University of Applied Sciences Wurzburg-Schweinfurt

A Compact Study Guide to the Bachelor's Degree Programme

MECHATRONICS IMC

imc.fhws.de

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About this Document

This compact guide is written with the aim to summarise the necessary information the students may need during their undergraduate studies in the degree programme Mechatronics. As German is the official language in Germany, all the legally binding documents are in German. This guide would help to understand these documents. For further details of the programme you may consult the following official documents:

Document	Description	Language
SPO IM: Studien- und Prüfungsordnung für den Studiengang Bachelor „Mechatronics“	This is the most important official document describing the study and examination regulations for the bachelor’s degree programme “Mechatronics”	German
SPO IM: Study and Examination Regulations for the degree programme Bachelor of Mechatronics	This document is the English translation of the official SPO IMC.	English
Studienplan des Studiengangs Mechatronics	This document describes the curriculum of the degree programme. The English translation of this document is included in this guide.	German
Module handbook of the degree programme Bachelor of Mechatronics	This handbook describes the contents and learning objectives of all the modules required to fulfil the requirements of the degree programme	German / English
Information regarding the pre-study internship for the degree programme Bachelor of Mechatronics	A brief description of the requirements of the pre-study internship.	English

Explanations and Definitions

A **module** is a well-rounded set of academic activities on a specific subject area. Modules can be composed of different forms of teaching and learning activities (e.g. lectures, exercise courses, lab experiments, internships, seminars etc.). Successful completion of each module is credited with Credit Points (CP). Detailed description of modules can be found in the **module handbook**.

Credit Points (CP) are, according to the European Credit Transfer and Accumulation System (ECTS), units to measure the learning achievements and workload of a course. These standardised units make it easier for students to move between different universities in different countries. A Credit Point is equivalent to a workload of about 30 hours. The standard workload in an academic year is about 60 Credit Points. In order to graduate with a Bachelor of Engineering in Mechatronics a total of 210 Credit Points is required.

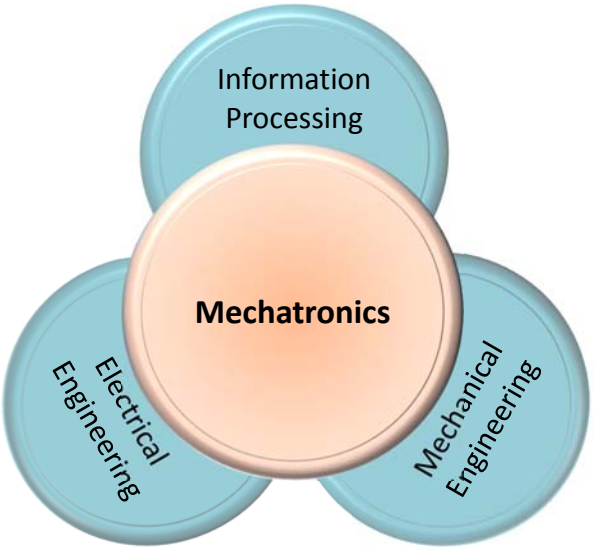
Credit hours/ Semesterwochenstunden (SWS) are the number of academic hours per week during a semester, which are spent in a lecture, lab course or seminar. A semester is normally 13 to 15 weeks long. Number of credit hours multiplied by the number of weeks per semester is defined as the number of contact hours. In order to avoid misunderstandings the German abbreviation SWS will be used for credit hours.

Abbreviations

BT (or BA)	Bachelor‘s Thesis (or Bachelorarbeit)
bZv	admittance depends on particular condition
CE	Core Elective
CP	Credit Point
FANG	Faculty of Applied Natural Sciences and Humanities
FE	Faculty of Electrical Engineering
FM	Faculty of Mechanical Engineering
GE	General Elective
m.E./o.E.	mit Erfolg/ ohne Erfolg = passed successfully/failed
Pr	Praktikum = lab or internship
Pro	Project
RaPO	Rahmenprüfungsordnung für die Fachhochschulen in Bayern
S	Seminar
soP	sonstige Prüfung = other examined assignment - the type of the other examined assignment is laid down in the curriculum and announced at the start of the semester by the responsible lecturers. A= research project; B= presentation; C= multimedia presentation; D= documentation report; E= colloquium; F= written assignment; G= portfolio assignment; H= practical assignment
sP	Written examination
SPO/IMC	Study and Examination Regulations for Mechatronics
SS	Summer semester
SU	seminaristischer Unterricht = seminar-like lecture
SWS	Semesterwochenstunden = credit hours
Tpf	Teilnahmepflicht = compulsory participation
Ü	Übung = exercise course
WS	Winter Semester

The Degree Programme

Mechatronics is a relatively new and highly innovative engineering discipline. It combines the expertise from areas of electrical and mechanical engineering with information processing. Mechatronic systems normally work on the ***sense-think-act*** paradigm. They collect information with the help of sensors (*sense*-phase). This information is processed and decisions are made with the help of computers or microcontrollers (*think*-phase). These decisions are passed on to actuators in order to generate proper forces or movements (*act*-phase). Such systems are present in almost every branch of industry. Common examples of these systems are robots; unmanned aerial vehicles (UAVs); unmanned ground vehicles (UGVs); 3-D printers; ABS, ESP, electronic throttle and power windows of a vehicle etc. There are seldom new products, which are only mechanical, only electrical or only electronic devices. In new technical products electronic and electromechanical components are combined with information processing units and software, which makes them "intelligent machines". In order to design such machines engineers need a solid understanding of all these fields. The degree programme Mechatronics is the answer to this challenge.



In addition to delivering a solid understanding of the key areas, this programme aims to develop further skills needed to carry out and manage engineering projects. Especially designed courses enable students to identify the environmental impact of technology and encourage them to behave responsibly. Due to elective modules, the students may tailor their course contents according to their own inclinations and interests without making compromises. The practice-oriented learning environment at FHWS makes them capable of applying the know-how and scientific methods to solve engineering problems independently. This programme also focuses on personality development by offering foreign languages, interaction in multicultural teams, soft skills and further social competences. The study programme can also serve as a solid fundament for graduate studies.

A brief overview of the programme

Name of the degree programme	Mechatronics
Level	Undergraduate
Graduation degree	Bachelor of Engineering (B.Eng.)
Language of instruction	English
Course duration	7 Semesters
Number of *Credit Points*	210
Programme starts	Winter semester (October 1)
University location	Schweinfurt
Offered as a joint programme by	• Faculty of Electrical Engineering • Faculty of Mechanical Engineering
Programme orientation	• Interdisciplinary: involving electrical engineering, mechanical engineering, information processing and soft skills • Highly industrial-application-oriented • International

Prerequisites for the admission

In addition to a valid university entrance certificate and proficiency in English language, there are the following two prerequisites of this programme:

1. **Pre-study internship**
   A pre-study internship with a minimum duration of six weeks is required for the admission to this programme. Further details about this internship are available in the document "Information regarding the pre-study internship for Mechatronics".

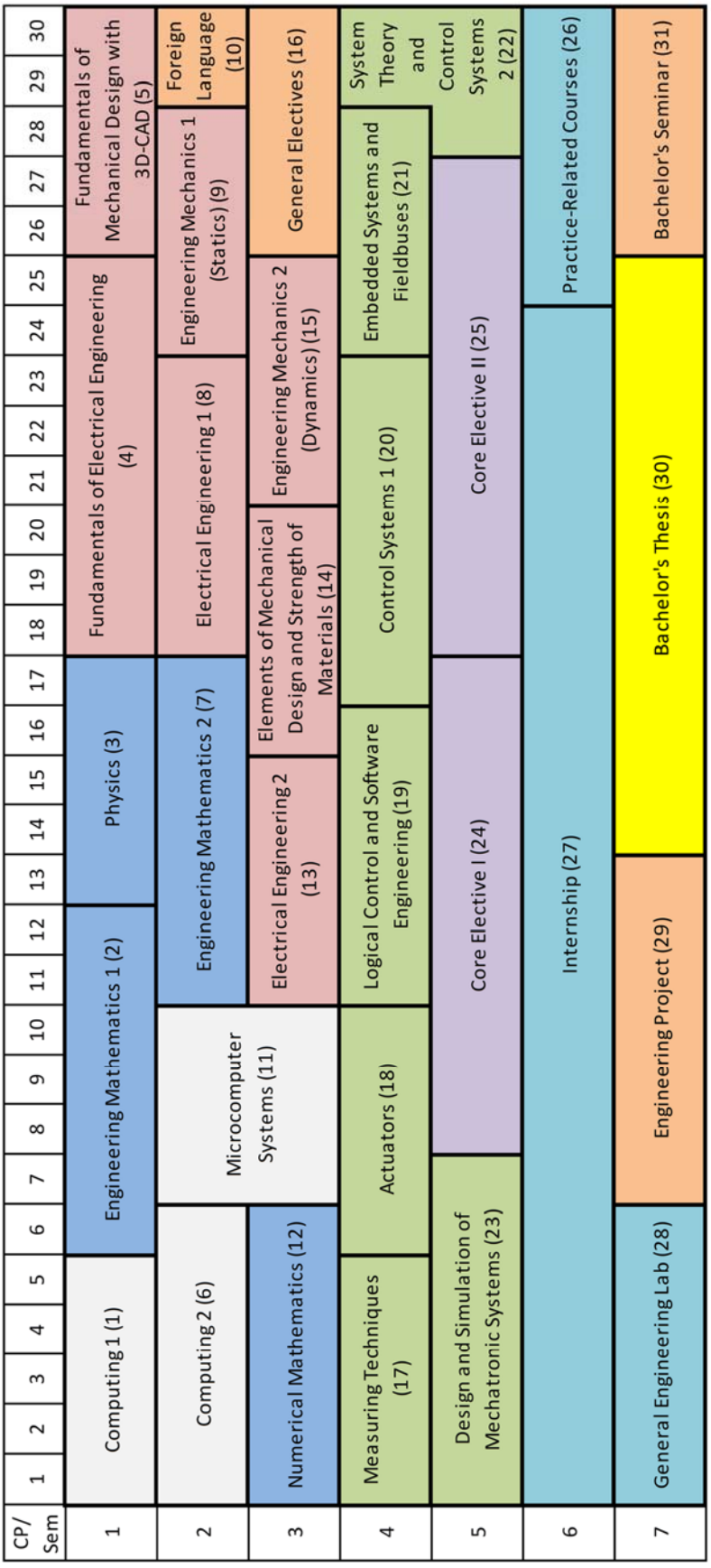
2. **German language certificate**
   Even if the language of instruction for the whole degree programme is English, a basic knowledge of German at least level A2 (according to CEFR) is required. Non-native speakers must prove this knowledge by submitting a valid certificate.

Students, who cannot fulfil these requirements at admission time, get a provisional admission. Both of these certificates have to be submitted **not later than the second semester**.

The programme structure

The Bachelor's degree programme Mechatronics is modularised. The whole coursework is composed of 31 modules. These modules are organised in three phases over a time span of seven semesters. The following charts give an overview of the course structure, whereas further details are described in the following sections.

Phase	Semesters	Description
Foundation Phase	1-3	The modules offered in this phase build a solid foundation for mechatronics. In addition to mathematics, computing, physics and fundamentals of engineering sciences some general electives, soft skills and foreign languages are also included in the curriculum.
Core Phase	4-5	This phase of the degree programme deals with core modules of mechatronics. The theory and lab courses offered at this stage involve control systems, measuring techniques, actuators, software engineering, embedded systems, design & simulation of mechatronic systems etc. A wide range of core electives with direct industrial relevance to automation, robotics, power engineering, automotive and manufacturing sectors is also offered in the fifth semester.
Application and Industrial Phase	6-7	The final phase of the study programme involves practical training with real-world problems. The major part of the sixth semester is an internship in industry. During this internship students get chances to apply their knowledge to industrial problems. This way they develop a problem-solving approach. The seventh semester involves an engineering project, a bachelor's thesis, a seminar and some interdisciplinary lab work.



An overview of the programme structure

Foundation Phase

The foundation phase consists of three semesters. The modules offered in this phase build a solid foundation for field of mechatronics. The following table gives an overview of this phase. For further details please consult the module handbook.

SWS in Semester			Module Group / Module				Examination			W	CP
1.	2.	3.	ID	No.	Name	Type	Type	Dura-tion	bZV		
					Computing						
4			CMP1	1	Computing 1	SU, Pr	soP (m.E./o.E)	H		0	5
	5		CMP2	6	Computing 2	SU, Pr	sP	90	CMP1	0,5	6
	4		MCS	11	Microcomputer Systems	SU, Ü, Pr	sP	120		1	4
		3									4
					Mathematics						
6			MA1	2	Engineering Mathematics 1	SU, Ü	sP	90		0,5	7
	6		MA2	7	Engineering Mathematics 2	SU, Ü	sP	90		0,5	7
		4	NM	12	Numerical Mathematics	SU, Ü, Pr	sP	90		1	6
4			PHY	3	Physics	SU, Ü, Pr	sP	90		0,5	5
					Electrical Engineering			90			
6			FEE	4	Fundamentals of Electrical Engineering	SU, Ü	sP	90		0,5	8
	6		EE1	8	Electrical Engineering 1	SU, Ü	sP	90		0,5	6
		4	EE2	13	Electrical Engineering 2	SU, Ü	sP	90		1	5
					Mechanical Engineering						
			FMD	5	Fundamentals of Mechanical Design with 3D-CAD					0,5	5
1			CADLab		3D-CAD Lab	Pr	soP (m.E./o.E)	H			
3			MD		Fundamentals of Mechanical Design	SU, Ü	sP	90			
		4	EMDSM	14	Elements of Mechanical Design and Strength of Materials	SU, Ü	sP	90		1	5
	4		EM1	.9	Engineering Mechanics 1 (Statics)	SU, Ü	sP	90		0,5	5
		4	EM2	15	Engineering Mechanics 2 (Dynamics)	SU, Ü	sP	90		1	5
		4	GE	16	**General Elective**	3)	3)	3)		1	5
	2		FL	10	**Foreign Language**	3)	3)	3)		0,5	2
	1	1	GELab	28	**General Engineering Lab**	Pr	soP in 7.Sem				
24	**28**	**24**									
76					Sum						**90**

Core Phase

Fourth and fifth semesters build the Core Phase of the degree programme. In addition to compulsory core modules, there are two Core Electives in the fifth semester.

SWS Semester		Module Group / Module				Examination			W	CP
4.	5.	ID	No.	Name	Type	Type	Dura-tion	bZV		
				Sensor Techniques, Measuring Techniques, Actuators						
4		MT	17	Measuring Techniques	SU, Pr	sP	90		1	5
4		ACT	18	Actuators	SU, Pr	sP	90		1	5
5		PLCSE	19	Logical Control and Software Engineering	SU	sP	120		1	6
		CS	20	Control Systems 1					1	7
2		CS1Lab		Control Systems Lab 1	Pr	soP (m ,E./o.E.)	H			
4		CS1		Control Systems 1	SU	sP	90			
4		ESF	21	Embedded Systems and Fieldbuses	SU, Ü, Pr	sP	90		1	5
2		STCS2	22	System Theory and Control Systems 2	SU	sP	90		1	5
	2									
		DSMS	23	Design and Simulation of Mechatronic Systems					1	7
	1	SLab		Simulation Lab	Pr	soP (m.E./o.E.)	H			
	4	DSS		Design and Simulation of Mechatronic Systems	SU, Ü,	sP	90			
				Core Electives	Details are included in the module description					
	8	CE1	24	Core Elective 1						1
	8	CE2	25	Core Elective 2						1
1	1	GELab	28	General Engineering Lab	Pr	soP in 7th Sem.				
26	**24**									
50				Sum						**60**

Core Electives

Core electives are part of fifth semester curriculum. Due to these elective modules, the students can tailor their course contents according to their own inclinations and interests. Every student has to select two modules out of a given catalogue. These modules have a direct industrial relevance to automation, robotics and manufacturing as well as power engineering and automotive sectors. A list of potential electives is normally published at the end of the fourth semester. The modules for which a sufficient number of students register, are offered in the following semester. Instead of English-language modules, the students may also opt a module from the Twin programme offered in German. Please note that it cannot be guaranteed that all the modules are offered every year. Only those modules will be offered for which sufficient resources and sufficient participants are available. The choice of a specific core elective module becomes binding when a student appears in its examination for the first time. Following is a list of tentative core electives:

1. Mechatronics in Automotive Engineering
2. Thermal and Fluid Mechanical Simulation in Mechatronics
3. Automation and Robotics
4. Power Engineering and Electro-mobility
5. Mechatronic Measuring and Test Technology
6. Embedded Systems and Processor Applications
7. Communication and Network Technology

Application and Industrial Phase

This is the final phase of the degree programme. In this phase, students apply their know-how to solve real-world problems. The modules of this phase are listed in the following table. Most of these modules are based on a close cooperation with industry.

SWS Semester		Module Group / Module				Module			W	CP
6.	7.	ID	No.	Name	Type	Type	Dura-tion	bZV		
			26	Practice-Related Courses						
2		PRC		Internship Seminar	S	sP (m.E./o.E)	C and F	Tpf	0	6
4				Business Administration	SU, Ü, S		90		0	
		INT	27	Internship	Pr	m.E./.o.E.		90 CP	0	24
1	1	GELab	28	General Engineering Lab	Pr	soP	H		1	6
	4	EP	29	Engineering Project	SU, Ü, Pr	soP	A	90 CP	1	7
		BT	30	Bachelor's Thesis		BA		INT + CS + 150 CP	1	12
	3	BS	31	Bachelor's Seminar	S	soP (m.E./o.E.)	C	Tpf	0	5
15				Sum						**30**

Engineering Project

In the final phase of the studies an engineering project has to be carried out. The main objective of this project is to gain experience teamwork, to practice soft skills and apply achieved knowledge to solve a real engineering problem. At least 90 CPs have to be achieved before starting this project. Teams with 4 to 5 students work on industrial development tasks. Each participant has to comply with the agreed schedule (completion of the work carried out within the deadline, taking part in team meetings and tests according to § 9 SPO / IMC). The systematic working approach, quality of documentation and presentation of results are considered for the grading of this module. Registration for the project starts in the previous semester and is carried out via the eLearning system.

General Engineering Lab (GeLab)

The module “General Engineering Lab (GELab)” is composed of at least 15 lab experiments offered by various laboratories of both faculties. This module complements the foundation and core modules of mechatronics. Therefore, the experiments can be carried out from the second semester onwards. In the foundation phase a maximum of eight experiments are allowed. Prerequisite for the General Engineering Lab is the successful participation in the course "General Safety Regulations for Working in the Laboratories” which will be offered in the first semester. The list of offered experiments will be published and the registration process will be managed via the eLearning system. The number of participants in each experiment is limited.

The experiments have a duration of 90 minutes. The experiments with 180 minutes duration are evaluated as two experiments. The General Engineering Lab module’s requirements are fulfilled if successful participation in at least 15 experiments has been demonstrated. The proof of the participation is provided with the help of an attestation card. Each lab experiment has to be entered to the attestation card before its start.

For each GELab experiment a manual is available from the relevant laboratory. The experiments must be prepared with the help of these manuals. In the beginning of each experiment, a short test is conducted in order to check if each participant is sufficiently prepared. After successful completion of each experiment a report must be submitted within a specified period of time. Each experiment is graded on the basis of the pre-test, experiment execution and its report.

After individual completion of the General Engineering Lab, the attestation card will be submitted to the Secretariat. The GELab coordinator will determine the final grade for the module considering the assessment of all experiments.

Internship

The practical study semester consists of an internship and some practiced-related courses. The practical phase has a duration of 20 weeks. The internship aims to strengthen students' professional skills, problem-solving techniques and interpersonal relationships in a professional environment. They learn to apply their knowledge to real-world problems and so get deeper insights into their technical fields. Working relationships with seasoned professionals increases their confidence by experiencing the industry with involvement in planning, implementing, and evaluating engineering tasks. They learn to know technical and social structures of the industrial organisation.

Prerequisite for the internship:

- at least 90 Credit Points achieved

Further information, such as the guidelines with training contents and goals, as well as a list of approved industrial organisations will be available on the eLearning platform (Mechatronics> current semester> Internship). New organisations or companies may be added to the list on request. Internships abroad with experience in international environments are highly recommended. After completion of the internship, a certificate issued by the training organisation must be submitted to the Department of Student Affairs (HSST).

The internship is complemented by the practice-related courses. In the "Internship Seminar", the students have to submit two technical reports, and give two presentations on topics related to the activities in the field of practical work. The practice-related courses are generally held on Friday during the internship.

Seminar

Regular seminar attendance, presentations and submission of reports are the requirements for successful completion of this module. The attendance is documented by signing the attendance lists. The students should inform the seminar coordinator in advance if they are unable to attend a certain seminar event.

Bachelor‘s Seminar

Each student must participate in the Bachelor's Seminar. The proof of participation is recorded on an attestation card issued at the beginning of the 4th semester. Registration for individual seminar sessions/dates is managed via the university's eLearning platform. The access key will be distributed to the students in good time.

After completion of the Bachelor’s Seminar, the attestation card will be submitted to the Secretariat. The seminar coordinator will compile the results and submit them to the Department of Student Affairs (HSST). For this purpose, registration of the examination via the enrolment portal of the HSST is necessary.

Bachelor's Thesis

The Bachelor's Thesis is planned in the seventh semester. It can be carried out either internally or externally. The internal theses are supervised in a university lab and address research & development topics given by the university. The external theses are performed in industry and try to solve industrial problems. The major aim of the thesis is to show the ability of a student to solve a mechatronics problem independently in a specified period of time. Registration forms the thesis are available on the intranet of the homepage of this programme.

Prerequisites for the thesis registration:

- at least 150 Credit Points achieved
- Internship completed successfully and
- Module 20 (Control Systems 1) passed successfully.

Maximum **allowable completion time** for the thesis is:

- 5 months, if the thesis is started within one month after the beginning of the 7th semester
- 3 months, otherwise.

Organising your studies

The SPO of the undergraduate degree programme Mechatronics is designed in such a way that a high degree of flexibility is achieved and thus different variants of the course of studies are possible. Thus, it is possible to meet the expectations and wishes of the students as well as the requirements of the industry, e.g. with regard to the Bachelor's Thesis and the Internship.

Some variants are shown in the following map. Further information on the variants as well as their advantages and disadvantages will be discussed at the internship-related information event. This topic can also be discussed with the programme advisor.

Study Plan

Semester	1	2	3	4	5	6	7	Remarks
Phase	Foundation Phase			Core Phase		Application and Industrial Phase		
Variant A	FM	FM	FM	CM	CM/E	INT	EP BT	The declaration of the final grade may shift to the 8th Semester!
Variant B	FM	FM	FM	CM	CM/E	INT	BT EP	The continuity between the Internship and the Bachelor's Thesis allows an extensive investigation of complex problems.
Variant C	FM	FM	FM	CM	CM/E	EP INT	BT	The continuity between the Internship and the Bachelor's Thesis allows an extensive investigation of complex problems.
Individual Plan								

FM	Foundation Modules
	Semester Break
CM	Modules of the core phase
CM/E	Modules of the core phase with Core Electives
INT	Internship
EP	Engineering Project
BT	Bachelor's Thesis

The TWIN Option

FHWS offers bachelor's degree programmes in the field of mechatronics in two languages: English and German. The contents of both programmes are almost same. That is why, these programmes are called twins. The students have the opportunity to switch between these two programmes. They can freely tailor their curriculum by selecting modules from both programmes. This possibility has the following advantages:

- The spectrum of core electives becomes very broad.
- A good combination of professional, cultural and language skills makes the students perfectly qualified for successful careers in German and international working environments.

Students may receive a "Twin-Bachelor Degree Program" certificate together with their Bachelor's degree, if they take a specified minimum number of modules from both programmes.

International Exchange

International experience is becoming increasingly important. Many organisations operate globally and even local companies have to cooperate with international customers or suppliers. As a result, intercultural experience and knowledge of foreign languages are important not only for future managers, but often also for employees. Apart from this professional aspect, a stay abroad is also exciting and usually associated with a lot of fun and a wealth of new experiences. The freedom you enjoy as an exchange student abroad will no longer have you in your professional career.

There are many option as an exchange student. During your studies, you can take part in an internship abroad, attend summer or winter schools, study one or two semesters at a foreign university or write the Bachelor's Thesis abroad. The foreign-university modules should be selected carefully, so that the credit can be transferred to you degree programme at FHWS. In particular, the core elective modules (CE) and general elective modules (GE) are suitable because in these cases the modules taken at a foreign university do not have to match with the courses at FHWS. The engineering project can also be completed at a foreign university. The most important thing is that you take care of the deadlines in Germany and abroad. This is especially important if you want to apply for some funding. Make sure that the credits earned at a foreign university can be transferred to FHWS.

An exchange semester is useful after the third semester, but you may start gathering information in the first or second semester. For further information please contact:

- Internship abroad: in the eLearning course "Praxissemester BM or BMC/IMC" and the internship coordinator.
- Studying abroad: in the eLearning course "Auslandsstudium" and International Affairs Officers of both faculties.
- Summer or winter schools and other programs: at the Notice Board "Internationalisierung" of both faculties.
- Bachelor's Thesis abroad: International Affairs Officers of both faculties.
- General information not specifically related to IMC: International Office in Schweinfurt, their information event "Go-Out" and on the HSIN homepage:

  https://international.fhws.de/en/?L=0

Teaching Staff and Laboratories

Mechatronics is offered as a joint programme by two future-oriented engineering faculties: the Faculty of Electrical Engineering (FE) and the Faculty of Mechanical Engineering (FM). Members of both faculties have vast industrial experience and are actively involved in research and development activities in cooperation with local and multinational industry. Both faculties have established state-of-the-art research and teaching labs equipped with modern apparatus and up-to-date experimental facilities. A list of the professors and the laboratories of both faculties is included in this guide.

Professors

Faculty of Electrical Engineering

Surname	First Name	Title	E-Mail	Room	Extension
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Faculty of Mechanical Engineering

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Felsner	Thomas	Dr.-Ing.	Thomas.Felsner@fhws.de	4.E.37	8777
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Meyer	Jean	Dr.-Ing.	Jean.Meyer@fhws.de	4.E.61	8778
Michos	Gordana	Dr.-Ing	Gordana.Michos@fhws.de	4.E.62	8789
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Müller	Tobias	Dr.-Ing.	Tobias.Mueller@fhws.de	4.E.10	8776
Müller	Udo	Dr.-Ing.	Udo.Mueller@fhws.de	3.E.09	8635
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Laboratories

Laboratory	Faculty	Room	Director
Chip Design and Microelectronics	FE	12.E.08	Dr Endres
Dielectric Diagnostics and Simulation	FE	1.1.61	Dr Zink
Power Systems	FE	1.1.65	Dr Arndt
High Voltage Engineering	FE	2.E.05	Dr Küchler
PCB Technology	FE	11.E.08	Dr Schormann
Mechatronics Lab I – Electric Drives	FE	1.E.22-28	Dr Kempkes
Mechatronics Lab II – Power Electronics	FE	1.E.22-28	Dr Ackva
Mechatronics Lab III – Automotive Electronics and Simulation	FE	12.E.14	Dr Hirn
Medical Engineering and Medical Information Processing	FE	1.0.27	Dr Kullmann
Metrology and Opto-thermic Sensors	FE	1.0.26	Dr Hartmann
Microwave Engineering	FE	1.0.31	Dr Poddig
Communication and Signal Processing	FE	12.E.10	Dr Spiertz
Communication Systems	FE	1.1.11	Dr Spiertz
Network Engineering and Network Management	FE	12.E.07	Dr Eckert
Optoelectronics	FE	1.0.29	Dr Bohn
Data Processing and Embedded Systems	FE	12.E.07	Dr Eckert
Control Systems	FE	12.E.09	Dr Ali
Robotics and Industrial Control	FE	12.E.11	Dr Ochs
Circuit Design	FE	12.E.09.1	Dr Schormann
Cyber-Awareness – Cryptography and Hacking	FE	1.0.30	Dr Mann
Software Engineering	FE	1.1.53	Dr Weber
Process Instrumentation	FE	12.E.11	Dr Prock
Video Engineering	FE	12.E.10	N.N.
Institute for Power Engineering and High Voltage Technology	FE		Dr Küchler / Dr Zink
Institute of Medical Engineering Schweinfurt	FE	1.1.59/1.0.28	Dr Kullmann
Technology Transfer Centre for E-Mobility	FE		Dr Ackva / Dr Kempkes
Acoustics	FM	N.N.	Dr Schreiber
Drives	FM	N.N.	Dr Latour
Operating Materials	FM	4.U.23-1	Dr Schlachter
CAD, CAE	FM	4.E.33	Dr Kühl
Experimental Stress Analysis	FM	4.E.24	Dr Wilke
Automotive Engineering	FM	4.E.43	Dr Kohlmeier
Strength Testing	FM	3.E.27	Dr Christel
Ceramics	FM	N.N.	Dr Laschütza
Mechatronics	FM	4.E.21	Dr Dürr
Numerical Simulation	FM	4.E.35	Dr Mengelkamp
Product Development – cFactory	FM	4.E.26	N.N.
Quality Management, production metrology and bearing engineering	FM	4.U.34	Dr Sommer
Control Systems	FM	4.E.25	Dr Paulus
Welding Technology	FM	4.E.42	Dr Vogt
Fluid Mechanics	FM	3.E.30	Dr Möbus
Thermodynamics and Power Engineering	FM	3.E.29	Dr Paulus
Tribology	FM	4.U.37-1	Dr Spielfeld
Combustion Engines	FM	3.E.28	Dr Schlachter
Process Measurements	FM	4.E.24/5.U.15	Dr Wilke
Heat Engineering	FM	N.N.	Dr Paulus
Material Engineering	FM	4.U.37-2	Dr Spielfeld
Machine Tools	FM	4.E.44	Dr Michos
Mechanical Workshop	FM	4.E.45	Dr Paulus

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