

## **International Mechanical Engineering, 180 HE credits**

*Internationell maskiningenjör, 180 hp*

Programme code: TGMEC

Higher education qualification: Degree of Bachelor of Science with a major in Mechanical Engineering

Cycle: First cycle

Established: 2023-04-04

Established by: Department of Engineering Science

Applies for: Programme start spring 2024

### **Entry requirements**

General entry requirements

**You also need:** Chemistry 1, Mathematics 3c or Mathematics D and Physics 2.

### **Language of instruction**

The teaching is conducted in English.

### **Other regulations**

A student who has been admitted to a programme with this programme syllabus is guaranteed a place on courses according to the study plan below, provided that the student follows the programme according to the study plan. The study plan and its courses may however be subject to change, within the framework of the qualitative targets, when revisions of education plans and syllabi are being made. Should the programme involve choosing a specialization, the student is guaranteed a place on courses concerning the chosen specialization.

## **Qualitative target**

### *National outcomes*

#### **Degree of Bachelor [Kandidatexamen]**

#### **Scope**

A Degree of Bachelor is awarded after the student has completed the courses required to gain 180 credits in a defined specialisation determined by each higher education institution itself, of which 90 credits are for progressively specialised study in the principal field (main field of study) of the programme.

#### **Outcomes**

##### **Knowledge and understanding**

For a Degree of Bachelor the student shall

- demonstrate knowledge and understanding in the main field of study, including knowledge of the disciplinary foundation of the field, knowledge of applicable methodologies in the field, specialised study in some aspect of the field as well as awareness of current research issues.

##### **Competence and skills**

For a Degree of Bachelor the student shall

- demonstrate the ability to search for, gather, evaluate and critically interpret the relevant information for a formulated problem and also discuss phenomena, issues and situations critically
- demonstrate the ability to identify, formulate and solve problems autonomously and to complete tasks within predetermined time frames
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences, and
- demonstrate the skills required to work autonomously in the main field of study.

##### **Judgement and approach**

For a Degree of Bachelor the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues
- demonstrate insight into the role of knowledge in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the need for further knowledge and ongoing learning.

##### **Independent project (degree project)**

A requirement for the award of a Degree of Bachelor is completion by the student of an independent project (degree project) for at least 15 credits in the main field of study.

### Miscellaneous

Specific requirements determined by each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Degree of Bachelor with a defined specialisation.

## Courses that the study programme comprises

Course	Course code	HE credits	Level	Main field of study
Ethics for Engineers	EFI120	2,5	G1N	
Introduction to programming with Python	GPP110	5	G1N	Computer Engineering
Machine element I	MEL100	2,5	G1N	Mechanical Engineering
Manufacturing I	TVB100	2,5	G1N	Mechanical Engineering
Manufacturing Processes	PTA102	7,5	G1N	Mechanical Engineering
Mathematics A	MAT101	7,5	G1N	
Quality and environmental management	KVM200	5	G1N	Mechanical Engineering
Technical Drawing and CAD	RTK300	5	G1N	Mechanical Engineering
Electronics, fundamental	ELK202	5	G1F	Electrical Engineering
Feedback Control Engineering	RLT200	5	G1F	Computer Engineering, Electrical Engineering, Mechanical Engineering
Finite element method: Mathematical formulation and applications	FEM410	5	G1F	

Course	Course code	HE credits	Level	Main field of study
Introduction to Electric Vehicle Systems and Components	ISK100	5	G1F	Electrical Engineering, Mechanical Engineering
Logic Control Engineering	SDT200	2,5	G1F	Computer Engineering, Electrical Engineering, Mechanical Engineering
Logistic	LOA202	5	G1F	Mechanical Engineering
Machine element II	MEL200	2,5	G1F	Mechanical Engineering
Materials Science and Engineering	MTK200	7,5	G1F	Mechanical Engineering
Mathematical Statistics	MAS200	5	G1F	
Mathematics B	MAT220	7,5	G1F	
Mechanics	MEK210	7,5	G1F	Mechanical Engineering
Metallurgy	MET100	5	G1F	Mechanical Engineering
Robotics and Automation	ROA200	5	G1F	Electrical Engineering, Mechanical Engineering
Sensor Technology	SST200	2,5	G1F	Computer Engineering, Electrical Engineering, Mechanical Engineering
Strength of materials	HFT200	7,5	G1F	Mechanical Engineering

Course	Course code	HE credits	Level	Main field of study
Thermodynamics and heat transfer: Mathematical formulation and analytic solution	TDV200	5	G1F	
Bachelor thesis work - International Mechanical Engineering	K0004012	22,5	G2E	Mechanical Engineering

### Optional courses within programme

Among the courses on the program, there are 37,5 HE credits in optional courses. You can choose from the courses below or you can take courses at another institution of higher learning, either in Sweden or abroad. Note, however, that the intended learning outcomes of these courses cannot overlap with the courses for this degree. Also, the course subject needs to be relevant to the program, whether a course is relevant for the education or not is decided by the program manager. The student needs to apply for a pre-approval (förhandsbesked) of the course selection and have it accepted by the program manager before taking the course.

Course	Course code	HE credits	Level	Main field of study
Additive Manufacturing-En	K0004013	7,5	G1F	Mechanical Engineering
Energy Storage Systems in electric vehicles	K0004060	7,5	G1F	Electrical Engineering, Mechanical Engineering
Materials characterization and NDE	K0004009	7,5	G1F	Mechanical Engineering
Industrial Placement	K0004010	15	G2F	Mechanical Engineering

### Description of compulsory courses

The study path presents the order and weeks courses in the programme are given. To see the programmes preliminary study path, enter the programme name / programme code at [hv.se/en/study-path](http://hv.se/en/study-path).

### Entry requirements within the programme

- For the Industrial Placement course, completed courses of 90 HE credits within the program is required.
- For the course, Bachelor Thesis Work-international mechanical engineering,

completed courses of 120 HE credits within the program is required.

### **Work Integrated Learning (WIL)**

Work-Integrated Learning (WIL) has been a part of University West ever since it was founded and is our overarching profile. Our programmes, research, and collaborations all feature a WIL element, and it permeates all that we do here. Together with our collaborators, who come from private, public, and civic areas of society, we develop and exchange knowledge that will lead to a sustainable world. As a student at University West, you will encounter work-integrated learning in several ways. This may be, for example, in the classroom or lecture hall, in your practical work, or in something you are involved in outside of the university setting. WIL clearly integrates theory and practice. The advantage of WIL is that you earn an academic degree while also gaining work experience, make contacts, and acquire practical competence. You are better equipped for employment, and are prepared for life-long learning, new insights, and cutting-edge research. WIL is part of our programmes and takes on various forms as we continue to develop our methods of integrating theory and practical knowledge.