, systems, and processes. The student will also get an understanding of the important role of media in society, opinion building and democratic processes as of the ethical aspects of media and their contents, and the relationship between technology, contents and usage in the media. This includes a consciousness about the possibilities and limitations of technology and the responsibility of technology developers for how the technology is used.

**Extent and content of the programme**

The Master’s Programme in Engineering in Media Technology is composed of 300 ECTS credits, which at normal study rate corresponds to 5 years of full-time studies (10 semesters).

The first three years (180 ECTS credits) are on undergraduate level. The final two years (120 ECTS credits) the student follow a master programme.

**Following master programmes can result in a Master of Science Degree in Media Technology:**

- Interactive Media Technology
- Computer Science
- Machine Learning
- ICT Innovation (*only*: Human Computer Interaction and Design (HCID), or Visual Computing and Communication (DMTE)).

*The range of offered Master's programmes may be revised.*

The master's programmes consist courses mainly on advanced level. The education leads to a master's degree as well as a "civilingenjör" degree.

The language of instruction during the first three years of the programme is mostly in Swedish, although English literature will be used. The concluding two years are taught in English.

**Eligibility and selection**

General admission requirements and the following special admission requirement must be fulfilled in order to be admitted:

Mathematics 4/Mathematics E, Physics 2/Physics B and Chemistry 1/Chemistry A, with the lowest grade E/Approved.

Selection is based on high school grades and results of the university examination, two thirds of the places are appointed on the basis of grades and one third on the basis of the university degree.
Implementation of the education

Structure of the education

Each academic year consists of two semesters which are 20 weeks each, and each semester is further divided into two study periods.

The education starts with compulsory courses in study years 1–3 including two conditionally elective courses in study year 3. Study year 3 is concluded by a degree project at undergraduate level.

During study years 4-5 the student follows a master programme giving a specialization in subjects central to media technology. The programme is concluded during the spring semester of study year 5 with a degree project at graduate level.

Courses

The programme is course-based. Lists of courses are included in appendix 1.

Grading system

Courses in the first and the second cycle are graded on a scale from A to F. A-E are passing grades, A is the highest grade. The grades pass (P) and fail (F) are used for courses under certain circumstances.

The grading scale is found in the course syllabus.

Conditions for participation in the programme

Participation requires admission to courses within the programme and course registration.

For further studies, special admission requirements for the course are to be fulfilled. Special admission requirements are listed in the respective course syllabus.

Conditions for further studies

The student must apply for the master's programme study years 4–5. In order to be eligible for advanced level studies within the integrated Master of Science programmes at KTH, you are required to complete 150 credits from year 1-3. Of these, 110 credits must be from the year 1-2 curriculum. In addition to these credits, the bachelor thesis needs to be completed before Master’s level studies commence. Additional specific eligibility requirements may apply to certain programs and appear in the respective Education Plan.

Degree project

The degree project is the final part of the education. The project work may begin when special admission requirements for the course are fulfilled.

Degree

Degree of Master of Science in Engineering
Application for graduation
Students may apply for the following degrees: Degree of Master of Science in Engineering, Degree of Bachelor of Science and Degree of Master of Science (Two Years), if the requirements are fulfilled.

Conditions for the Degree of Master of Science in Engineering 300 ECTS credits
The Master of Science in Engineering degree is received after completing the programme. The programme is designed so that the student fulfills the national degree requirements and has completed courses corresponding to 300 ECTS credits, including:

- Mathematics/Natural science subjects must carry at least 45 credits, and in addition at least 180 credits (including a 30-credit degree project) must be within the framework of the engineering area
- At least 90 credits at second level, of which at least 60 credits (including a 30-credit degree project) must be within the framework of the engineering area media technology.

Appendix 1 - Course list
Appendix 2 - Programme syllabus descriptions
Appendix 1: Course list

Degree Programme in Media Technology (CMETE), Programme syllabus for studies starting in autumn 2019

General courses

Year 1

Mandatory courses (64.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD1318</td>
<td>Programming and Scientific Computing</td>
<td>9.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DH1609</td>
<td>Communication and information</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DM1578</td>
<td>Program Integrating Course in Media Technology</td>
<td>7.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DM1579</td>
<td>Media Production</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DM1581</td>
<td>Introduction to Media Technology</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1624</td>
<td>Algebra and Geometry</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1625</td>
<td>Calculus in One Variable</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1626</td>
<td>Calculus in Several Variable</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>SK1120</td>
<td>Waves</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

The introductory course in mathematics can **not** be included in the degree.

Year 2

Mandatory courses (65.0 Credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD1320</td>
<td>Applied Computer Science</td>
<td>6.0 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DH1622</td>
<td>Human-Computer Interaction, Introductory Course</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
<tr>
<td>DM1135</td>
<td>Multimedia Systems and Signals</td>
<td>7.5 hp</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
DM1578  **Program Integrating Course in Media Technology**  
Of which 2 credits belong to study year 2  
7.0 hp  First cycle

DM1580  **Video Technology**  
6.0 hp  First cycle

DM1588  **Sensor Programming for Media Technology**  
6.0 hp  First cycle

DM1590  **Machine Learning for Media Technology**  
7.5 hp  First cycle

DT1175  **Sound**  
7.5 hp  First cycle

SF1919  **Probability Theory and Statistics**  
6.0 hp  First cycle

SK1140  **Photography for Media**  
4.0 hp  First cycle

**Supplementary information**

**Year 3**

**Mandatory courses (52.0 Credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH2642</td>
<td><strong>Interaction Programming and the Dynamic Web</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td>DM128X</td>
<td><strong>Degree Project in Media Technology, First Cycle</strong></td>
<td>15.0 hp First cycle</td>
</tr>
<tr>
<td>DM1578</td>
<td><strong>Program Integrating Course in Media Technology</strong></td>
<td>7.0 hp First cycle</td>
</tr>
<tr>
<td>DM1595</td>
<td><strong>Program Development for Interactive Media</strong></td>
<td>7.5 hp First cycle</td>
</tr>
<tr>
<td>DM2573</td>
<td><strong>Sustainability and Media Technology</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td>ME1039</td>
<td><strong>Industrial Management and Entrepreneurship for Media and ICT</strong></td>
<td>7.5 hp First cycle</td>
</tr>
</tbody>
</table>

**Conditionally elective courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK2203</td>
<td><strong>Media, Technology and Culture</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td>DD1354</td>
<td><strong>Models and Simulation</strong></td>
<td>6.0 hp First cycle</td>
</tr>
<tr>
<td>DD1354</td>
<td><strong>Java Programming for Python Programmers</strong></td>
<td></td>
</tr>
<tr>
<td>DD1380</td>
<td><strong>Mandatory for admission to the Master's Programme in Computer Science</strong></td>
<td>1.5 hp First cycle</td>
</tr>
<tr>
<td>DD1380</td>
<td><strong>Algorithms and Complexity</strong></td>
<td></td>
</tr>
<tr>
<td>DD2352</td>
<td><strong>Mandatory for admission to the Master's Programme in Computer Science</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td>DH2323</td>
<td><strong>Computer Graphics and Interaction</strong></td>
<td>6.0 hp Second cycle</td>
</tr>
<tr>
<td>DM2077</td>
<td><strong>Media Law</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td>DM2518</td>
<td><strong>Mobile Development with Web Technologies</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
<tr>
<td>DM2556</td>
<td><strong>Intercultural communication</strong></td>
<td>7.5 hp Second cycle</td>
</tr>
</tbody>
</table>
DM2578 Social Media Technologies 7.5 hp Second cycle
DM2624 Human Centered Technology for Disabilities 7.5 hp Second cycle
DM2720 Sustainable Information and Communication Technology (ICT) 7.5 hp Second cycle
in Practice
DT2112 Speech Technology 7.5 hp Second cycle
DT2212 Music Acoustics 7.5 hp Second cycle
LS1464 Rhetoric - the Art of Persuasion 7.5 hp First cycle
ME2015 Project Management: Leadership and Control 6.0 hp Second cycle
ME2163 Leading People and Organizations in Different Contexts 6.0 hp Second cycle
Discrete Mathematics
SF1662 Mandatory for admission to the Master's Programme in 7.5 hp First cycle
Computer Science

Information regarding conditionally elective courses

Conditionally elective courses, **13 credits**, must be taken.

In addition to listed conditionally elective courses, other courses in language/intercultural competence can be read, see courses at: "Language and Communication at KTH".

Year 4

Supplementary information

During study years 4 and 5 the students follow a master programme of their choice. For each year a list of master programmes that may be chosen is established.

Year 5

Supplementary information

During study years 4 and 5 the students follow a master programme of their choice. For each year a list of master programmes that may be chosen is established.
Appendix 2: Specialisations

Degree Programme in Media Technology (CMETE), Programme syllabus for studies starting in autumn 2019

This programme has no specialisations.