MASTER MATERIAL SCIENCES AND ENGINEERING

Information for first semester students

TECHNICAL DATA

- **Regular period of studies**
  - 4 semester
- **Total credit points:**
  - 120 ECTS
- **Maximum study time:**
  - 7 semester

Semester / Subject	WS 1 32 credits	SS 2 30 credits	WS 3 28 credits	SS 4 30 credits	Total 120 credits
Materialwiss. Vertiefung (Materials Science Major Course)	Microstructure-Property Relationships 6 credits, mPr Materials Characterization 6 credits, mPr	Applied Materials Modeling 6 credits, mPr Fundamentals in Materials Thermodynamics and Heterogeneous Equilibria 6 credits, mPr Solid-state Reactions and Kinetics of Phase Transformations, Corrosion 6 credits, mPr		Master's thesis 30 credits	30 credits
Schwerpunkt I * (Focal Course I)	See 3.2 8 credits, 2 mPr	See 3.2 8 credits, 2 mPr			16 credits
Schwerpunkt II * (Focal Course II)			See 3.2 16 credits, 3 mPr		16 credits
Interdisziplinäre Ergänzung (Interdisciplinary Supplement)		See 1.4 4 credits, m/sPr	See 1.4 8 credits, m/sPr		12 credits
Überfachliche Qualifikationen (Interdisciplinary Qualifications)			HoC/SPZ/ZAK-courses 4 credits, SL		4 credits
	Internship 12 credits				12 credits

OUTLINE

1. Statutes and regulations
2. Module Overview
3. Formalities at KIT
4. Further information

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Studien- und Prüfungsordnung (Studies and Examination Regulations)

Die Forschungsuniversität in der Helmholtz-Gemeinschaft

KIT Karlsruher Institut für Technologie

Amtliche Bekanntmachung

2017 Ausgegeben Karlsruhe, den 27. Juni 2017 Nr. 48

Inhalt Seite

Studien- und Prüfungsordnung des Karlsruher Instituts für Technologie (KIT) für den Masterstudiengang Materialwissenschaft und Werkstofftechnik 405

Modulhandbuch (Module Handbook)

KIT Karlsruher Institut für Technologie

Modulhandbuch
Materialwissenschaft und Werkstofftechnik Master 2017
(Master of Science (M.Sc.))

SPO 2017
Wintersemester 2021/22
Stand 26.01.2022

KIT-FAKULTÄT FÜR MASCHINENBAU

KIT – Die Forschungsuniversität in der Helmholtz-Gemeinschaft www.kit.edu

IMPORTANT OFFICES AND PEOPLE

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Prüfungsausschuss PA (examination committee)

- Examination matters
- Legally binding statements
- recognitions
- extensions
- second repetition

Studienbüro (Student office)

- matriculation
- deregistration

Performance coordinator

- Registration for examinations
- recognition

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MODULE OVERVIEW

Compulsory Modules	Specilization	Key Competences	Internship	Masterthesis
Themodynamics	Focus 1	KC	Internship	Master thesis
Kinetics	Focus 2			
Materials characterization	Technical Specilization			
Properties				
Simulations				

lecture

LECTURES

- Lectures
  - Offered either in winter *or* summer
  - Compulsory courses are offered in every semester, alternating in German and English

- Exams:
  - Offered once every semester

→ Getting an early overview

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Compulsory Subjects

COMPULSORY SUBJECTS

- Compulsory courses: must be done by everyone

Deutsch	Englisch
Winter semester: - Solid-state Reactions and Kinetics of Phase Transformations, Corrosion - Fundamentals in Materials Thermodynamics and Heterogeneous Equilibria - Materials Characterization **Summer semester:** - Microstructure-Property Relationships - Applied Materials Simulation	**Winter semester:** - Microstructure-Property Relationships - Materials Characterization **Summer semester:** - Solid-state Reactions and Kinetics of Phase Transformations, Corrosion - Applied Materials Simulation - Fundamentals in Materials Thermodynamics and Heterogeneous Equilibria

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Specialisation

FOCAL COURSES

Focal courses: (4 Choises)

- Structural Materials
- Computational Materials Science
- Materials Processing
- Functional Materials

FOCAL COURSES

Focal Courses:

- 2 Focal Courses to choose
- Min. 16 ECTS – Max. 20 ECTS
  - Min. 12 ECTS **with Grading**
  - Min. 8 ECTS with **„X“**

- Registration via CAMPUS

SP 4: Funktionswerkstoffe Koordinator: Prof. Hoffmann

LV-Nr		Lehrveranstaltung	Dozent	SWS	LP	Erfolgs-kontrolle	Sem	Sprache
2304207+ 2304213	X	Batterien und Brennstoffzellen*	Weber	3	5	mPr	WS	D
2304231	X	Sensoren	Menesklou	2	3	sPr	WS	D
2304240	X	Sensorsysteme	Wersing	2	3	mPr	SS	D
2313737	X	Photovoltaik**	Powalla	4	6	sPr	SS	D
2313726+ 2313728	X	Optoelektronik	Lemmer	3	4	mPr	SS	D
2313734		Grundlagen der Plasmatechnologie	Kling	2	4	mPr	SS	D
2141865	X	Neue Aktoren und Sensoren	Kohl / Sommer	2	4	mPr	WS	D
2141866		Aktoren und Sensoren in der Nanotechnik	Kohl	2	4	mPr	WS	D
4021011	X	Elektronische Eigenschaften von Festkörpern I	Weber / Weiß	4	8	mPr	WS	D
4021111		Elektronische Eigenschaften von Festkörpern II	Ustinov	2	4	mPr	SS	D
5404		Spektroskopie mit Elektronen und weichen Röntgenstrahlen	Heske / Weinhardt	2	4	mPr	SS	D
5439		Moderne Charakterisierungsmethoden zur Charakterisierung von Materialien und Katalysatoren	Grunwaldt / Kleist / Lichtenberg	2	4	mPr	WS	D
23660	X	VLSI-Technologie	Siegel	2	4	mPr	WS	D
2309456+ 2309457	X	Halbleiterbauelemente	Koos	3	5	sPr	WS	D
2126784		Funktionskeramiken	Hinterstein	2	4	mPr	WS	D
2181710	X	Mechanik von Mikrosystemen	Gruber / Greiner	2	4	mPr	WS	D
2312717 + neu	X	Superconducting Materials***	Holzapfel	4	6	mPr	WS/ SS	E
2312708 +2312709	X	Superconductivity for Engineers***	Holzapfel/ Kempf	3	5	sPr	WS/ SS	E
2314011 + neu	X	Superconducting Magnet Technology and Power Systems***	Arndt/Noe	6	7	mPr	WS/ SS	E
2193013		Lasergestützte Methoden und deren Einsatz für Energiespeichermaterialien	Pfleging	2	4	mPr	ww	D

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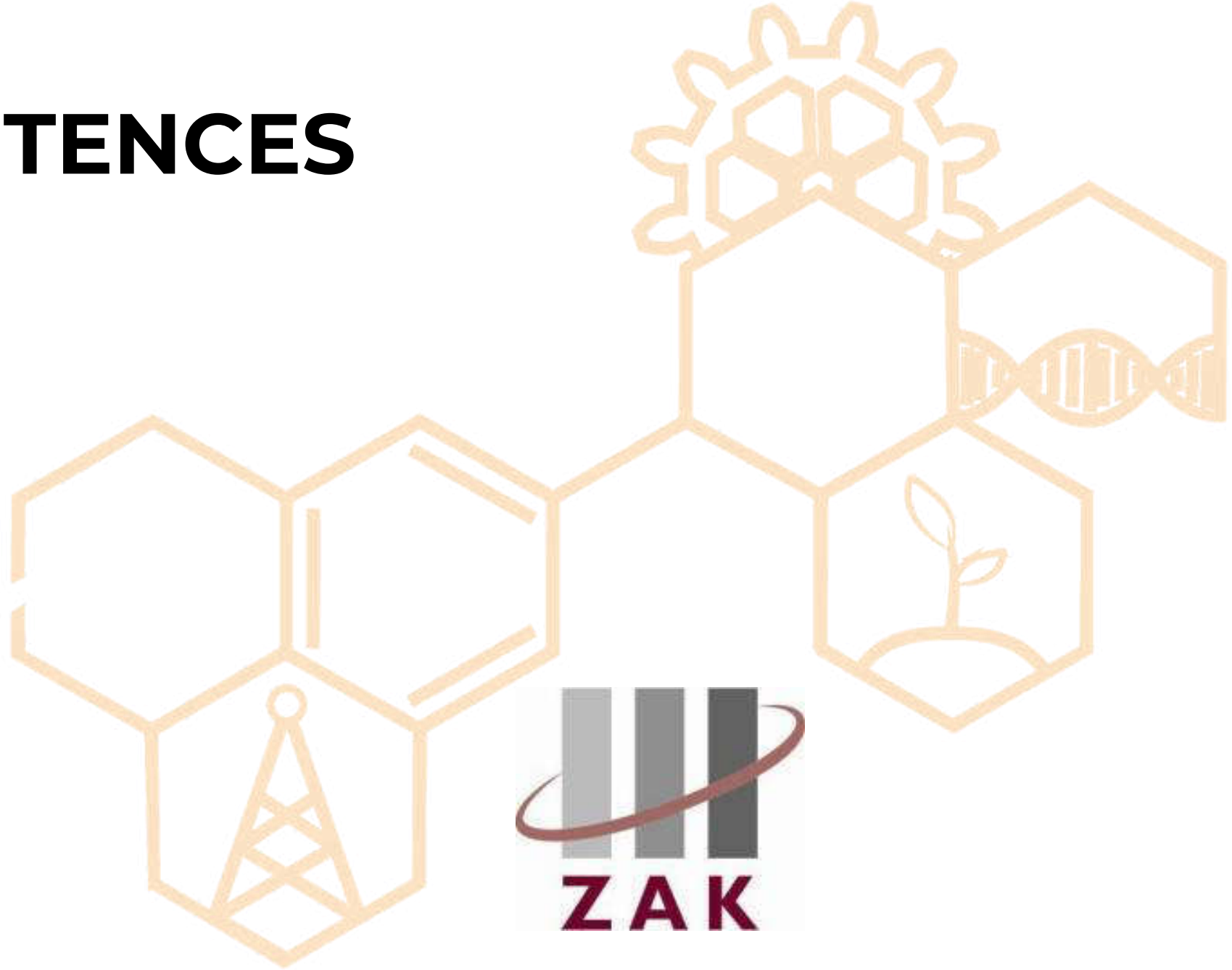
Key Competences

KEY COMPETENCES

HoC
House of Competence

SpZ



ZAK

KEY COMPETENCES

- House of Competence (HoC)
  - Key Competences
- Zentrum für Angewandte Kulturwissenschaften (ZAK)
  - Key Competences + Studium Generale
- Sprachenzentrum (SpZ)
  - Language courses

→Registration periods shortly before the start of each semester

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Internship

INTERNSHIP

Internship:

- SPO:
  - At least 9 weeks (in the industry)
  - Must cover certain fields of activity

- Recognition by Dr. Patric Gruber
- Short presentation about the activities during the internship and report (mostly presentation slides)
- Bring original employer‘s reference

It may be chosen among the following areas:
- Werkstoffentwicklung (materials development)
- Werkstoffprüfung / Qualitätskontrolle (materials testing / quality control)
- Materialsynthese (materials synthesis)
- Werkstoffauswahl im Produktentstehungsprozess (materials selection in the product development process)
- Metallurgie / Pulvermetallurgie (metallurgy / powder metallurgy)
- Urformtechnik (molding)
- Umformtechnik (forming)
- Oberflächentechnik (surface treatment)
- Wärmebehandlung (thermal treatment)
- andere werkstofftechnische Tätigkeitsgebiete (nach Rücksprache mit dem Praktikantenamt der KIT-Fakultät für Maschinenbau) (other areas of materials engineering (upon agreement with the Internship Office of the KIT Department of Mechanical Engineering)).

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Masterthesis

MASTER THESIS

Master thesis:

- 30 ECTS
  - 6 months! Extension (can be applied for at the PA) only in exceptional cases (broken test-bench, illness, etc.)
- Prerequisite:
  - At least 75 LP completed
  - Completed internship

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FORMALITIES AT KIT

Exam registration:

- Examinations must be **registered**
- Exams must be **deregistered** if they are not examined after all

FORMALITIES AT KIT

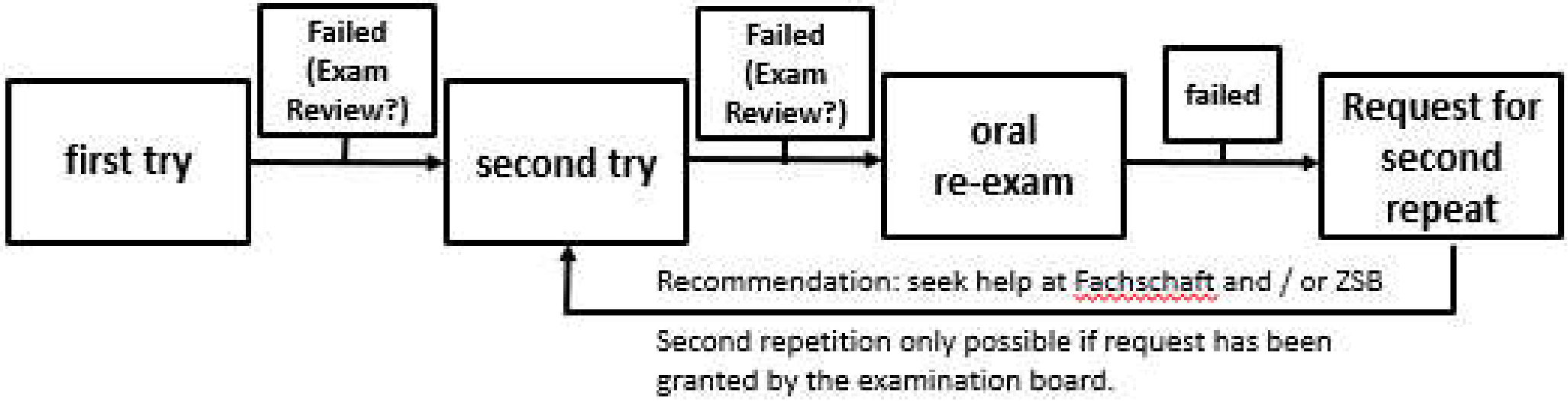
Deadlines and time limits:

- Exam cancellation:
  - Written examination: the latest in the examination room
  - Oral examination: 3 working days before examination

- Recognition likely in the first semester (or directly after return/change)

- Do not forget to re-register for the coming semester → Mid-February and Mid-August (You'll receive an email)

REPETITION OF WRITTEN EXAMS



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CONTACT

- PA MatWerk:
  - for all problems and questions concerning admission to examination
  - can make legaly binding statements
  - matwerk.mpa@fs-fmc.kit.edu

- Studierendenservice/Studiy Office:
  - Enrolement
  - Admission
  - Exmatrikulation

    Welcome Desk!

- Performance Coordinator (Johannes Schneider, IAM-CMS):
  - Registration for examinations
  - Recognitions

SEMESTER ABROAD

Various possibilities

- ERASMUS+
- Direktkooperation
- Freemover
- Kentucky
- …

Sarah Witte

Raum: Geb. 10.23, Zi . 706

Tel.: 47716

sarah witte∂kit edu

International Studieren im Maschinenbau (ISIM)

Important

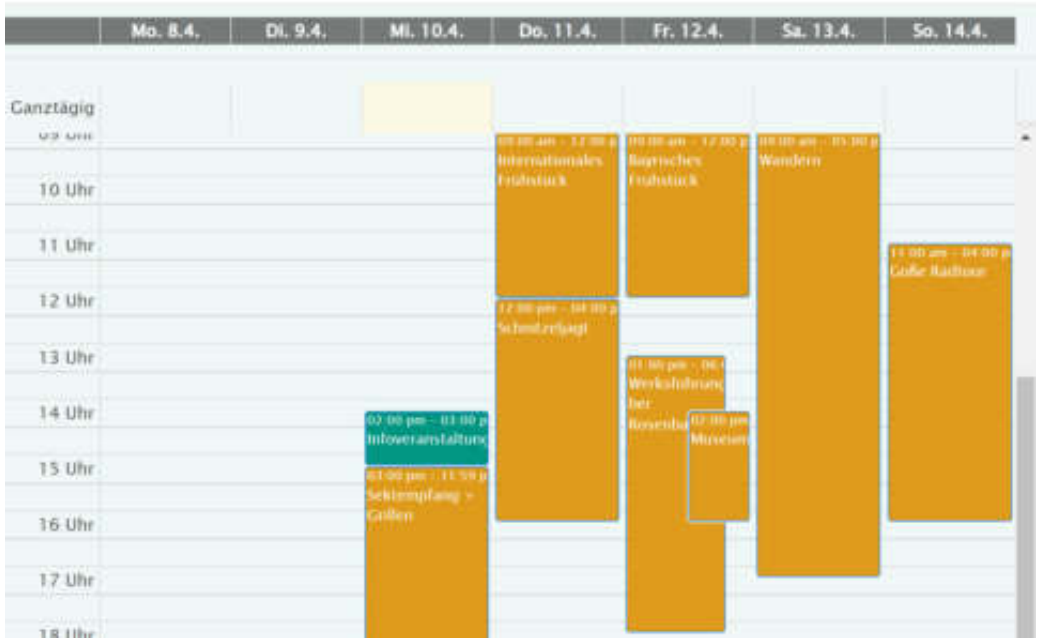
- Inform immediately and be early
- IStO und ISIM coordinate the abroad stays

MASTER O-PHASE

Student Councils MACH/CIW and ETIT

CALENDAR

- Afterwards: Champagne Reception + Barbecue
- Breakfasts
- Bicycle Tours
- Field Trips
- Evening program
- Guided Tours



https://www.fs-fmc.kit.edu/o-kalender

FURTHER INFORMATION EVENTS

- How to Uni und Campustour on Monday, 15.04.2024
  - Primarily for Studens new to KIT

REGISTRATIONS

- For some events you need to do an online registration beforehand: Open from 03:30 pm today

- Rosenbauer-Field Trip: Register quickly
  - ➢ Deadline for deposits as early as Thursday
- Guided tours of institutes
  - Campus Nord: Please combine both tours

- All information can be found by clicking on the calendar items

IMPORTANT INFORMATION

- You will receive your registration ribbon
  → **Bring a certificate of enrollment or letter of admission (not KIT ID)**

- Up to date information can be found on the website:
  www.fs-fmc.kit.edu/master_o-phase

- Remember to register to our E-Mail distribution list:
  www.fs-fmc.kit.edu/semesterverteiler

WHAT IS THE JOB OF THE STUDENT COUNCIL?

study

Previous Exams

1,0

Interesse?

Fachschafts-Schnuppern FMC am 18.04.2024

Field Trips

Counselling

Partys

MASTER WHATS-APP GRUPPE

Link:
https://chat.whatsapp.com/JDr4BgjW1B7Lf8udTauK1e

SUMMARY

- Get a general overview
- Early registration for exams
- Recognition likely within the first semester
- Master thesis maximum 6 months
- Plan your stay abroard early