

## Applied Computer & Communication Technology (B. Eng.)

Program of Study:	Applied Computer & Communication Technology
Department:	Electrical Engineering & Information Technology
Degree Awarded:	Bachelor of Engineering (B.Eng)
Form of Study:	undergraduate study
Language of Teaching:	German
Commencement of Study:	Fall trimester
Standard Period of Study:	3 years, 3 months (10 trimesters)
Academic Counseling:	Prof. Dieter Pawelczak (Department Chair) E-mail: <a href="mailto:dieter.pawelczak@unibw.de">dieter.pawelczak@unibw.de</a>
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### I) Program Description

The aim of the bachelor's program *Applied Computer & Communication Technology* is to provide its students with the scientific skills and methods needed to work as electrical engineers on their own authority via practice-oriented courses.

A broad basis in theoretical and practice-oriented subjects should put students in a position to identify crucial connections and allow them to keep up with the rapidly developing technology. To this end, current problems in the industry are analyzed, and viable solutions are developed. The knowledge gained in lectures and seminars is complemented by the experience our students acquire in lab courses. Aside from the two areas of concentration *Applied Computer Technology* and *Communication Technology*, students are free to choose from a wide variety of courses in Electrical Engineering and Information Technology.

### II) Prerequisites

In order to take part in this program, candidates must have a diploma that is recognized by the state of Bavaria as allowing them to study at a *Fachhochschule*. High school graduates with no practical experience are required to attend a technical seminar that lasts six weeks. Candidates who took higher-level technical or scientific subjects in high school are preferred, but this is not a prerequisite for study.

Students should review their high school coursework in mathematics and the sciences in preparation for their studies. A review course or independent review is recommended for any student who needs to refresh his or her knowledge of fractions, exponents, logarithms, differentials, integrals, and curve-sketching (recommended works: *Klaus Fritzsche: Mathematik für Einsteiger, Spektrum, 2003* or *Wolfgang Schäfer, Kurt Georgi, Gisela Trippler: Mathematik-Vorkurs, Teubner, 2006*). The department offers additional developmental courses to help students improve their mathematical skills. It is especially important that students be familiar with their high school physics material concerning electricity. Christoph Heckenkamp's book entitled *Vorkurs Physik* (Fachbuchverlag Leipzig, 2000) offers a good review of this information. Jens Gallenbacher's *Abenteuer Informatik* (Spektrum Akademischer Verlag, Heidelberg, 2007) provides an excellent introduction to computer science.

### III) Abilities & Tendencies

In general, students in our technical programs of study are expected to have the following abilities and characteristics in addition to an interest in their subject area and in technical systems:

- creativity
- the ability to work and think independently
- the ability to concentrate and readiness to learn
- purposefulness, dedication, and a proactive work style
- the ability to work in a team and communicate ideas
- the ability to think in an abstract way

In addition, basic computer literacy and willingness to work with computers are essential, since the majority of engineering tasks and coursework are carried out with the help of a computer.

#### **IV) Structure of the Program**

A distinguishing feature of this bachelor's program is the variety of lab courses students attend alongside lectures and seminars. In the framework of this program, each student must complete a 20-week lab course in electrical engineering or IT, including an accompanying seminar. In the first year of the program, students become acquainted with basic skills and methods from the following subject areas: mathematics, electrical engineering, physics, metrology, and computer science. The first year should also prepare students to choose their area of concentration in the second year (Applied Computer Technology or Communication Technology). Starting in the second year, students from both areas of concentration attend the seminars *Embedded Systems*, *Digital Technology*, *Digital Signal Processing*, and *Control Engineering*. In total there are eight core electives from which to choose. In addition, basic skills from the social sciences and business studies are also taught. Each student completes one project, which must be prepared independently and subsequently presented. The program culminates with a bachelor's thesis, completed over a period of three months.

#### **V) Careers**

The notion of an engineer as someone who tinkers around in the development division has changed tremendously. Engineers have moved beyond the traditional areas of development, production, and assembly to pursue successful careers in marketing and sales, education, and project planning and management. In such positions soft skills such as leadership ability and the ability to work in a team are especially important. Outside of the armed forces, graduates will be prepared for career opportunities in large scale industry, small and medium-size companies, as freelancers, in public service, in organizations, and in research institutions. In the electronics, automobile, and IT industries, all doors are open for well-educated electrical engineers. In the armed forces, engineers are confronted with interesting tasks relating to troop deployment, communication, system maintenance and repair. They are also hired by IT centers, as instructors at technical schools, or to fill leadership positions in the areas of planning, acquisition, and logistics.

#### **VI) Further Information**

For more information on study at the Universität der Bundeswehr München and the application process, please visit [www.unibw.de/studienberatung](http://www.unibw.de/studienberatung) .

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