Friedrich-Alexander-Universität Technische Fakultät



# Materials Science and Engineering Nanotechnology

# Welcome and Introduction to your Master's Program

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# **Faculty of Engineering**

### Campus of the Faculty of Engineering

approx. 10.000 students lecture rooms, laboratories, computer rooms (CIP pools), canteen and libraries



Technische Fakultät



# Faculty of Engineering



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# **Department of Materials Science and Engineering**





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- Consecutive course of study, building on bachelor's degree in Materials Science and Engineering
- Duration 4 semesters (120 ECTS)
- Possibility for a semester abroad (especially in third semester)
- → https://www.mat.studium.fau.de/studierende/auslandsaufenthalt/
- Mainly oral exams



### What is "ECTS"?

- *European Credit Transfer and Accumulation System* Student workload required for the learning outcomes of a program
  - 30 credits = recommended workload per semester
  - 1 credit  $\cong$  30 working hours

• You will find information on ECTS in the module catalogs, in the online information system campo, on your degree certificate/Transcript of Records



#### **Program structure**

Core Subject 1: Basic Module (10 ECTS)	M1	٦
+ Core subject 1 - Supplementary Module (5 ECTS)	M2	┝
+ 2 Materials Electives in CS 1 (5 ECTS each)	M3+M4	J
Core Subject 2: Basic Module (10 ECTS)	M6	l
+ Core subject 2 - Supplementary Module (5 ECTS)	M7	ſ
Core Subject 3: Core subject 3 / Minor Basic Module (10 ECTS)	M8	ļ
+ Core subject 3 / Minor Supplementary Module (5 ECTS)	M9	J
Materials Elective in one of the 3 CS (5 ECTS)	M5	ł
2 Electives (Fac. of Eng. incl. Mat Sci) (je 5 ECTS)	<u>M10 / M</u>	11
Scientific Project (15 ECTS)	M12	
Soft skills (5 ECTS)	M13	
Master's thesis (30 ECTS)	M14	

"Scientific Projext" and "Master's thesis" are to be taken in a core subject, in which a minimum of 25 ECTS was achieved. "Soft skills" is to be taken in one of the three core subjects.



				S۱	NS		Total	Workload per semester in ECTS credits		er	Type and scope of the examination/	
Nr.	Module	Lecture	V	Ü	Р	s	ECTS	1. Sem.	2. Sem.	3. Sem.	4. Sem.	course work
М1	Core Subject 1 – Basic Module (mandatory) <sup>1</sup>		4	(0-4)	(0-4)	(0-2)	10	5	5			AA (WE, 90 min. or OE, 30 min. or SeA or LWA)²
M2	Core Subject 1 – Supplementary Module (mandatory) <sup>1</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5	2	3			AA (WE, 45 min. or OE, 15 min. or SeA or LWA) <sup>2</sup>
МЗ	1. Materials Elective in CS 1 <sup>1</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5	5				AA (WE, 45 min. or OE, 15 min. or SeA or LWA) <sup>2</sup>
M4	2. Materials Elective in CS 1 <sup>1</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5		5			AA (WE, 45 min. or OE, 15 min. or SeA or LWA) <sup>2</sup>
M5	Materials Elective in one of the 3 CS <sup>1</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5	5				AA (WE, 45 min. or OE, 15 min. or SeA or LWA) <sup>2</sup>
М6	Core Subject 2 – Basic Module (mandatory) <sup>1</sup>		4	(0-4)	(0-4)	(0-2)	10	5	5			AA (WE, 90 min. or OE, 30 min. or SeA or LWA) <sup>2</sup>
М7	Core Subject 2 – Supplementary Module (mandatory) <sup>1</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5	2	3			AA (WE, 45 min. or OE, 15 min. or SeA or LWA) <sup>2</sup>
M8	Core Subject 3-/Minor Basic Module (mandatory) <sup>1</sup>		4	(0-4)	(0-4)	(0-2)	10	5	5			AA (WE, 90 min. or OE, 30 min. or SeA or LWA) <sup>2</sup>
М9	Core Subject 3-/Minor Supplementary Module (mandatory) <sup>1</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5	2	3			AA (WE, 45 min. or OE, 15 min. or SeA or LWA) <sup>2</sup>
M10	1. Elective (TF incl. Materials Science) <sup>3</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5			5		AA <sup>4</sup>
M11	2. Elective (TF incl. Materials Science) <sup>3</sup>		(0-2)	(0-2)	(0-4)	(0-2)	5			5		AA <sup>4</sup>
N41.2	Scientific Project <sup>5</sup>	Literature research and working techniques				8	15			10		Written project work <sup>6</sup>
		Graduate seminar				4	15			5		Seminar achievement <sup>6</sup>
M13	Soft Skills <sup>7</sup>	Presentation techniques					. 5			4		SA (2 short presentations, ca. 15 min.) <sup>8</sup>
		2 Field trips								1		SA (field trip, 2 days) <sup>8</sup>

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		Master thesis									27,5	AA (MT. 90 %) + AA (Presentation 30
M14 Master Thesis	Master Thesis	Presentation									2,5	min. und Discussion, 10 %)
	Summ	e SWS und ETCS-Punkte:	12-28	0-28	0-44	12-34	120	31	29	30	30	
		Summe SWS gesamt:										
<sup>1</sup> vgl.	§ 44a.											

<sup>2</sup> vgl. § 44a. The type and scope of the examination depend on the specific didactic character of the module selected in each case and can be found in the module handbook.

<sup>3</sup> vgl. § 44b.

vgl. § 44b. The type and scope of the examination depend on the specific didactic character of the module selected in each case and can be found in the module handbook.

5 vgl. § 44c.

vgl. § 44c. The type and scope of the examination depend on the specific didactic character of the module selected in each case and can be found in the module handbook.
 vql. § 44d.

<sup>8</sup> vgl. § 44d. The type and scope of the examination depend on the specific didactic character of the module selected in each case and can be found in the module handbook.

#### Erläuterungen:

- AA: Academic achievement, graded
- SA: Study achievement, ungraded
- WE: Writen exam
- OE: Oral exam
- LWA: Lab work achievement
- SeA: Seminar achievement
- MT: Master thesis



1. Semester	2. Semester	3. Semester	4. Semester
Core Subject 1 (25 EC	ΓS) <b>M1 bis M4</b>	Electives 1+2 (Fac. Of Eng. inkl. WW) Je 5 ECTS M10 + M11	
Core Subject 2 (15 EC	ΓS) <b>M6+M7</b>	Scientific Project	Master's Thesis 27,5 ECTS
			M14
Core Subject 3 (15 ECT	rs) <b>M8+M9</b>	Soft Skills 5 ECTS M13	
Materials Electives in o (5 ECTS)	ne of the 3 CS <b>M5</b>		Presentation & Disc. of Master's Thesis 2,5 ECTS <b>M14</b>
30 ECTS	30 ECTS	30 ECTS	30 ECTS



### Core Subject 1 (25 ECTS and up to 40 ECTS)

Core subject 1 must consist of at least 25 ECTS and can be upgraded to 40 ECTS if the respective institute has enough course offers. It is possible to upgrade another core subject to 25 ECTS by means of the electives in order to be able to write the master's thesis in the 2nd or 3rd core subject.

#### Core Subjects:

- WW 1 General Materials Properties
- WW 2 Materials Science and Engineering for Metals
- WW 3 Glass and Ceramics
- WW 4 Surface Science and Corrosion
- WW 5 Polymer Materials
- WW 6 Materials for Electronics and Energy Technology
- WW 7 Biomaterials
- WW 8 Materials Simulation
- WW 9 Micro- and Nanostructure Research



### Electives M10 und M 11:

- Independently organized by students
- Are to be taken from all courses offered at the Faculty of Engineering including the Department of Materials Science and Engineering
- Module contents need not to be coordinated with the SSC, if they are taken from within the Faculty of Engineering or the Department of Materials Science and Engineering!
- Exception: Faculty of Sciences (only with consent by the SSC)



### Scientific Work and Soft Skills (M12-M14):

 Module "Scientific Project" (M12) and Master's Thesis (M14) in a core subject, in which at least 25 ECTS-Punkte were achieved

Module "Soft Skills" (M13) in one of the three core subjects







- Consecutive course of study, building on bachelor's degree in Nanotechnology
- Duration 4 Semesters (120 ECTS)
- Possibility for a semester abroad (especially in third semester)
- Mainly oral exams



#### 5 Mandatory Modules

- Nano Characterization M1 (10 ECTS)
- Laboratory Course on Synthesis and Characterization M2 (5 ECTS)
- Computational Nanoscience M3 (5 ECTS)
- Top-Down Nanostructuring M4 (10 ECTS)
- Bottom-up Nano-Synthesis / Self-assembly M5 (10 ECTS)

#### Core Subject

- Core Subject Basic Module M6 (10 ECTS)
- Core Subject Supplementary Module M7 (5 ECTS)
- 1. Materials Elective in CS M8 (5 ECTS)
- 2. Materials Elective in CS M9 (5 ECTS)
- 2 Scientific-technical elective modules from Fac. of Eng. (incl. Materials Science) and Fac. of Science
   M10 and M11 (5 ECTS each)
- Scientific Project M12 (10 ECTS)
- Soft Skills M13 (5 ECTS)
- Master's Thesis M14 (30 ECTS)



Total	Total	Wo	orkload pe EC	er semes TS	ster in	Type and scope of the examination/
ECTS	ECTS	1. Sem.	2. Sem.	3. Sem	4. Sem.	course work
		3				
10	10	3				AA (OE 30 min.)
			4			
5	5	5				LWA
5	5		3	2		AA (WE 45 min.)
			3			
10	10	4				AA (OE 30 min.)
		3				
				3		
10	10			4		AA (OE 30 min.)
			3			
10	10	5	5			AA (WE, 90 min. or OE, 30 min. or SeA or LWA), cf. § 42 a
5	5	5				AA (WE, 45 min. or OE, 15 min. or SeA or LWA), cf. § 42 a
		10 10 10 5	10     4       3       10       10       5       5       5	3       10     4       3       10       3       10       3       10       3       10       5       5	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$



M8	1. Materials Elective in CS	cf. § 42 a	(0-2)	(0-2)	(0-4)	(0-2)	5		5			AA (WE, 45 min. or OE, 15 min. or SeA or LWA), cf. § 42 a	
M9	2. Materials Elective in CS	cf. § 42 a	(0-2)	(0-2)	(0-4)	(0-2)	5	3	2			AA (WE, 45 min. or OE, 15 min. or SeA or LWA), cf. § 42 a	
M10	1. Scientific-technical elective module (from FoE incl. Mat. Sci. or FoS)	cf. § 42 b	(0-2)	(0-2)	(0-4)	(0-2)	5		5			AA, cf. § 42 b	
M11	2. Scientific-technical elective module (from FoE incl. Mat. Sci. or FoS)	cf. § 42 b	(0-2)	(0-2)	(0-4)	(0-2)	5			5		AA, cf. § 42 b	
M12	Scientific Droject	Literature research and working techniques				4	10			5		Written project work	
WITZ	Scientific Project		Graduate seminar				4	10			5		Seminar achievement
M13	Soft Skills	Presentation techniques				3	5			4		SA (2 short presentations, ca. 15 min.)	
MIS	SUL SKIIS	2 Field trips					5			1		SA (field trip, 2 days)	
M14	Mactor thesis	Master thesis					20				27,5	AA (MT, 90 %) + AA (Presentation	
W14	M14 Master thesis	Presentation					30				2,5	30 min. und Discussion, 10 %)	
	Sum SWS and ETCS:			5 - 19	5 - 29	11 - 23	120	31	30	29	30		
	Sum SWS total:			6	9								

#### Explanatory notes:

AA: Academic achievement, graded

- SA: Study achievement, ungraded WE: Written exam
- OE: Oral exam
- LWA: Lab work achievement
- SeA: Seminar achievement
- MT: Master thesis



# **Core Subject (25 ECTS)**

Core Subjects at the institutes of the Department of Materials Science and Engineering:

- WW 1 General Materials Properties
- WW 2 Materials Science and Engineering for Metals
- WW 3 Glass and Ceramics
- WW 4 Surface Science and Corrosion
- WW 5 Polymer Materials
- WW 6 Materials for Electronics and Energy Technology
- WW 7 Biomaterials
- WW 8 Materials Simulation
- WW 9 Micro- and Nanostructure Research

Selection of the core subject must be determined for admission to the first examination at the latest !



# **Master's Thesis**

# **Master's Thesis**



Requirements for admissionRegulations

# **Examination Regulations**



# **Master's Thesis**



- Prerequisites for admission to the master's thesis are the acquisition of at least 60 ECTS in the master's program and the submission of corresponding evidence if access to the master's program was granted subject to conditions according to § 29 para. 2 Satz 2 ABMPO/TechFak.
- In particularly justified cases, the Examination Committee may also grant early admission to the master's thesis.
- The master thesis module comprises of 30 ECTS credits. It consists of the written master's thesis (27.5 ECTS) and the presentation with subsequent discussion (2.5 ECTS). The two graded parts of the examination have the following weighting in the overall grade: 90% and 10%.
- The master's thesis usually deals with a scientific topic from the core subject. Its requirements are to be set in such a way that it can be completed within six months with a processing time of approx. 840 hours.
- The presentation of the master's thesis takes about 30 minutes. In the lecture, the master's thesis and its results are presented with a subsequent discussion.



- Reception at the beginning of the last semester at the latest
- Date of issue will be communicated by the supervisor to the examination office
- many chairs have templates for registration
- Master's thesis must not exceed 6 months
- Supervisor reports submission date and grade
- More details about the master's thesis in the General Examination Regulations of the Faculty of Engineering and in the Subject Examination Regulations



# **General Information**



# **Important hints**

- 1. Communication with administrative units at FAU: Always include your enrollment number.
- 2. Communication with professors, lecturers and staff: Always use last names and titles
- 3. Punctuality is important
- 4. For rules and information regarding SARS-CoV-2, please check https://www.fau.eu/corona/
- 5. Only for regular students:

If your admission letter mentions so-called "requirements" (Auflagen in German), you must hand in your complete diploma of your previous studies or complete courses within your first year of study. If you fail to do so you face de-registration from the degree programme.

6. FAU email address: You will also receive important updates to your FAU email adress. Please make sure to either check your FAU email address regularly or re-direct the emails to your private email account.

To relay: IdM Portal  $\rightarrow$  Services  $\rightarrow$  Click on the address  $\rightarrow$  Field "Relay to"



### **Important hints**

- 7. The German higher education system may be different than what you are used to. Students must learn/go through their lecture material <u>during the semester</u> to prepare for the examinations at the end of the semester. If students only start to study right before the examination, there is not enough time to catch up!
- 8. Students are expected to do **self-study** and use the literature provided in the lecture material to gain further understanding of the topic.
- **9.** Asking questions is encouraged if you have not understood part of your lecture or a topic, please ask during the lecture.





• Please remember to save your admission letter from the campo portal

• The notice is only stored until the next application round and then deleted!

Zulassung für den Masterstudiengang .....

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"Hinweis: Bitte **speichern Sie sich den Bescheid** ab, damit Sie auch zu einem späteren Zeitpunkt jederzeit darauf zugreifen können. Nach Abschluss der aktuellen Verfahrensrunde werden alle Daten aus Campo bereinigt und ab dann steht der Bescheid nicht mehr zur Verfügung."

# **General Information**



### **Re-registration at FAU**

- All students need to re-register at FAU <u>each semester</u>.
- In February and July, all students receive an e-mail from the <u>Student Record's Office</u> to their FAU email address with information on the re-registration process.
- Students need to re-register within the given deadline by paying the semester fee.
- IMPORTANT: In case of a missing or late re-registration students will be de-registered from FAU!!!
- Re-registration deadline for summer semester 2023:

### 1 to 8 February 2023

 Please see the <u>FAU website</u> for more information. The re-registration is done through "<u>Campo</u>" under 'Student service' (tab 'documents')



# **Courses in presence (hybrid / additional material for first weeks)**

Information on our websites: <u>www.mat.studium.fau.de</u> / <u>https://materials.study.fau.eu/</u> <u>www.nano.tf.fau.de</u> / <u>https://nano.study.fau.eu/</u>

On Instagram (@materialsscience\_fau)

and Twitter (@DeptWW\_FAU)







# Important websites:

- Notes on the Corona Pandemic and its impact on FAU: <u>www.fau.de/corona/</u>
- All about studying at FAU: <u>https://www.fau.eu/education/study-organisation/student-a-z/</u>
- Info pages of the examination offices: <u>https://www.fau.eu/education/advice-and-services/examination-offices/corona-virus-impact-on-examination/</u>



# Various portals support the students in managing their studies

Campo

Application at FAU

Detailed course information

Exam registration, grades and certificates

<u>StudOn</u>

E-learning platform

<u>Oktis</u>

Language courses

<u>IdM</u>

Managing accounts and passwords



### **NEW: Campo for students**

User name	Password Login			Facility
<b>SSO-Login</b> Can't	og in?		-	Englisi

- Login
   <u>https://www.campo.fau.de/qisserver/pages/cs/sys/portal/hisinoneStartPage.faces</u>

   → SSO-Login
- Course information
- Timetables
- Module descriptions
- Exam registration and withdrawal
- Enrollment certficate
- Overview of grades and courses
- Re-registration





### First log in. Then: Home (left hand corner) $\rightarrow$ Studies offered (1) $\rightarrow$ Show course of studies schedule (2) $\rightarrow$ Type in field Name: "Materials Science and Engineering" (3) (choose PO 20222, <u>not</u> "Austauschstudium"!)





Lecture , 1. PG

Click more display options (top right hand side)  $\rightarrow$  Under general settings select "Plan view"  $\rightarrow$  Timetable displayed



### **Campo: Saving the course to your personal timetable**

7 b Turndau	Detail view			
• Tuesday	<b>8.</b> Exercise Mathematics for Engi	neers I   Course		
CEP1E Exercise, 1. PG 8:15 AM to 9:45 AM Weekly	Back Semester Wintersemester Basic data Parallel grou Title Short text Organizational unit	ps / dates Course catalog Exercise Mathematics for Engineers I CEP1E TechFak   Clean Energy Processes   Packalog of Gainery (/constructed isbor)	course type Module frequency Semester hours per we	
9. Semester Wintersemester 2022/23 Basic data Parallel groups / dates Cour CEP1E Semester hours per week 2.0 Teaching Language german Responsible Dr. Yasm	rse catalog Modules and degree programmes Docume data as iCalendar (ics) 12 Individual dates Q Open detail Maximum attendee	ents Seeir Home	ng your individual e → My Studies	timetable <b>→ Schedule</b>

Click on the book of the individual course (make sure to always add exercise + lecture (+ lab course))  $\rightarrow$  Click on "parallel groups/dates"  $\rightarrow$  Click on "pre-booking for schedule"

Technische Fakultät

# FAU

# StudOn

# StudOn: E-learning platform

- Often used for courses that require registration (seminars, practical courses)
- Platform for sharing course materials

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+++ STUDON-LOGIN ÜBER TÜRSYMI	OL IM OBEREN RECHTEN BILDSCHIRMRAND +++			Change languages
STUDON IN 60 MIN ERKLÄRT   TERM	/INE + ZOOM-LINK + INFOS UNTER STUDON-SUPPORT > STUDON-NEWS >	STUDON-SPEED-CATCH-UP		But watch out, some information
				might only be in German version!
Magazin Login to ILIAS via S You can log in using the "Dire Support	AML Authentication ct Login <sup>®</sup> button without having to enter your username or password. Direct login			
Local Login (with StudOn Username)				
Username *				
Password *				
* Required	Login			
New Account Registration Pub Terms of Service	ic Area Forgot your local password? Forgot your local username?			
To the ex	am platforms	StudOn-News		



### Student Service Center (SSC) Department of Materials Science and Engineering



SSC also available via: <u>studium-ww@fau.de</u>



Institute	Meeting
WW1 General Materials Properties	Mo 17.10.2022 14:00 – 15:00 Room 3.31
<b>WW2</b> Materials Science and Engineering for Metals	Thu 20.10.2022 8:15 – 9:00 Room 0.68
WW3 Glass and Ceramics	Mo 17.10.2022 11:00 – 12:00 Room 0.15 and Zoom https://www.studon.fau.de/crs4623683 join.html
WW4 Surface Science and Corrosion	Tu 18.10.2022         9:00 – 10:00         Room 0.85 and Zoom           https://fau.zoom.us/j/63384775378?pwd=ZzJVRlpVVE0rMFFsN00wWnZaVFpoZz09
WW5 Polymer Materials	Mo 17.10.2022 9:00 – 10:00 Room 1.84
<b>WW6</b> Materials for Electronics and Energy Technology	Mo 17.10.2022 10:00 – 11:00 Room 3.71 and Zoom https://fau.zoom.us/j/65844645068?pwd=TXpjdFVMNXhLTmxBQ3dIaEFIM2ZDdz09
WW7 Biomaterials	Mo 17.10.2022 15:30 – 17:00 Zoom https://www.studon.fau.de/crs4547394.html
WW8 Materials Simulation	Tu         18.10.2022         14:00 – 15:00         Zoom           https://www.studon.fau.de/crs3295925         join.html
<b>WW9</b> Micro- and Nanostructure Research	<b>Mo 17.10.2022 13:00 – 14:00 Room 00.156</b> (Cauerstraße 3, IZNF); Zoom: https://fau.zoom.us/j/68976310389?pwd=aVY3YIVwazlibmtTcWNINVZgRk41dz09

# **Preliminary Meetings in the Institutes**





### **Study Advisors at the Institutes**:

- WW1: Heinz Werner Höppel
- WW2: Stefan Rosiwal
- WW3: Tobias Fey
- WW4: Michael Strebl
- WW5: Joachim Kaschta
- WW6: Miroslaw Batentschuk
- WW7: Gerhard Frank
- WW8: Paolo Moretti
  - WW9: Johannes Will

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# SAVE THE DATE: Freshmen Welcome "Beer\* and Pretzels"



- Tuesday, November 8th 2022
- Starting at 6 pm
- Lobby Martensstrasse 5



\*there will be non-alcoholic beverages, to, of course ©

# Student Body





Scanne diesen QR-Code mit der Kamera in WhatsApp oder lade ihn hoch, um dieser Gruppe beizutreten.



# Thank you very much for your attention!