

Profile of the Program

Undergraduate curriculum according to Academic Regulation for Undergraduate Studies is arranged by the Mechatronics Engineering Department and becomes effective upon the decision of the Engineering Faculty Board and approval of the University Senate. The Mechatronics Engineering Program takes four years and leads to a Bachelor's degree of Science in Mechatronics Engineering. The Bachelor's degree requires the completion of 247 ECTS credits. The curriculum of the Bachelor's Degree in Mechatronics Engineering was planned according to recommendations of ASIIN's subject-specific criteria (The Technical Committee 02, TC 02 and the Technical Committee 04, TC 04) and recommendations of The Association for Computing Machinery (ACM), and The Electrical & Electronics Society (IEEE-EES)¹. The curriculum is classified into curricular categories represented in Table 1. A number of ECTS and Percentage of a category in the program are indicated in Table 1. It includes studies of Basic Science (Mathematics and Other Sciences), studies of English and Social Science courses, studies of Mechatronics Engineering electives courses and obligatory courses and non technical courses.

Table 1: Curricular categories of the program

Category	Notation	ECTS	Weight, %
Mathematics	MT	31	12.6
Other Science	BS	31	12.6
Obligatory & Elective Mechatronics Engineering	O&EMCT	159	64.4
Non Technical	NT	26	10.5
Total		247	100

Each module of the program is classified into curricular categories. Each module is assigned a number of semester credit hours, according to the number and types of formal activities within a given week. These are determined as follows:

- Lecture hours: presentation of material in a classroom setting
 - * 4 credit hour = 4 “hour” of lecture per week
 - * 3 credit hour = 3 “hour” of lecture per week
 - * 1 credit hour = 2 “hour” of lecture per week

- Laboratory hours: formal experimentation in a laboratory setting
 - * 1 credit hour = 2 “hour” laboratory session per week

- Recitation hours: problem-solving sessions, etc. in support of lecture material
 - * 1 credit hour = 2 “hour” of recitation per week

The professional competence acquired in the required subject studies is further developed by elective subject choices. In the Bachelor’s Degree Program the portion of elective studies is 16.6%. In exceptional cases, the elective subject can be chosen from other degree programs, if it is suitable for the degree. The application has to be approved by the Head of Mechatronics Department. With technical respect free electives on offer, students of the Bachelor’s degree program may choose a certain specialization track to get a more distinguished qualifications profile.

Teaching methods: The Bachelor’s program is full-time, on-campus program. The teaching methods applied in the Degree Program in Mechatronics Engineering include lectures, classroom and laboratory exercises, computer training, different kinds of assignments, seminars, excursions, and Case-exercises. The courses also involve group and project work which train the social competences of the students. The Department of Mechatronics Engineering appreciates modern concepts and new methods in teaching and education methods that support educational objectives in addition to traditional methods. Traditional class attendance is compulsory for all courses except graduation projects. Problem solving sections of knowledge based courses are integrated with the theory sections. The Department of Mechatronics Engineering aims to reach its educational objectives by using several teaching methods. Both the traditional and modern teaching methods are employed at the department. Traditional teaching methods are face-to-face lectures and are class based, requiring all students to attend classes. At least 70% of class attendance is compulsory for all the courses. Lectures are conducted using standard computer based presentations in the form of pre-prepared slides. In addition, white boards and marker pens are used whenever necessary in order to explain difficult topics in greater detail, or to answer student questions. Students are encouraged to take notes during the presentations and ask questions if there are points that they are not clear about. Electronic copies of the slides are sent to students by email after each class, and students are encouraged to go through the slides in their own time and make sure that they understand all presented information. In addition to traditional teaching methods, a variety of other methods are used to support the teaching. Most computer based learning requires the use of computers as part of the learning process. Students use the departmental computer laboratories for their practical work in order to improve their practical skills. Students use computers in the laboratory under the supervision of either a teaching

assistant or an instructor. Educational methods used for the students can be classified into teacher centered and student centered. In Teacher-Centered Approach, the Teachers are the main authority figure. The primary role of the student is to passively receive information (via lectures and direct instruction) with an end goal of testing and assessment. It is the primary role of teachers to pass knowledge and information onto their students. In this model, teaching and assessment are viewed as two separate entities. Student learning is measured through objectively scored tests and assessments. In Student-Centered Approach, the teachers are an authority figure, teachers and students play an equally active role in the learning process. The teacher's primary role is to coach and facilitate student learning and overall comprehension of material. Student learning is measured through both formal and informal forms of assessment, including group projects, student portfolios, and class participation. Teaching and assessments are connected; student learning is continuously measured during teacher instruction. Commonly used teaching methods may include class participation, demonstration, recitation, memorization, or combinations of these.