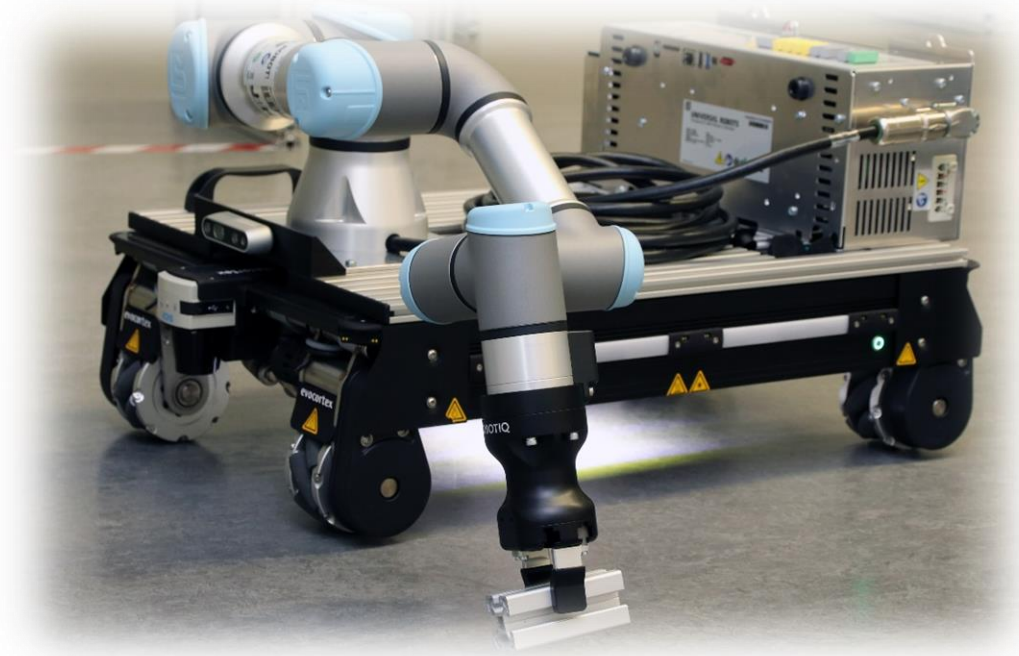


## Study Plan

### Bachelor's Degree Programme Robotics (IRO)



Winter Semester 2022/2023

(Last update: 22<sup>nd</sup> September 2022)



<https://studium-robotik.fhws.de/en/>

# Notes

## Contents

Notes.....	2
Abbreviations .....	4
Contact Information.....	5
Learning Outcomes to be Achieved.....	6
Module Handbook.....	7
Programme Structure.....	8
Appendix to the IRO Study and Examination Regulations.....	9
Robotics Lab .....	11
Internship Module During the 5th Semester .....	12
General Elective Module (AWPM) .....	12
Robotics Project.....	13
Seminars.....	13
Core Elective Modules (FWPM).....	14
Specialisation Studies .....	14
Bachelor's Thesis.....	15
Stays Abroad .....	16
European Credit Point Transfer System (ECTS) .....	17
Diploma Supplement.....	17
Labs in the Faculty of Electrical Engineering .....	18
Professors in the Robotics Programme .....	19
Contact persons for Robotics and the Faculty of Electrical Engineering .....	20

## Abbreviations

<b>APO</b>	General Examination Regulations of FHWS
<b>AWPF</b>	General elective course
<b>AWPM</b>	General elective module
<b>BA</b>	Bachelor's thesis
<b>bZv</b>	Special admission requirements
<b>CP</b>	Credit points
<b>D</b>	German (as language of examination)
<b>E</b>	English (as language of examination)
<b>ECTS</b>	European Credit Transfer and Accumulation System
<b>FANG</b>	Faculty of Applied Natural Sciences and Humanities
<b>FE</b>	Faculty of Electrical Engineering
<b>FM</b>	Faculty of Mechanical Engineering
<b>FWPM</b>	Core elective
<b>LV</b>	Course
<b>m.E./o.E.</b>	Passed successfully / failed
<b>mP</b>	Oral examination
<b>NG</b>	Grade weights
<b>P</b>	Internship or lab course
<b>Pro</b>	Project
<b>RaPo</b>	State Examination Regulations
<b>S</b>	Seminar
<b>soP</b>	Other type of assessment
<b>sP</b>	Written exam
<b>SPO</b>	Study and examination regulations
<b>SuSe</b>	Summer semester
<b>SU</b>	Seminar-like lecture
<b>SW</b>	Schweinfurt
<b>SWS</b>	Hours per week and semester
<b>Tpf</b>	Compulsory attendance
<b>Ü</b>	Practical course
<b>V</b>	Lecture
<b>WiSe</b>	Winter semester

## Contact Information

### Phone

09721 940 -

Switchboard FHWS in Schweinfurt

- 5

### BRO/IRO Office

Ms Daniela Glöckler

- 8520

Ms Andrea Scheuring

- 8735

Office hours:

Mon, Wen and Thu

8:00 to 12:00

Tue

9:00 to 14:00

and by arrangement

Website

<https://studium-robotik.fhws.de/en/>

E-Mail

Robotik.FE@fhws.de

### Department of Student Affairs (HSST)

- 6144

Ms Stephanie Cenner

Ms Susanne Pienitz

Office hours:

Tue and Wed

8:30 to 12:00

Thu

13:00 to 16:00

and by arrangement

during semester breaks

Tue

8:30 to 12:00

Please send your inquiries by using the contact form on the website.

### Student Representation

- 6467

### Academic Advisory Service

Mr Elmar Kemmer

0931 3511

- 6180

or

- 8169

E-Mail:

studienberatung@fhws.de

A prior announcement by phone or e-mail is necessary!

## Learning Outcomes to be Achieved

The degree programme is divided into three phases:

<b>1st to 4th semester</b>	Orientation phase, foundation studies and lab courses
<b>5th semester</b>	Internship
<b>6th and 7th semester</b>	Focus and specialisation studies, Robotics Project and bachelor's thesis

The Study Plan Robotics complements the study and examination regulations for the bachelor's programme in Robotics (SPO/IRO) at the University of Applied Sciences Würzburg-Schweinfurt.

It includes the following:

- The allocation of weekly hours per semester to each programme semester
- The course type of each subject
- Objectives and contents of the internship semester
- More detailed provisions regarding exams and certificates of participation
- The names of specialisation modules, their course type and weekly hours

### Organisation of the Robotics programme

<b>1st to 4th semester</b>	Fundamental theoretical and practical courses at FHWS in mathematical and technical subjects as well as foundation courses in computer science, lab courses, completion of two core elective modules.
<b>5th semester</b>	Internship semester spent in industry as well as courses at FHWS teaching interdisciplinary contents (soft skills). <i>In order to enter the internship semester, a minimum of 90 CP is required. This minimum number of CP corresponds to having successfully completed 75% of modules from the first four semesters.</i>
<b>6th and 7th semester</b>	Theoretical and practical courses at FHWS, interdisciplinary contents, Robotics project, completion of two core elective modules, specialisation module and bachelor's thesis. <i>In order to start the bachelor's thesis, successful completion of the internship module as well as a minimum of 150 CP is required.</i> <i>We offer the following specialisations consisting of three specialisation modules each:</i> <ul style="list-style-type: none"> <li>• <i>Industrial Robotics</i></li> <li>• <i>Mobile Robotics</i></li> <li>• <i>Humanoid and Service Robotics</i></li> </ul> <i>Choice is made by taking a specialisation module's exam for the first time.</i>

## Module Handbook

The Robotics Bachelor's programme is modularised, i.e. it consists of different module courses.

Modules combine subjects in thematically and chronologically complete, self-contained study units assigned with a number of credit points. They can be made up of different teaching and learning formats (such as lectures, exercise courses, lab courses, seminars etc.).

In general, modules are completed by an examination that is the basis for the award of credit points.

The degree programme's modules are relatively small study units to facilitate national and international recognition.

The module handbook contains details of important information on modules (such as learning outcomes and contents).

The current version of the module handbook for the Robotics programme is available online from <https://studium-robotik.fhws.de/en/>.

# Programme Structure

See the following figure for information on the programme structure. There are two variants available. For advice on anything concerning your individual course of study, please contact the programme advisor.

B.Eng. in Robotics - Structure														
Semester	1		2		3		4		5		6		7	
Study Plan	Foundation studies								Internship semester		Specialisation studies			
Variant A	GS	X	GS	X	GS	X	GS	X	PS	X	FV	X	FV	X
												BA		
Variant B	GS	X	GS	X	GS	X	GS	X	PS	X	FV	X	FV	X
													BA	

**Variant A:** Start your bachelor's thesis immediately after your specialisation studies in the 6th semester

**Variant B:** Start your bachelor's thesis at the start of the 7th semester  
 (Note: BA grade possibly not available before the 8th semester)

GS	Foundation studies
X	Semester break
PS	Internship semester
FV	Specialisation studies
BA	Bachelor's Thesis



# Appendix to the IRO Study and Examination Regulations

## Semester 1 to 3

[1] No.	[2] Course Number / ID	[3] Module	[4] Semester	[5] SWS	[6] ECTS	[7] Type	[8] Responsible for module	[9] Lecturer(s)	[10] Requirement	[11] Type	[12] Duration	[13] Examination Language	[14] Final score	[15] Grades W CP
		<b>Semester 1</b>												
1	4210100 / ENM1	Engineering Mathematics 1	1	6	5	SU, Ü	Prof. Dr. Diethelm	Prof. Dr. Diethelm		SP	90 Min.	e	ja	1 5
2	4210200 / BEEN	Basics of Electrical Engineering	1	6	5	SU, Ü	Prof. Dr. Brandenstein-Köth	Prof. Dr. Willert		SP	90 Min.	e	ja	1 5
3	4210300 / RME1	Robot Mechanics 1	1	4	5	SU, Ü	Prof. Dr. Meyer J.	Prof. Dr. Meyer J.		SP	90 Min.	e	ja	1 5
4	4210400 / BCEOS	Basics of Computer Engineering and Operating Systems	1	4	5	SU, Ü	Prof. Dr. Endres	Prof. Dr. Bodewig / Prof. Dr. Mathes		SP	90 Min.	e	ja	1 5
5	4210500 / PRO1	Programming 1	1	4	5	SU, Ü	Prof. Dr. Strobel	Prof. Dr. Bormann		SP	90 Min.	e	ja	1 5
6	4210600 / ROLAB1	Robotics Lab 1	1	4	5	S, LP	Prof. Dr. Meyer J.	Prof. Dr. Meyer J., Prof. Dr. Ziegler, Prof. Dr. Herler, Prof. Dr. Strobel, Mr. Dax		soP	H (m.E./o.E.)	e	nein	0 0
		<b>Semester 2</b>												
7	4210700 / ENM2	Engineering Mathematics 2	2	6	5	SU, Ü	Prof. Dr. Diethelm	Prof. Dr. Diethelm		SP	90 Min.	e	ja	1 5
8	4210800 / BEC	Basics of Electronics and Components	2	6	5	SU, Ü	Prof. Dr. Willert	Prof. Dr. Willert		SP	90 Min.	e	ja	1 5
9	4210900 / RME2	Robot Mechanics 2	2	4	5	SU, Ü	Prof. Dr. Willert	Prof. Dr. Willert		SP	90 Min.	e	ja	1 5
10	4211000 / SEME	Sensors and Metrology	2	4	5	SU, Ü	Prof. Dr. Hartmann	Prof. Dr. Meyer J. / Prof. Dr. Hansmann		SP	90 Min.	e	ja	1 5
11	4211100 / PRO2	Programming 2	2	4	5	SU, Ü	Prof. Dr. Schmidt M.	Prof. Dr. Schmidt M.		SP	90 Min.	e	ja	1 5
12	4211200 / ROLAB2	Robotics Lab 2	2	4	5	S, LP	Prof. Dr. Meyer J.	Prof. Dr. Meyer J. and others		soP	H (m.E./o.E.)	e	nein	0 0
		<b>Semester 3</b>												
13	4211300 / STSE	Statistics and Sensor Data Fusion	3	4	5	SU, Ü	Prof. Dr. Fabeck	Prof. Dr. Fabeck		SP	90 Min.	e	ja	1 5
14	4211400 / SYTHEN	Systems Theory	3	4	5	SU, Ü	Prof. Dr. Müller B.	Prof. Dr. Hirn		SP	90 Min.	e	ja	1 5
15	4211500 / SECSEN	Software Engineering and Cyber Security	3	4	5	SU, Ü	Prof. Dr. Mathes	Prof. Dr. Daun		SP	90 Min.	e	ja	1 5
16	4211600 / IWR	Image Processing	3	4	5	SU, Ü	Prof. Dr. Strobel	Prof. Dr. Willert		SP	90 Min.	e	ja	1 5
17	4211700 / ESPBEN	Embedded Systems and Field Buses	3	4	5	SU, Ü	Prof. Dr. Spletz	Hr. Prometschel		SP	90 Min.	e	ja	1 5
18	4211800 / ROLAB3	Robotics Lab 3	3	4	5	S, LP	Prof. Dr. Meyer J.	Prof. Dr. Willert / Prof. Dr. Kaupp, Mr. Löser, Mr. Lörpenda		soP	H (m.E./o.E.)	e	nein	0 0

Semester 4 to 7

[1] No.	[2] Course Number / ID	[3] Module	[4] Semester	[5] SWS	[6] ECTS	[7] Type	Responsible for module	Lecturer(s)	[8] Requirement	[9] Type	[10] Duration	[11] Examination Language	[12] bzV	[13] Final score	[14] Grades	[15] CP
		<b>Semester 4</b>														
19	4211900	Core Elective 1a	4	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
20	4212000	Core Elective 1b	4	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
	4212001 / SINES	Simulation of Mechatronic Systems	4	4	5	SU, Ü	Prof. Dr. Meyer J.			SP	90 Min.	e		ja	1	5
	4212002 / DSSC	Digital Signal Processing and State Space Control	4	4	5	SU, Ü	Prof. Dr. Müller B. / Dr. Römmel			SP	90 Min.	e		ja	1	5
	4212003 / DPLB	Development Processes and Legal Basics	4	4	5	SU, Ü	Prof. Dr. Meyer J.	Prof. Dr. Ziegler		SP	90 Min.	e		ja	1	5
21	4212100 / COSY	Control Systems	4	4	5	SU, Ü	Prof. Dr. Müller B.	Prof. Dr. Ali		SP	90 Min.	e		ja	1	5
22	4212200 / DSNIC	Distributed Systems and Network Communication	4	4	5	SU, Ü	Prof. Dr. Mathes / Prof. Dr. Kullmann			SP	90 Min.	e		ja	1	5
23	4212300 / MLEN	Machine Learning	4	4	5	SU, Ü	Prof. Dr. Herrler	Dr. Herrler		SP	90 Min.	e		ja	1	5
24	4212400 / ROLAB4	Robotics Lab 4	4	4	5	S, LP	Prof. Dr. Meyer J.	Prof. Dr. Herrler / Prof. Dr. Schmidt M. / Prof. Dr. Kaupp		soP	H (m.E./o.E.)	e		nein	0	0
		<b>Semester 5</b>														
25		Internship	5	0	25	P	-	-	90 ECTS-Punkte	*	(m.E./o.E.)	e		nein	0	0
26		General Elective	5	4	5	*	FANG	FANG		*	*	*		ja <sup>1)</sup>	1	5
		<b>Semester 6 u. 7</b>														
27		Core Elective 2a	6	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
28		Core Elective 2b	6	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
29		Actuators	6	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
30		Robotics Specialisation Module 1	6	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
31		Robotics Specialisation Module 2	6	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
32		Robotics Specialisation Module 3	7	4	5	SU, Ü				SP	90 Min.	e		ja	1	5
33		Robotics Project	6 u. 7	10	10	S, Pro				soP	A (m.E./o.E.)	e		nein	0	0
34		Values Seminar	7	2	3	S				soP	C (m.E./o.E.)	e		nein	0	0
35		Business Development and Entrepreneurship	7	4	5	S				soP	G	e		ja	1	5
36		Bachelor's Thesis	7	0	12	-			150 ECTS-Punkte + Modul 25	BA		e		ja	1	12
		<b>Summerzeile:</b>		<b>148</b>	<b>210</b>											<b>152</b>
*	Depending on your choice of subject(s) from the AVPM subject catalogue, the Faculty of Applied Natural Sciences and Humanities will provide further details.															
1)	The final grade may consist of two equally weighted sub-grades (depending on the subjects chosen for the AVPM).															

## Robotics Lab

In each semester of the foundation phase (1st to 4th semester) a Robotics Lab for 5 ECTS credits each is scheduled. The Robotics Lab complements the foundation modules of robotics and serves to deepen the acquired specialist knowledge.

Each Robotics Lab covers four main areas:

- Robotics applications
- Robot development
- Software tools
- Lab experiments.

The corresponding courses are offered at fixed dates. These dates will be announced at the start of the semester via the FHWS E-Learning.

Successful completion of the Lab Safety Briefing is required for participation in the Robotics Lab.

The number of participants in the individual experiments is limited. Depending on the lab course, available places are either allocated or you can register independently via FHWS E-Learning. Information on this will be announced at the start of the semester via the FHWS E-Learning.

A Robotics Lab is completed as soon as all exams/assessments listed on the Attestation Card (a form listing required exams/assessments) have been completed. Successful completion is recorded by way of the Attestation Card and confirmed by signature of the responsible supervisor.

Students can also take German-taught lab courses of the German Robotics programme (BRO) if places are available. There, too, exams/assessments have to be documented on the Attestation Card.

For some lab courses (esp. lab experiments) experiment instructions are usually available in the E-Learning. These instructions have to be worked through in advance. At the start of the experiment, it will be checked whether participants have prepared themselves suitably. Sufficient preparation is a prerequisite for participating in the lab experiment as well as for a positive statement on the Attestation Card.

After each Robotics Lab, the Attestation Card must be submitted to the IRO/BRO office. The lecturer responsible for coordinating the lab courses reviews the entries and informs the Department of Student Affairs (HSST) if a student has completed the module successfully.

## Internship Module During the 5th Semester

The internship semester is intended to introduce students to activities and work methods used by engineers by way of concrete tasks. At the same time, students should gain in-depths insights into technical areas and social structures of companies. The internship has a duration of at least 20 weeks, but no more than 26 weeks.

Only students who have gained 90 ECTS credits at the start of the Internship Module are entitled to enter this part of studies.

This internship semester is complemented by a general elective module (AWPM) accompanying the internship.

### General Elective Module (AWPM)

For the General Elective (No. 26), you must choose two courses (2 SWS each) from the AWPM catalogue. The elective courses offered are available from the catalogue of FANG. For more information, please visit the faculty's website:

<https://fang.fhws.de/fakultaet/awpf/>

## Robotics Project

During the specialisation studies (in the 6th and 7th semester) the Robotics Project is scheduled where you will work in teams and apply soft skills as well as already acquired specialist skills.

Here, students will work in small groups on industrial development tasks. Each participant must comply with the agreed schedule (completion of assigned work in due time, participating in team meetings).

The Robotics Project's success is assessed on the basis of the project execution in terms of its developmental system, the project documentation of 15-20 pages as well as the project presentation.

## Seminars

Regular attendance in the seminars' sessions is required for their successful completion. Attendance is documented by signing the attendance list. If students cannot attend, they usually have to notify the lecturer of the session(s) they will miss in advance.

In order to complete seminars successfully, students will be required to write reports, compile portfolio assignments and hold presentations.

## Core Elective Modules (FWPM)

Core elective modules are offered in the 4th and 6th semester. They offer students the opportunity to accentuate their studies according to personal and professional interests.

The students have to choose from two separate catalogues of subjects. Core Elective 1a and Core Elective 1b have to be chosen from the catalogue "Core Elective 1"; Core Elective 2a and Core Elective 2b have to be chosen from the catalogue "Core Elective 2".

These electives can only be offered once per year and if there is a sufficient number of participants.

Each core elective is completed by a written exam.

## Specialisation Studies

Each student has to choose an area of specialisation. Choice is made by taking a specialisation module's exam for the first time. After this, a change of the area of specialisation can be made if the necessary written request is approved by the examination committee.

The range of specialisations offered depends on a sufficiently large number of students in a given year. There is no entitlement that all areas of specialisation are offered if there is not a sufficient number of participants.

## Bachelor's Thesis

The bachelor's thesis is scheduled for the 7th semester. It can either be written within FHWS or in collaboration with an external partner, such as an industrial company.

Starting the bachelor's thesis can take place at the earliest if

- a) the Internship (module no. 25) has been completed successfully and
- b) at least 150 ECTS credits have been earned.

The form for the registration of a bachelor's thesis is available from the Intranet of the Faculty of Electrical Engineering.

If the thesis is assigned no later than one month after the start of the 7th semester, the completion period is 5 months; if the thesis is assigned later, it must be completed within 3 months. Independent from the submission deadline, the workload is 12 ECTS credits, i.e. 360 hours.

## Stays Abroad

Having international experience is of increasing importance. Many companies have global operations and even local companies collaborate with customers or suppliers based abroad. Thus, intercultural experience and foreign language skills are important not only for managerial personnel, but often also for the average employee. This professional aspect apart, a stay abroad is exciting and brings a lot of fun and loads of new impressions. The freedom abroad you enjoy as a student will be over when you are deployed for professional reasons.

There isn't just one way of going abroad. You can do the internship during your studies abroad, attend a summer or winter school, study for one or two semester at a foreign higher education institution or write your bachelor's thesis abroad. If you study abroad, you should keep in mind that the credits you earn there can be transferred to FHWS. The core modules as well as general modules are particularly suitable for credit transfer, because in these cases the modules taken abroad do not have to correspond to the modules/courses in the Robotics programme.

Take care to plan your stay abroad well in advance for several reasons: to keep required deadlines here and abroad; to make the best use of possible funding opportunities; most importantly, to clarify already before you go abroad whether the credits you plan to earn can be transferred to FHWS; to adjust your personal course of studies at FHWS, if necessary.

A stay abroad makes sense after your 3rd semester; however, you should get information as soon as the 1st or 2nd semester. For more information, please contact the international affairs officer of the faculty and the FHWS International Office (<https://international.fhws.de/>)



## European Credit Point Transfer System (ECTS)

Credit points awarded according the European Credit Transfer System (ECTS) are a measure for the students' workload; they facilitate the national and international recognition and transfer of academic achievements, for example for transfer students to/from another higher education institution.

One credit point corresponds to 30 hours of work of an average student. Sixty credit points are scheduled to be achieved per year of study. In order to obtain the academic degree Bachelor of Engineering, 210 credit points have to be achieved.

Graded modules contribute to the degree grade in proportion of their credit points. The study and examination regulations show further weighting factors.

In addition to other condition, the number of credit points earned decides whether a student may continue his or her studies as scheduled.

The student workload (30 hours per credit point) is calculated by taking the entire time needed to reach a module's qualification objectives. This not only includes the attendance time in lectures and seminars, but also the time for self-study, homework, preparation for and participation in exams.

## Diploma Supplement

When the bachelor's examination has been passed, the student receives the Diploma Supplement and the Transcript of Records in addition to his or her Bachelor's Certificate.

The Diploma Supplement describes the type and contents of the degree programme and provides information on the German higher education system. It thus facilitates the programme's international classification.

## Labs in the Faculty of Electrical Engineering

Laboratory	Abbreviation	Room*	Supervisor
Automation Technology	FE	1.E.16	N.N.
Chip-Design und Mikroelektronics	FE	1.1.04	Dr. Endres
Circuit Design	FE	1.E.34	Dr. Schormann
CobotLab	FE	9.E.02	Dr. Kaupp
Communications Engineering	FE	1.E.32	Dr. Spiertz
Control Systems	FE	1.1.08	Dr. Ali
Cyber-Awareness, Cryptography and Hacking	FE	1.0.30	Dr. Mann
Data Processing and Embedded Systems	FE	1.1.06	Dr. Eckert
Dielectric Diagnostics and Simulation	FE	2.1.04	Dr. Zink
Electrical Machines	FE	1.1.65	Dr. Herranz Gracia
Hardwaredesign	FE	9.E.05	Dr. Kaupp
High Voltage Engineering	FE	2.E.05	Dr. Zink
Industrial Robotics	FE	9.E.02	Dr. C. Ziegler
Intelligent Industrial Control and Motion Systems	FE	1.E.16	Dr. B. Müller
Machine Learning	FE	9.E.06	Dr. Herrler
Machine Vision	FE	9.E.17	Dr. Willert
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	1.E.18	Dr. Hirn
Automation Technology and Biomedicine	FE	1.0.27-28	Dr. Hansmann
Medical Engineering II	FE	1.0.27-28	Dr. Strobel
Metrology and Opto-thermic Sensors	FE	1.0.26	Dr. Hartmann
Microwave Engineering	FE	1.0.31	Dr. Eberspächer
Mobile Robotics	FE	9.E.17	Dr. Kaupp
Mobile Robotics II	FE	9.E.17	Dr. Borrmann
Network Engineering and Network Management	FE	1.1.06	Dr. Eckert
Optoelectronics	FE	1.0.29	Dr. Bohn
PCB Technology	FE	3.U.12	Dr. Schormann
Robotics and Industrial Control	FE	1.E.12	N.N.
Robotics I	FE	1.E.12	Dr. Brandenstein-Köth
Service Robotics	FE	9.E.06	N.N.
Signal Processing	FE	1.E.33	Dr. Spiertz
Simulation of electromagnetic fields and EMC	FE	5.E.03	N.N.
Software and Systems Engineering	FE	9.1.03	Dr. Daun
Software Engineering	FE	1.1.62	Dr. Mathes

Institute	Abbreviation	Room*	Supervisor
Institute for Power Engineering and High Voltage Technology	IEHT	1.1.17	Dr. Zink N.N.
Institute of Medical Engineering Schweinfurt	IMES	1.1.59 1.0.28	Dr. Strobel Dr. Hansmann
Technology Transfer Centre for E-Mobility	TTZ-EMO		Dr. Ackva Dr. Kempkes

\*Room number: 1-8.x.x = Campus Ignaz-Schön; 9.x.x = Robotics Campus Konrad-Geiger

## Professors in the Robotics Programme

Full name	Title	E-Mail	Room*	Extension no.
<b>Professors in the Faculty of Electrical Engineering (FE)</b>				
Ackva, Ansgar	Dr.-Ing.	ansgar.ackva@fhws.de	1.E.29	8321
Ali, Abid	Dr.-Ing.	abid.ali@fhws.de	1.1.64	8454
Bohn, Gunther	Dr.-Ing.	gunther.bohn@fhws.de	1.1.63	8444
Borrmann, Dorit	Dr. rer. nat.	dorit.borrmann@fhws.de	9.1.04	8437
Brandenstein-Köth, Bettina	Dr. rer. nat.	bettina.brandenstein- koeth@fhws.de	1.1.21	8456
Daun, Marian	Dr. rer. nat.	marian.daun@fhws.de	9.1.03	8552
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Hartmann, Jürgen	Dr. rer. nat.	juergen.hartmann@fhws.de	1.E.63	8606
Herranz Gracia, Mercedes	Dr.-Ing.	mercedes.herranz@fhws.de	1.1.64	8518
Herrler, Rainer	Dr. rer. nat.	rainer.herrler@fhws.de	9.1.03	8710
Hirn, Rainer	Dr. rer. nat.	rainer.hirn@fhws.de	1.1.63	8893
Kaupp, Tobias	Dr.	tobias.kaupp@fhws.de	9.1.09	8597
Kempkes, Joachim	Dr.-Ing.	joachim.kempkes@fhws.de	1.1.64	8453
Mann, Ulrich	Dipl.-Ing.	ulrich.mann@fhws.de	1.0.30	8443
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