**Course Information Sheet**

<table>
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<th>Subject</th>
<th>Digital Communications</th>
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</thead>
<tbody>
<tr>
<td><strong>Degree programme</strong></td>
<td>1-Subject Master’s Degree Programme</td>
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<tr>
<td><strong>Qualification</strong></td>
<td>Master of Science (M.Sc.)</td>
</tr>
<tr>
<td><strong>Start of the degree programme</strong></td>
<td>For the 1st semester: only possible to start in the winter</td>
</tr>
<tr>
<td><strong>Special admission requirements</strong></td>
<td>Language skills</td>
</tr>
<tr>
<td><strong>Application / registration</strong></td>
<td>Registration (without restricted admission)</td>
</tr>
<tr>
<td><strong>Standard period of study</strong></td>
<td>4 semesters</td>
</tr>
<tr>
<td><strong>Faculty/faculties</strong></td>
<td>Faculty of Engineering</td>
</tr>
</tbody>
</table>

1. **Degree, teaching and examination language**

**Master of Science (M.Sc.)**

The 1-subject Master’s degree programme comprises study of the subject totalling 90 ECTS credits, as well as the preparation of a Master’s thesis totalling 30 ECTS credits.

Information on the [structure of the Master’s degree programme](#) can be found in the degree programmes on offer section under degree structure.

Lectures will be offered in English. Module examinations will be held in English. Upon application, examinations may also be held in German. The Master’s thesis may be produced in German or English.

2. **Object and aim of the course**

**Object of the degree programme**

Electrical engineering encompasses the whole range of electrical and electromagnetic phenomena and laws, with the goal of their technical use. Information technology uses electronic and electrical engineering for the production, presentation, transmission, storage and processing of information by means of hardware and software. In particular, its tasks are the development of new processes, the expansion of knowledge, and the development of new products.

In contrast with a university of applied sciences, the scientific education of an engineer at a university is characterised by significant emphasis on the broad theoretical fundamentals and scientific methodology. The education should ensure that the student receives both technical skills and methodological skills. This makes them capable of analysing the tasks assigned to them in their later activities, as well as solving them independently and with initiative. In addition, they are able to develop new discoveries and methods, to extend the level of knowledge in their subject.

The English Master’s degree programme in Digital Communications is aimed primarily at foreign students with a Bachelor of Science degree. Of course, German students with an equivalent qualification are also welcome.
3. Possible careers and areas of employment

Electrical engineering and information technology have penetrated nearly every part of our lives. Engineers in this subject therefore have a wide variety of employment opportunities in many different industries:

- Classical work areas are the electrical industry, energy supply, information technology and telecommunications.
- In many industries, electrical engineering and information technology are now also considered a key technology: mechanical engineering, automation technology, automobile technology, chemical industry, medical technology, environmental protection.
- In the area of research and development, electrical engineering and information technology specialists work at universities, research institutes or in the private sector.

The numerous special fields of electrical engineering and information technology can be broken down into four main groups:

- Information technology: telecommunications, signal and data transmission, television and radio technology, signal processing, navigation, radar and sonar technology, medical technology (ECG, EEG, MR), traffic management technology.
- Microelectronics and microsystems technology: development, manufacturing, assembly, testing and quality control for integrated circuits; software development for computer-supported development of switches, process technology for semiconductor manufacturing and production automation.
- Metrology, control and automation systems: design of entire systems, software development, description of the processes and measurement techniques, practical application/implementation.
- Electrical power technology: generation, transmission and distribution of electrical energy and its use.

The first three options are particularly suitable for successful graduates of the Master’s degree programme in Digital Communications.

4. Advanced studies at Kiel University

Students may follow up their Master’s degree with a doctoral degree.

The requirements for admission to the doctoral programme, as well as information on the doctoral degree procedure, can be found in the doctoral degree regulations of the faculties.

You can find out more about doctoral degrees at Kiel University’s Graduate Center.
5. Requirements and knowledge

Requirements for studying at Kiel University

Requirements for admission to the Master’s degree programme are a Bachelor’s degree in the relevant field, or an equivalent qualification.

For registration, evidence must be provided that the Master’s degree admission requirements have been fulfilled in accordance with the examination regulations and the study qualification rules (Studienqualifikationssatzung).

Here, you can find the respective examination regulations:

Here you will find the registration deadlines and forms for the aptitude test.

Aptitude test

Students may register for the 1-subject Master’s degree programme in Digital Communications after passing an aptitude test. Please contact the Academic Advisors (see Section 7) for more information about the aptitude test and registration periods.

Language skills

In accordance with the study qualification rules (Studienqualifikationssatzung), the following language requirements apply and evidence that these have been fulfilled must be provided when registering:

- The application for the Master’s degree programme must include the result of a GRE® revised General Test. A score of at least 153 points is required in the "Verbal Reasoning" section.

For questions about the required language skills, please contact the respective academic advisor.

Here you will find the form "Certificate of fulfilment of the requirements for admission in accordance with the study qualification rules (Studienqualifikationssatzung)".

The study qualification rules (Studienqualifikationssatzung) can be found at www.studservice.uni-kiel.de/sta/0-1-3.pdf.

Additional requirements

Studying Digital Communications and a successful engineering career requires, in particular:

- A good understanding of mathematics and physics,
- The ability to think analytically, concentrate on the task at hand, and rapidly grasp complex relationships,
- An interest in natural science and technical interrelationships, as well as in how technical equipment works,
- A basic knowledge of a programming language and dealing with computers.
6. Application and registration

Admission restrictions

Students may only start the degree programme in the winter semester.

The degree programme is without restricted admission (no compulsory application procedure) in the first and later semesters.

Information about registration.

Please note

The deadlines for registering for the aptitude tests can be many months before the actual registration period! For details of which degree programmes are affected, as well as links to the department websites for the degree programmes in question, please refer to this list.

Note:

Please note the requirements specified in Section 5.

Contact

Here you will find information on admission to Master’s degree programmes, registration and application periods, online registration, as well as confirming your return and leaves of absence.

Further information can be obtained from Student Admission and Registry.

Foreign students with queries regarding admission, registration and advice should contact the International Center.

7. Advice

Academic Advisors

Should you have any subject/course-specific queries, please contact the Academic Advisors.

Prof. Dr-Ing. Peter A. Höher
Institute of Electrical Engineering and Information Technology
Room D-015
Tel.: +49 (0)431/880-6127
E-mail: ph@tf.uni-kiel.de
Website of the Master of Science in Digital Communications (only in English)
Consultation hours: by appointment

Office and Dean’s Office:

Faculty of Engineering,
Kaiserstr. 2
24143 Kiel
We recommend that first-semester students and students changing subject, in particular, seek academic advice.

Here you will find the [list of all Academic Advisors](#).

**Zentrale Studienberatung – Central Academic Advisors**

Students and prospective students can obtain information about all of Kiel University’s subjects and degree programmes at the Zentrale Studienberatung.

This centre assists with personal queries relating to degree and career orientation, subject combinations, degree programme structure, changing subject or university, taking a break from or terminating studies, general examination preparation, as well as study-related problems. It also provides students and prospective students with information on careers and areas of employment, further qualifications, postgraduate and supplementary studies or alternatives to studying, and has detailed information sheets on a wide variety of topics.

Zentrale Studienberatung at Kiel University
Christian-Albrechts-Platz 5 (extension to the university tower building)
24118 Kiel

Tel.: +49 (0)431/880-7440
E-mail: zsb@uv.uni-kiel.de
Website: [Zentrale Studienberatung – Central Academic Advisors](#)

Office hours: see [Zentrale Studienberatung – Central Academic Advisors](#)

**Studying without barriers**

The officer for students with a disability/chronic illness advises students and those interested in studying for a degree on aspects related to admission, studying and learning conditions in order to realise equal participation in studying.

**Officer for students with a disability/chronic illness**
Dagny Streicher
Zentrale Studienberatung der Christian-Albrechts-Universität zu Kiel
(Kiel University’s Central Academic Advisors)
Christian-Albrechts-Platz 4, Room 1407
24118 Kiel

Tel.: +49 (0)431/880-5885
E-mail: barrierefrei-studieren@uv.uni-kiel.de
Website: [Studying without barriers](#)

Office hours: see [Studying without barriers](#)
**International Center**

Foreign students with queries regarding admission, registration and advice should contact the International Center. The relevant contacts can be found on the [International Center’s website](http://www.international.uni-kiel.de).

International Center  
Westring 400  
24118 Kiel  
Tel.: +49 (0)431/880-3715  
Website: [www.international.uni-kiel.de](http://www.international.uni-kiel.de)

Office hours: see [website](http://www.international.uni-kiel.de)

**Career Center**

The Career Center assists students and graduates by providing seminars, presentations, advice and coaching relating to career orientation and planning.

Career Center at Kiel University  
Claudia Fink  
Leibnizstraße 3  
24118 Kiel  
Tel.: +49 (0)431/880-1251  
E-mail: [careercenter@uv.uni-kiel.de](mailto:careercenter@uv.uni-kiel.de)  
Website: [Career Center](http://www.careercenter.uni-kiel.de)

Open consultation times for simple queries and scheduling appointments:  
Wednesdays from 11:30 to 12:30

**Graduate Center**

Kiel University supports its doctoral students centrally via its Graduate Center throughout the course of their doctoral degrees. The Graduate Center is where they can obtain information on all aspects of their doctoral degree, advice on funding opportunities, interdisciplinary qualifications, assistance with networking and exchange with other doctoral students, as well as helpful advice on specific queries.

Graduate Center at Kiel University  
Leibnizstraße 3  
24118 Kiel  
Tel.: +49 (0)431/880-3218  
E-mail: [info@gz.uni-kiel.de](mailto:info@gz.uni-kiel.de)  
Website: [Graduate Center](http://www.ganz.uni-kiel.de)
Office hours:

Thursdays from 2pm to 6pm (appointments via e-mail: consulting@gz.uni-kiel.de)

8. Orientation events for new students

Induction and orientation events are held at the start of each semester. We recommend attending these.

Here you can find dates and further information on the induction and orientation events.

For basic advice and help putting together your curriculum please refer to the flyer "Tipps zur Erstellung des Stundenplans (tips on producing your curriculum)".

9. Examination Office and examination regulations

Legal provisions governing the degree programme can be found in the following examination regulations:

- Examination Procedure Regulations at Christian-Albrechts-Universität zu Kiel (Kiel University) for students of Bachelor’s and Master’s degree programmes (PDF)

- Examination Regulations (Rules) of the Faculty of Engineering for the Discipline “Digital Communications”, leading to a Master of Science Degree (M.Sc.) at Christian-Albrechts-Universität zu Kiel (Kiel University)

Should you have queries relating to examination procedures, please contact the relevant Examination Office.

All the study and examination regulations and the relevant examination offices can be found here.

10. Structure of the degree programme

The 1-subject Master’s degree programme comprises study of a subject totalling 90 ECTS credits, as well as the preparation of a Master’s thesis totalling 30 ECTS credits.

The degree programme is divided into the following sections:

1. Compulsory modules: 34 ECTS credits must be obtained in the compulsory modules. All modules in this section are graded.

2. Technical compulsory elective modules: at least 32 ECTS credits must be obtained from technical compulsory elective modules. Here, modules covering at least 4 ECTS credits must be completed from each of the three optional blocks of "Applied Communications and Networks”, “Communication Devices” and “Applied Signal Processing”. The remaining credits can be selected from all three optional blocks mentioned above. All modules in this section are graded.

3. Practicals: 14 ECTS credits must be obtained from three practicals. Some modules in this section are graded. The grades are not incorporated in the final grade.
4. Non-technical compulsory elective modules: a total of at least 10 ECTS credits must be obtained in a minimum of two non-technical compulsory elective modules. This includes a compulsory German language course for students who are unable to provide evidence of sufficient German skills, if this module is currently on offer. With the written permission from the Chairperson of the Examination Board, this course may be replaced by another module to learn a foreign language, provided German language skills are proven. Level B1 of the Common European Framework of Reference for Languages (CEFR) is regarded as sufficient for German language skills. Proof is to be provided in the form of secondary school qualifications or comparable certificates. Furthermore, in this section, non-technical modules offered at Kiel University that serve the purpose of acquiring soft skills can be selected.

The degree programme is modular in design. The module examination serves to determine whether the student has achieved the module's learning objectives. Module examinations are held in parallel to studies and may comprise one or several examinations. The type and number of examinations are set out in the degree-specific examination regulations.

An industry internship can be done on a voluntary basis during the semester holidays.

The Master’s examination is passed if all of the module examinations required under the degree-specific examination regulations and the thesis are passed and therefore the required number of ECTS credits (LP) has been obtained.

The standard period of study for a 1-subject Master’s degree programme in Digital Communications is 4 semesters.
### Information about the modules

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>etit-514</td>
<td>Digital Communications (VL+Ü)</td>
<td>K</td>
<td>1</td>
<td>3+2</td>
<td>7</td>
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<tr>
<td>etit-506</td>
<td>Advanced Signals and Systems (VL+Ü)</td>
<td>K</td>
<td>1</td>
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<tr>
<td>etit-509</td>
<td>Advanced Digital Signal Processing (VL+Ü)</td>
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<td>2+1</td>
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<td>etit-510</td>
<td>Information Theory and Coding I (VL+Ü)</td>
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<td>etit-511</td>
<td>Information Theory and Coding II (VL+Ü)</td>
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<tr>
<td>etit-512</td>
<td>Wireless Communications (DSP) (VL+Ü)</td>
<td>K</td>
<td>2</td>
<td>2+1</td>
<td>4</td>
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<tr>
<td>etit-513</td>
<td>Optical Communications (VL+Ü)</td>
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<tr>
<td>etit-705</td>
<td>Communications Lab (P)</td>
<td>Kol, VDF</td>
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<tr>
<td>etit-708</td>
<td>Real-time Signal Processing Lab (S)</td>
<td>ProgA, V</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<tr>
<td>etit-706</td>
<td>Advanced Topics Lab (P)</td>
<td>ProgA, V</td>
<td>3</td>
<td>6</td>
<td>6</td>
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<tr>
<td>DC-12</td>
<td>Master’s Thesis</td>
<td></td>
<td>4</td>
<td>6 mths</td>
<td>30</td>
</tr>
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</table>

#### Pflichtmodule (Compulsory Modules)

#### Technische Wahlpflichtmodule (Technical Compulsory Elective Modules) [4]

<table>
<thead>
<tr>
<th>Technical Compulsory Elective Modules (VL+Ü)</th>
<th>depending on the module</th>
<th>2</th>
<th>6+3</th>
<th>12</th>
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<tbody>
<tr>
<td>Technical Compulsory Elective Modules (VL+Ü)</td>
<td>depending on the module</td>
<td>3</td>
<td>10+5</td>
<td>20</td>
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#### Nichttechnische Wahlpflichtmodule (Non-technical Compulsory Elective Modules) [4]

<table>
<thead>
<tr>
<th>Non-technical Compulsory Elective Modules (VL)</th>
<th>depending on the module</th>
<th>1</th>
<th>4</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>Non-technical Compulsory Elective Modules (VL)</td>
<td>depending on the module</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total** 120

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**Footnotes**

[1] PL = Prüfungsleistung = the examinations to be taken within the framework of the module.

[2] Semesterwochenstunde (SWS): = the number of 45-minute teaching units per week assigned to a particular course for the period of one semester. “2 SWS” means e.g. that this particular course will be held for 2 units per week for an entire semester.

[3] LP = Leistungspunkte = In accordance with the European Credit Transfer and Accumulation System (ECTS), a certain number of credits (LP) are awarded for each module examination passed. Other possible abbreviations include CP and PP. Various academic achievements, for example, preparatory work and follow-up work as well as attending
lectures are recognised as workload. One credit point corresponds to a workload of 25 to a maximum of 30 hours of attendance and independent study.


Explanations:
K: Klausur = written examination
Kol: Kolloquien = colloquium
P: Praktikum = practical
Prä: Präsentation = presentation
ProgA: Programmieraufgabe = programming exercise
S: seminar
Ü: Übung = practical exercise
V: Vortrag mit schriftlicher Ausarbeitung = presentation with written report
VDF: Versuchsdurchführung = experiment
VL: Vorlesung = lecture

11. Accreditation

The degree programme is accredited until 30.09.2022.

As a system-accredited university, the Quality Management division conducts the accreditation of degree programmes internally.