INFOMATION EVENT MASTER MATERIAL SCIENCES

Fachschaft MACH/CIW

14.04.2026

STUDENT COUNCIL MACH/CIW & MASTER ORIENTATION PHASE

THE STUDENT COUNCIL – WHO WE ARE

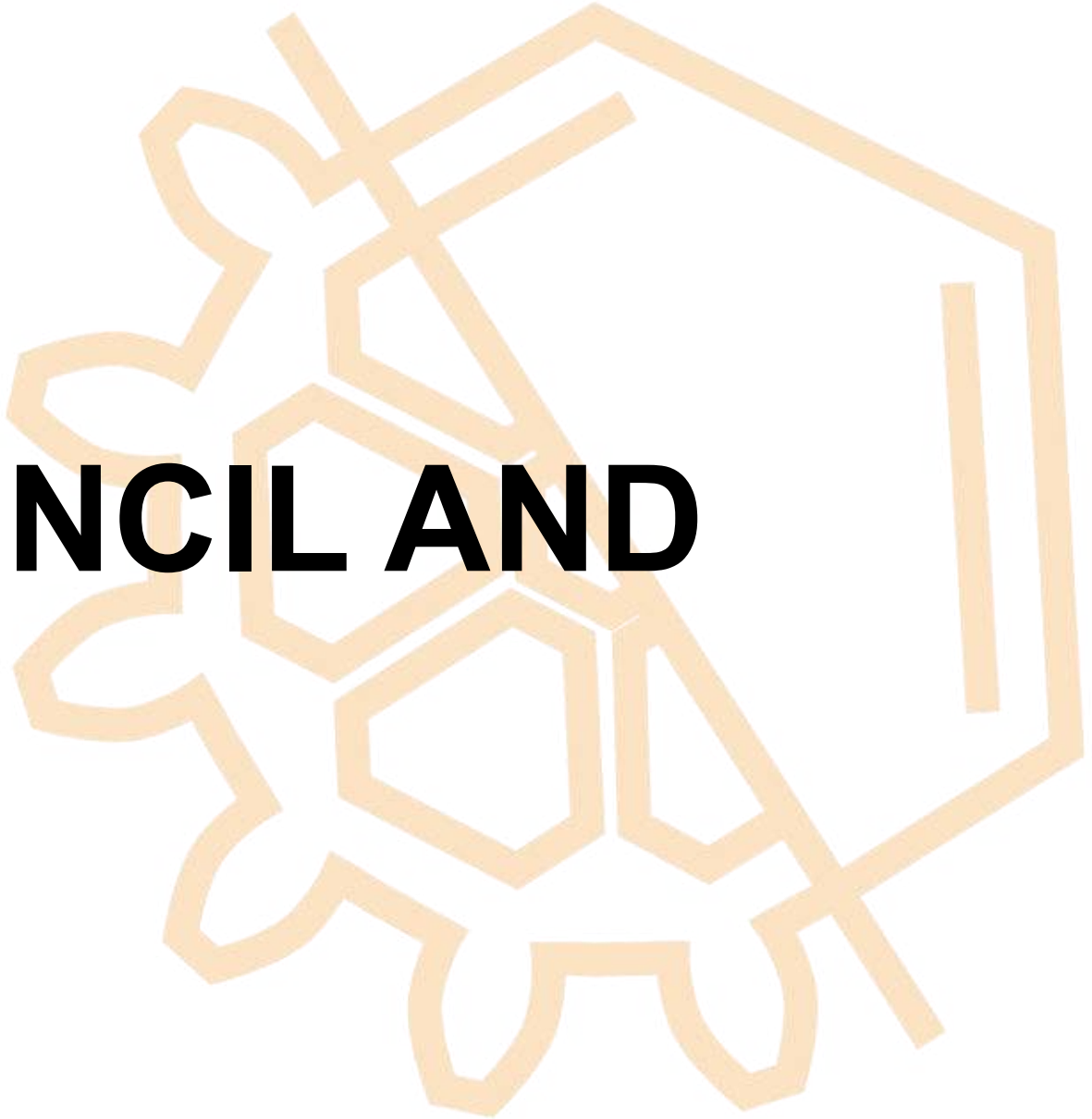
SLIDES ARE AVAILABLE ONLINE

- On the student council website under Downloads https://www.fs-fmc.kit.edu/downloads
- Or directly by scanning this QR-Code

OUTLINE FOR TODAY

1. Student Council and Orientation Phase
2. Overview of Master Material Science
3. Formalities at KIT
4. Where can I find informations
5. Besides Studies

STUDENT COUNCIL AND O-PHASE



WHAT DOES THE STUDENT COUNCIL DO?

- Studies
- Consultation hours
- Past Papers and Exam Protocols
- Parties
- Orientation Phase
- Committee work
- Conferences
- Excursions

MASTER ORIENTATION PHASE

Information and program

- All important information on our website and in the calendar

https://www.fs-fmc.kit.edu/master_o-phase

Participation ribbon

- You will receive your participation ribbon during champagne reception
  - Afterwards in the consultation hours
  - Certification of enrollment or letter of admission needed (not KIT ID)

PROGRAMM/KALENDER – PROGRAM/CALENDAR

14. April 2026		
04:00 pm – 05:00 pm	●	Infoveranstaltung
05:00 pm – 11:00 pm	●	Sektempfang und Maultaschenessen
15. April 2026		
09:30 am – 11:30 am	●	Weißwurstfrühstück
01:00 pm – 03:00 pm	●	Campustour
03:30 pm – 05:30 pm	●	Mastersprechstunde
08:00 pm – 11:59 pm	●	Pubquiz
16. April 2026		
09:30 am – 01:00 pm	●	Bouldern
12:30 pm – 02:30 pm	●	Mastersprechstunde
07:00 pm – 10:00 pm	●	Running dinner
10:00 pm – 12:00 am	●	After dinner Agostea

17. April 2026		
12:00 am – 03:00 am	●	After dinner Agostea
12:30 pm – 02:30 pm	●	Mastersprechstunde
02:00 pm – 05:00 pm	●	Museumstour
18. April 2026		
04:00 pm – 06:00 pm	●	Stadttour
19. April 2026		
09:00 am – 03:00 pm	●	Wandern
01:00 pm – 03:00 pm	●	Spiele im Schlossgarten
20. April 2026		
04:00 pm – 06:00 pm	●	Mastersprechstunde
21. April 2026		
06:00 pm – 11:59 pm	●	Kneipentour

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

Weißwursfrühstück – Bavarian Breakfast
Please bring your own plates and cutlery

REGISTRATIONS

Running Dinner

https://www.fs-fmc.kit.edu/form/anmeldung-running-dinner

Kneipentour

https://www.fs-fmc.kit.edu/form/kneipentour

Campustour

https://www.fs-fmc.kit.edu/form/campustour

MASTER OVERVIEW

GENERAL INFORMATION

- **Regular period of studies**
  - 4 semester
- **Total Scope:**
  - 120 credit points
- **Maximum study time:**
  - 7 semester
- **Full time study program**
  - 40h/ Week
- **Language**
  - Official Language is german
  - Studying Language is german and english

OVERVIEW MASTER MACH 2025

Compulsory subjects (20 CP)

Interdisciplinary Electives (18 CP)

Specialisation (40 CP)

Internship (12 CP)

Master-Thesis (30 CP)

OFFICIAL STUDYPLAN

Deutsch

Semester / Fach	WS 1 29 LP	SS 2 33 LP	WS 3 28 LP	SS 4 30 LP	Summe 120 LP
Materialwiss. Vertiefung	Thermodynamik und Kinetik 7 LP, mPr	Simulation 6 LP, mPr Eigenschaften 7 LP, mPr		Masterarbeit 30 LP	20 LP
Spezialisierung *	Schwerpunkt 40 LP, 10 m/sPr Wahlmöglichkeit: 1 oder 2 Schwerpunkt(e)				40 LP
	Schwerpunkt I 20 LP, 5 m/sPr	Schwerpunkt II 20 LP, 5 m/sPr			
Interdisziplinäre Ergänzung	Überfachliche Qualifikationen 2 LP, SL		MINT Wahlmodul 12 LP, 3 m/sPr Technik und Gesellschaft 4 LP, SL		18 LP
			Berufspraktikum 12 LP, SL		12 LP

English

Semester / Subject	WS 1 29 credits	SS 2 33 credits	WS 3 28 credits	SS 4 30 credits	Total 120 credits
Materialwiss. Vertiefung (Materials Science Major Course)	Properties 7 credits, mPr	Simulation 6 credits, mPr Thermodynamics und Kinetics 7 credits, mPr		Master's thesis 30 LP	20 credits
Spezialisierung * (Specialization)	Specialization 40 credits, 10 m/sPr Choice: 1 or 2 Specialization module(s)				40 credits
	Specialization I 20 credits, 5 m/sPr	Specialization II 20 credits, 5 m/sPr			
Interdisziplinäre Ergänzung (Interdisciplinary Complementation)	Key Competencies 2 credits, SL		MINT Elective Module 12 credits, 3 m/sPr Technology and Society 4 credits, SL		18 credits
			Internship 12 credits, SL		12 credits

LECTURES IN GENERAL

- 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

COMPULSORY SUBJECTS

- 3 seperate lectures
- Overview of general topics in material sciences
- No choice in lectures possible
- always one or two per term

Themodynamics And Kinetics
(7 CP)

Properties
(7 CP)

Simulations
(6 CP)

SPECIALISATION

- You can choose between:
  - 2 Focal Fields (20 CP)
  - 1 Focal Field (40 CP)
- 3 Focal Fields
  - Structural Materials
  - Computational Materials Science
  - Functional Materials

Focal Field 1 (20 CP)

Focal Field 2 (20 CP)

OR

Focal Field (40 CP)

FOCAL COURSE EXAMPLE

M 5.2 Module: Computational Materials Science (40CP) [M-MACH-107575]

Coordinators: Prof. Dr. Britta Nestler
Organisation: KIT Department of Mechanical Engineering
Part of: Specialization

Credits	Grading	Recurrence	Duration	Language	Level	Version
40 CP	graded	Each term	2 terms	German	4	2

Compulsory Course (Election: 1 item)			
T-MACH-107660	Seminar "Materials Modelling"	8 CP	Nestler, Schulz
T-MACH-113814	Seminar Materials Simulation	8 CP	Nestler, Schulz
Compulsary Elective Studies (Election: at least 32 credits)			
T-MACH-105310	Design of Highly Stressed Components	4 CP	Aktaa
T-BGU-100087	Fracture and Damage Mechanics	6 CP	Seelig
T-PHYS-109895	Computational Condensed Matter Physics	12 CP	Wenzel
T-MACH-113989	Computational Elasticity	5 CP	Böhlke, Langhoff
T-MACH-113990	Computational Inelasticity	5 CP	Böhlke, Langhoff
T-PHYS-106131	Computational Photonics, without ext. Exercises	6 CP	Rockstuhl

INTERDISCIPLINARY ELECTIVES

- 2 Catalogues of lectures + KC
- Learning of interdisciplinary skills
- Catalogues can be extended
  - List in the module handbook as first suggestion, extracurricular lectures possible

MINT Elective Module (12 CP)

Technology and Society (4 CP)

Key Competencies (2 CP)

MINT ELECTIVE MODULE

- MINT: Mathematics, Informatics, Natural Sciences, Engineering
- Choose lecture from a long list
- Also good to do them in an exchange semester

TECHNOLOGY AND SOCIETY

- Choose lectures from a list:

M-MACH-106939 – Technology and Society	CO	German/English	4.0
T-WIWI-114140 – Emissions into the Environment	CE: Technology and Society		3.0
T-WIWI-114139 – Energy and Environment	CE: Technology and Society		3.0
T-MACH-113903 – Ethics of Technology	CE: Technology and Society		2.0
T-MACH-113883 – Introduction to Philosophy of Technology	CE: Technology and Society		2.0
T-WIWI-113886 – Managing New Technologies	CE: Technology and Society		4.0
T-INFO-114132 – Human-Machine-Interaction in Anthropomatics: Basics	CE: Technology and Society		4.0
T-MACH-114855 – Ressources for the Energy Transition	CE: Technology and Society		2.0
T-GEISTSOZ-113951 – History of Technology and the Environment for Mechanical Engineering Students	CE: Technology and Society		4.0
T-ETIT-111923 – Ethics of Technology - ARs ReflecTIonis	CE: Technology and Society		2.0
T-MACH-113884 – Technology Assessment and its Normative Basis	CE: Technology and Society		2.0
T-WIWI-114119 – Transport Economics	CE: Technology and Society		4.0
T-WIWI-114396 – Environmental and Resource Policy	CE: Technology and Society		2.0

KEY COMPETENCES

- House of Competence (HoC)
  - Key Competences
- Studium Generale. Forum Wissenschaft und Gesellschaft (FORUM)
  - Key Competences + Studium Generale
- Sprachenzentrum (SpZ)
  - Language courses

→Registration periods shortly before the start of each semester

→ Master program must not be completed with key competencies/ ungraded courses

INTERNSHIP

Internship:

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

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)).

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

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

FORMALITIES AT KIT

DOCUMENTS

Mind the right SPO

Study and Examination Regulations

- Legal framework of your study program
- Rules for deadlines, examination processes, credit points …
- Also rules for repetition of exams and failing exams

Module handbook

- List of the modules and lectures
- Information regarding examinations, content of the lectures, qualification aims
- Updated version every semester
- Direct links to CAS-system

LECTURES IN THE MODULE HANDBOOK

T 8.56 Teilleistung: Die Eisenbahn im Verkehrsmarkt [T-MACH-105540]

Verantwortung: Prof. Dr.-Ing. Martin Cichon
Einrichtung: KIT-Fakultät für Maschinenbau
KIT-Fakultät für Maschinenbau/Institut für Fahrzeugsystemtechnik
KIT-Fakultät für Maschinenbau/Institut für Fahrzeugsystemtechnik/Bereich NFG Bahnsystemtechnik
Bestandteil von: M-MACH-106942 - Wahlmodul
M-MACH-106979 - Schwerpunkt: Fahrzeugtechnik

Teilleistungsart	Leistungspunkte	Notenskala	Turnus	Version
Prüfungsleistung mündlich	4	Drittelnoten	Jedes Sommersemester	1

Lehrveranstaltungen					
SS 2025	2114914	Die Eisenbahn im Verkehrsmarkt	2 SWS	Block (B) / 🗣	Cichon
Prüfungsveranstaltungen					
SS 2025	76-T-MACH-105540	Die Eisenbahn im Verkehrsmarkt			Cichon

Legende: 💻 Online, 🏛 Präsenz/Online gemischt, 🗣 Präsenz, ✕ Abgesagt

Erfolgskontrolle(n)
Prüfung: mündlich
Dauer: ca. 20 Minuten
Hilfsmittel: keine

Voraussetzungen
keine

Arbeitsaufwand
120 Std.

Im Folgenden finden Sie einen Auszug der relevanten Lehrverstaltungen zu dieser Teilleistung:

V Die Eisenbahn im Verkehrsmarkt

2114914, SS 2025, 2 SWS, Sprache: Deutsch Im Studierendenportal anzeigen

Block (B) Präsenz

Inhalt
Die Vorlesung vermittelt einen Überblick über Perspektiven, Herausforderungen und Chancen der Eisenbahn im nationalen und europäischen Verkehrsmarkt. Im Einzelnen werden behandelt:

- Einführung und Grundlagen
- Bahnreform in Deutschland
- Deutsche Bahn im Überblick
- Eisenbahnregulierung
- Infrastrukturfinanzierung und -entwicklung
- Konzernstrategie Starke Schiene und ihre Ausbausteine:
  (Klima, Umwelt, Digitalisierung, Starke Schiene in Baden-Württemberg)
- Trends im Verkehrsmarkt
- Verkehrspolitische Handlungsfelder
- Intra- und Intermodaler Wettbewerb
- Zusammenfassung

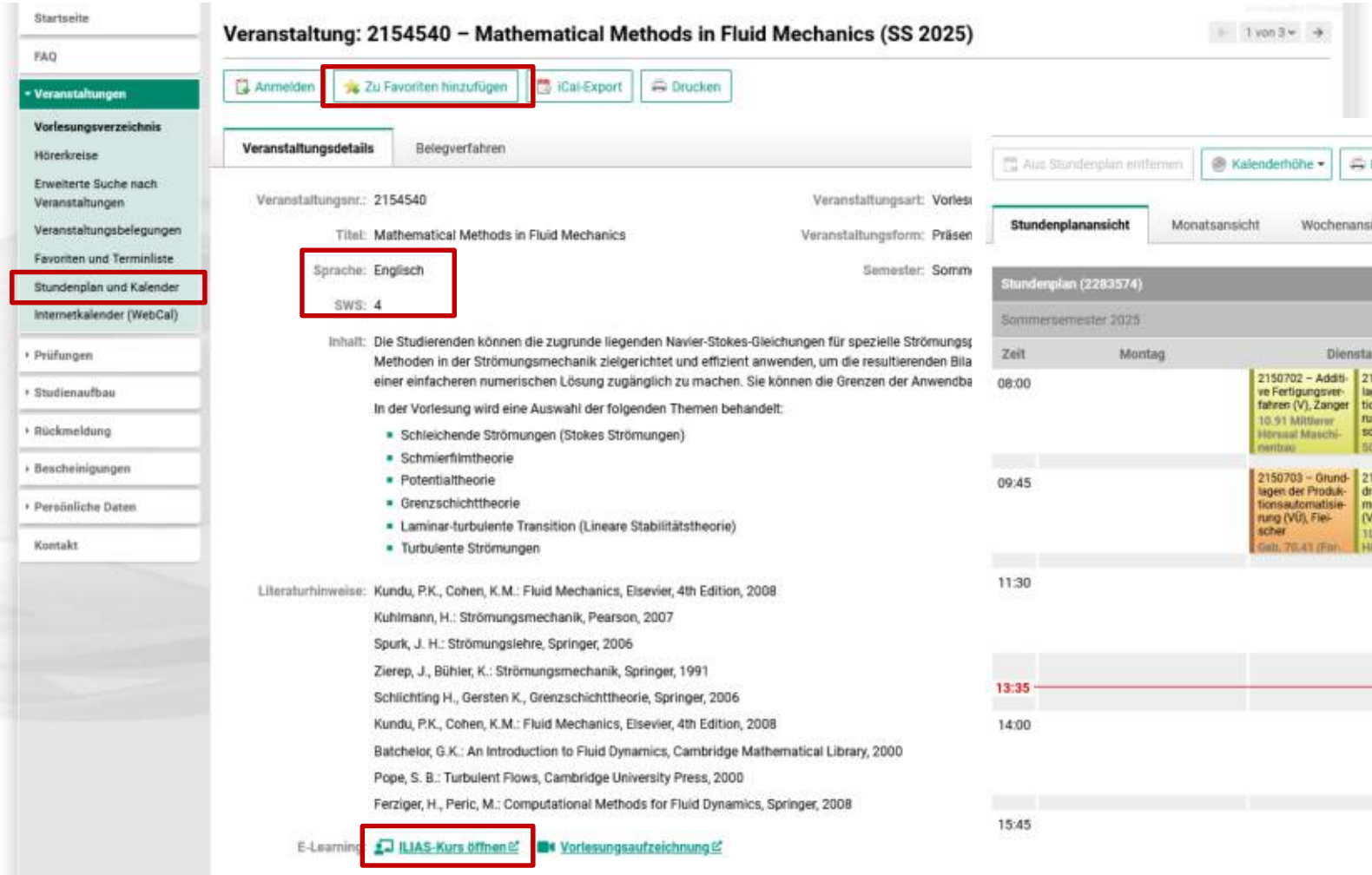
Lernziele:

- Unternehmerische Perspektive von Verkehrs- und Infrastrukturunternehmen erfassen
- Intra-und intermodale Wettbewerbssituation abschätzen
- Ordnungs- und verkehrspolitische Determinanten verstehen
- Trends im Verkehrsmarkt reflektieren
- Strategische Herausforderungen, Chancen und Handlungsfelder der Unternehmen nachvollziehen
- Verkehrsträgerübergreifende Perspektive anwenden

REGISTRATION FOR LECTURES

- Normally no registration required for attending lectures, you can just go and visit the lecture
- Just join the ILIAS-courses and visit the first 2-3 weeks of the lectures that your are interested in
  - Then decide what lectures you want to continue
- Registration only needed for the exam

SELECTION OF LECTURES & CALENDAR



REGISTRATION FOR LECTURES

- Exceptions are laboratories or practical lectures, for them a registration is often needed
- Individual requirements and registration processes
  - Inform yourself on the websites of the institutes etc.

REGISTRATION AND DEREGISTRATION OF EXAMS

Written Exams

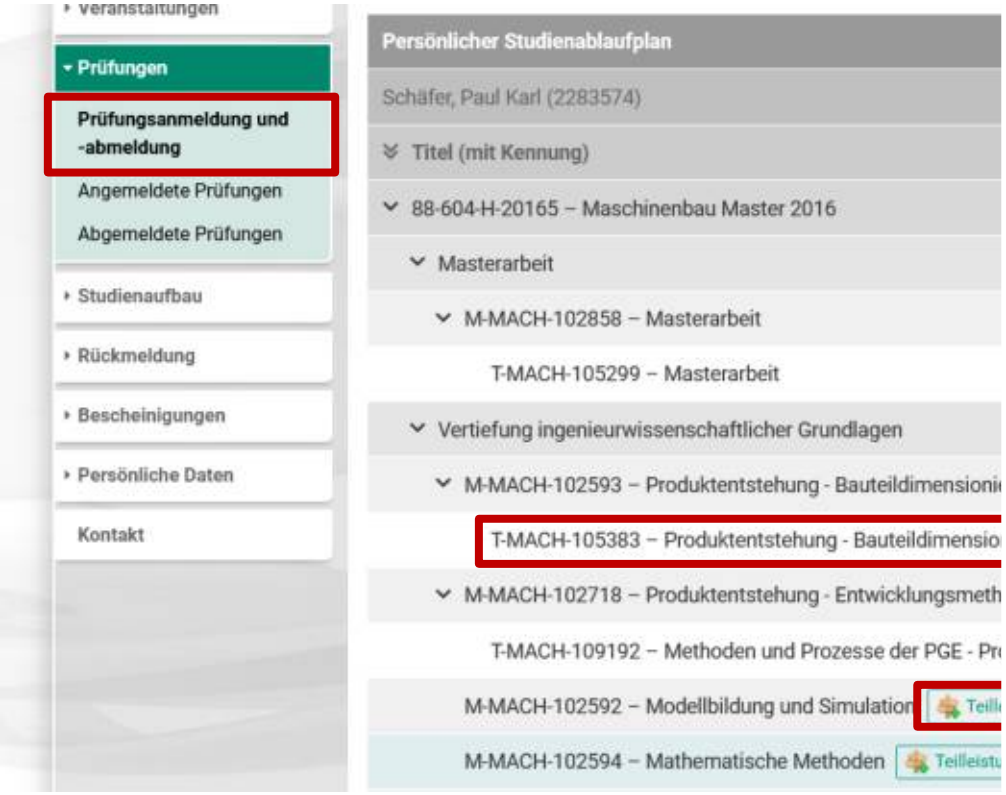
- Registration in CAS
- https://www.sle.kit.edu/imstudium/videotutorials-campus.php
- Deregistration in CAS until end of deregistration period
- In lecture hall till beginning of the exams
  - No reasons/attestation needed

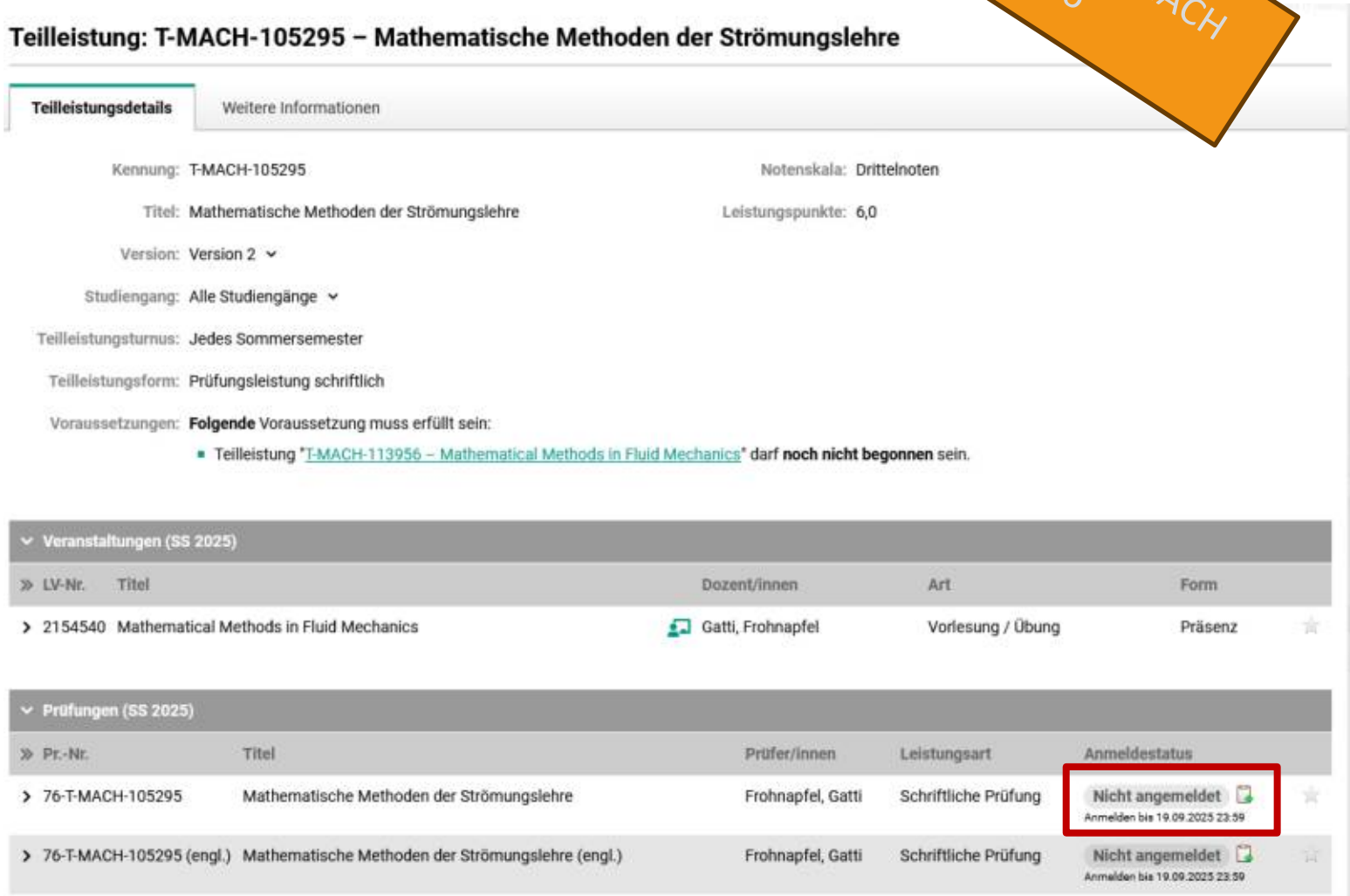
Oral Exams

- Registration in CAS and booking of appointment with the institute
  - Often several dates to choose from
- Deregistration till 3 days before exam in CAS and inform the institute
  - Afterwards reasons/attestation needed

REGISTRATION FOR EXAMS (CAS)

Export of SPO MACH 2016





REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023

Technische Thermodynamik und Wärmeübertragung II	PF	✓	1,0	01.04.2025	6,0	6,0
Vertiefung im Maschinenbau Module wählen	PF	?			0,0	12,0
Überfachliche Qualifikationen Module wählen	PF	?			0,0	4,0
M-MACH-106389 – Schlüsselqualifikationen Teilleistungen wählen	PF	?			0,0	4,0

REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023

Vertiefung im Maschinenbau Bereich-LP ! 0,0 von min. 12,0

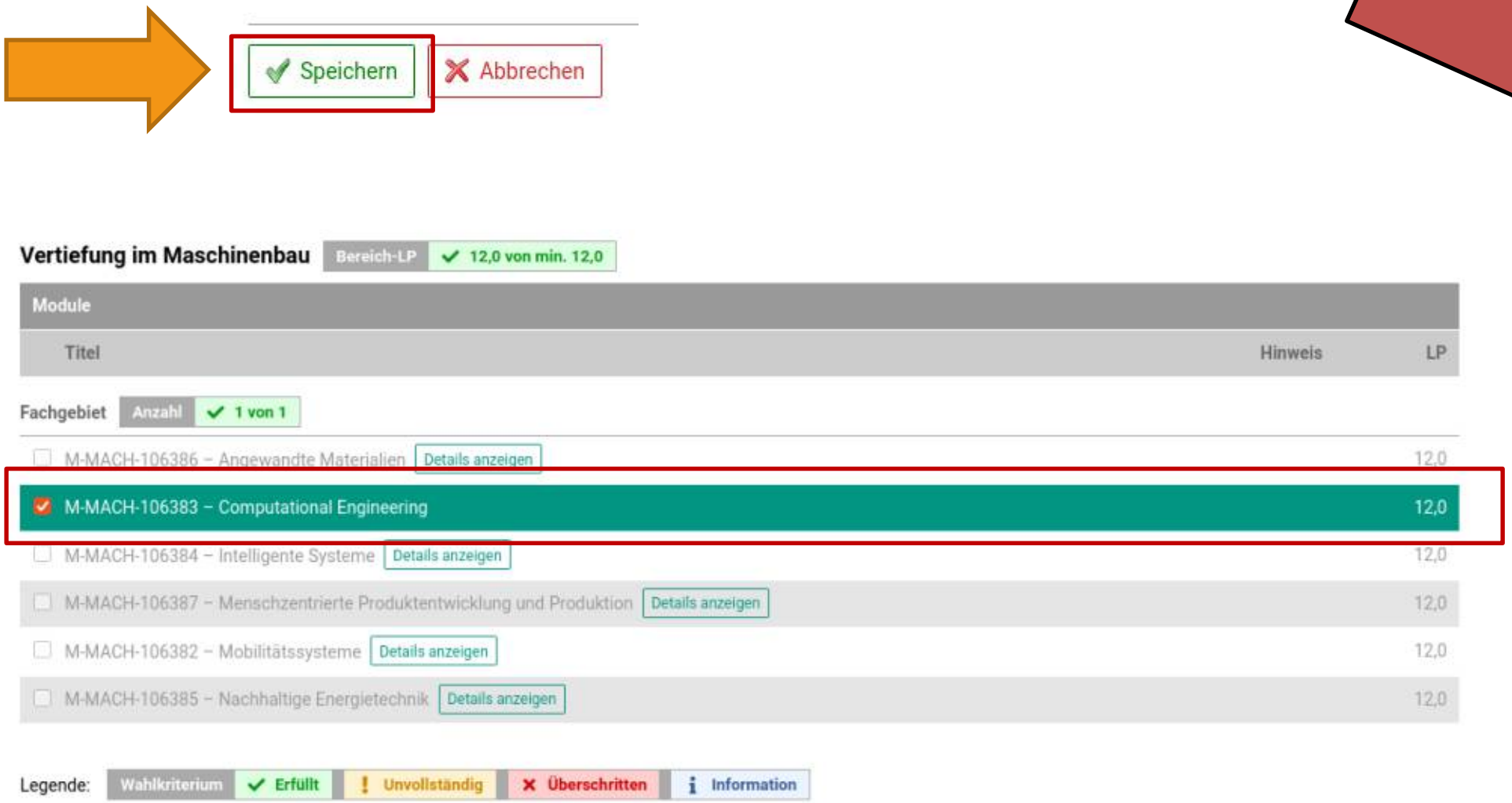
Module

Titel	Hinweis	LP
Fachgebiet Anzahl ! 0 von 1		
☐ M-MACH-106386 – Angewandte Materialien Details anzeigen		12,0
☐ M-MACH-106383 – Computational Engineering Details anzeigen		12,0
☐ M-MACH-106384 – Intelligente Systeme Details anzeigen		12,0
☐ M-MACH-106387 – Menschzentrierte Produktentwicklung und Produktion Details anzeigen		12,0
☐ M-MACH-106382 – Mobilitätssysteme Details anzeigen		12,0
☐ M-MACH-106385 – Nachhaltige Energietechnik Details anzeigen		12,0

Legende: Wahlkriterium ✓ Erfüllt ! Unvollständig ✗ Überschritten i Information

REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023



REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023

Technische Thermodynamik und Wärmeübertragung II	PF	✓	1,0	01.04.2025	6,0	6,0
Vertiefung im Maschinenbau Module wählen	PF	?			0,0	12,0
M-MACH-106383 Computational Engineering Teilleistungen wählen	WP	?			0,0	12,0
Überfachliche Qualifikationen Module wählen	PF	?			0,0	4,0
M-MACH-106389 – Schlüsselqualifikationen	PF	?			0,0	4,0

REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023

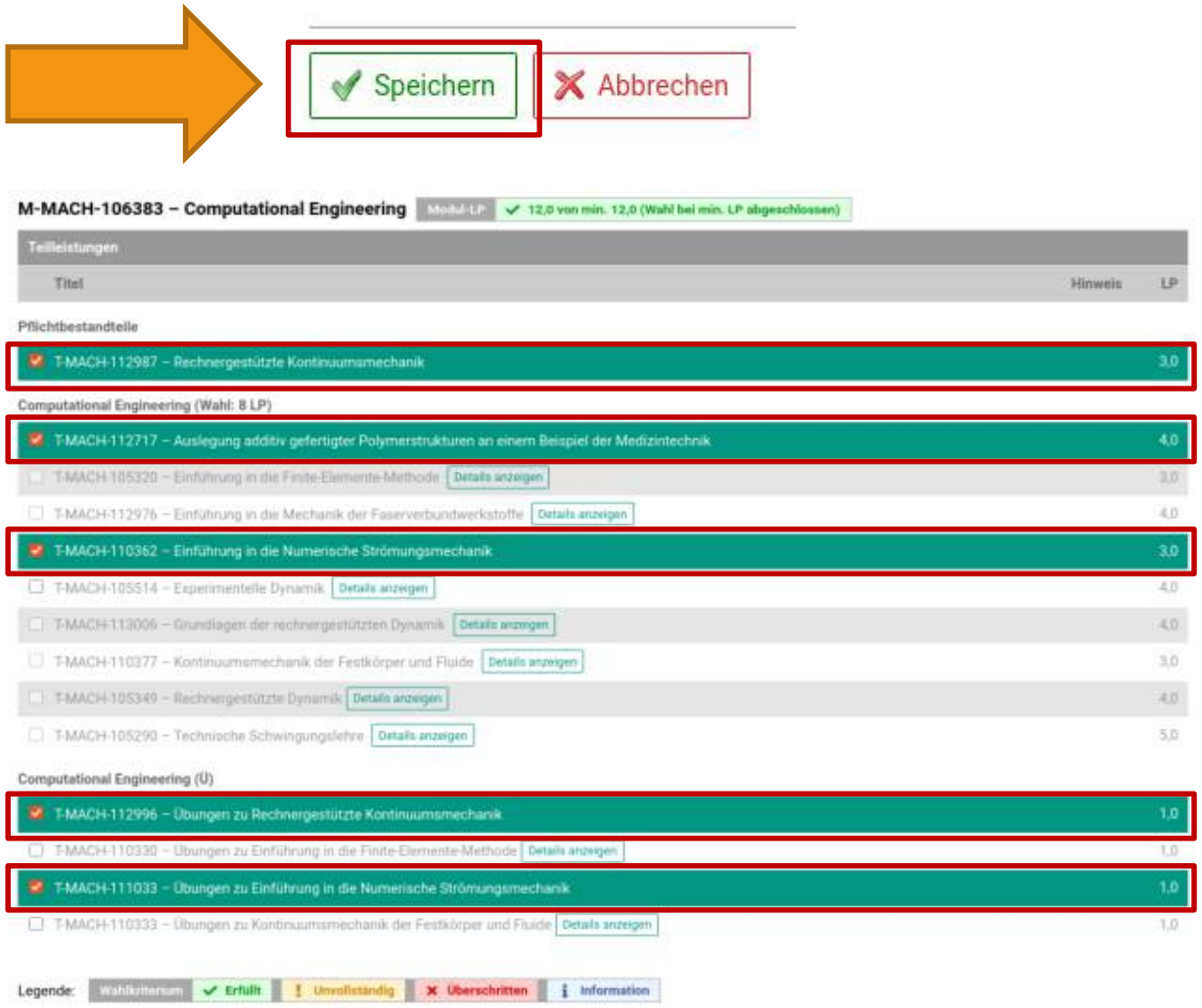
M-MACH-106383 – Computational Engineering Modul-LP ! 0,0 von min. 12,0 (Wahl bei min. LP abgeschlossen)

Teilleistungen		
Titel	Hinweis	LP
Pflichtbestandteile		
☐ TMACH-112987 – Rechnergestützte Kontinuumsmechanik Details anzeigen		3,0
Computational Engineering (Wahl: 8 LP)		
☐ TMACH-112717 – Auslegung additiv gefertigter Polymerstrukturen an einem Beispiel der Medizintechnik Details anzeigen		4,0
☐ TMACH-105320 – Einführung in die Finite-Elemente-Methode Details anzeigen		3,0
☐ TMACH-112976 – Einführung in die Mechanik der Faserverbundwerkstoffe Details anzeigen		4,0
☐ TMACH-110362 – Einführung in die Numerische Strömungsmechanik Details anzeigen		3,0
☐ TMACH-105514 – Experimentelle Dynamik Details anzeigen		4,0
☐ TMACH-113006 – Grundlagen der rechnergestützten Dynamik Details anzeigen		4,0
☐ TMACH-110377 – Kontinuumsmechanik der Festkörper und Fluide Details anzeigen		3,0
☐ TMACH-105349 – Rechnergestützte Dynamik Details anzeigen		4,0
☐ TMACH-105290 – Technische Schwingungslehre Details anzeigen		5,0
Computational Engineering (Ü)		
☐ TMACH-112996 – Übungen zu Rechnergestützte Kontinuumsmechanik Details anzeigen		1,0
☐ TMACH-110330 – Übungen zu Einführung in die Finite-Elemente-Methode Details anzeigen		1,0
☐ TMACH-111033 – Übungen zu Einführung in die Numerische Strömungsmechanik Details anzeigen		1,0
☐ TMACH-110333 – Übungen zu Kontinuumsmechanik der Festkörper und Fluide Details anzeigen		1,0

Legende: Wahlkriterium ✓ Erfüllt ! Unvollständig ✗ Überschritten i Information

REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023



REGISTRATION FOCUS FIELD

Export Bachelor MACH 2023

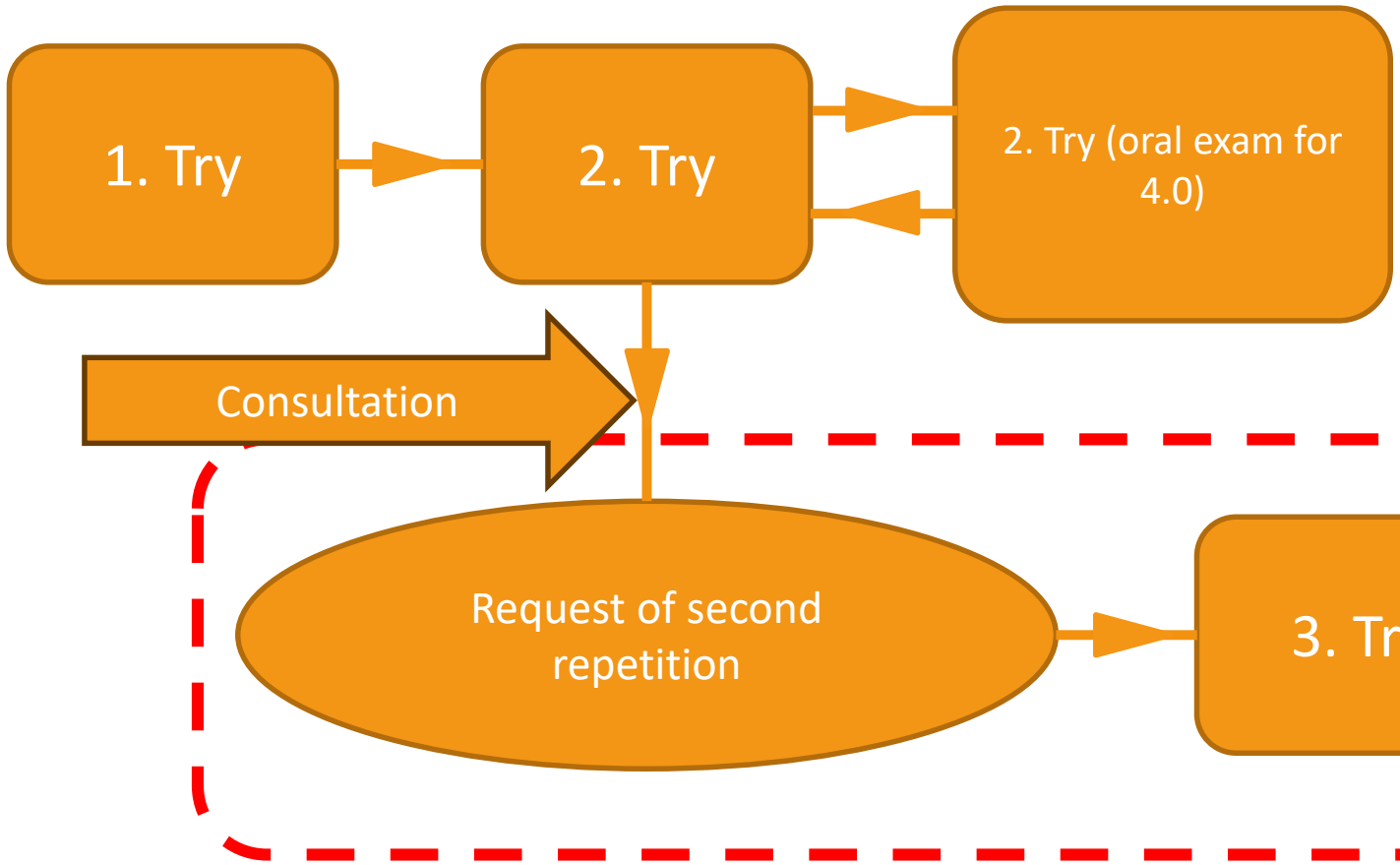
Technische Thermodynamik und Wärmeübertragung II	PF	✓	1,0	01.04.2025		
Vertiefung im Maschinenbau Module wählen	PF	?			0,0	
M-MACH-106383 Computational Engineering Teilleistungen wählen	WP	?			0,0	12,0
T-MACH-110962 – Rechnergestützte Kontinuumsmechanik	PF	?			0,0	3,0
T-MACH-105362 – Übungen zu Rechnergestützte Kontinuumsmechanik	WP	?			0,0	1,0
T-MACH-110362 – Einführung in die Numerische Strömungsmechanik	WP	?			0,0	3,0
T-MACH-111033 – Übungen zu Einführung in die Numerische Strömungsmechanik	WP	?			0,0	1,0
T-MACH-112717 – Auslegung additiv gefertigter Polymerstrukturen an einem Beispiel der Medizintechnik	WP	?			0,0	4,0
Überfachliche Qualifikationen Module wählen	PF	?			0,0	4,0
M-MACH-106389 – Schlüsselqualifikationen Teilleistungen wählen	PF	?			0,0	4,0

IMPORTANT: Registration for the exam afterwards still necessary.
Selection doesn‘t mean registration for exam

EXAMINATION PERIOD

- Examination period officially ends on 31.03. and 30.09.
- Exams also possible after this date
  - Especially relevant for oral exams
  - Officially counts for the next semester
  - For example relevant for BAFöG, scholarships etc
  - Reregistration for next semester necessary

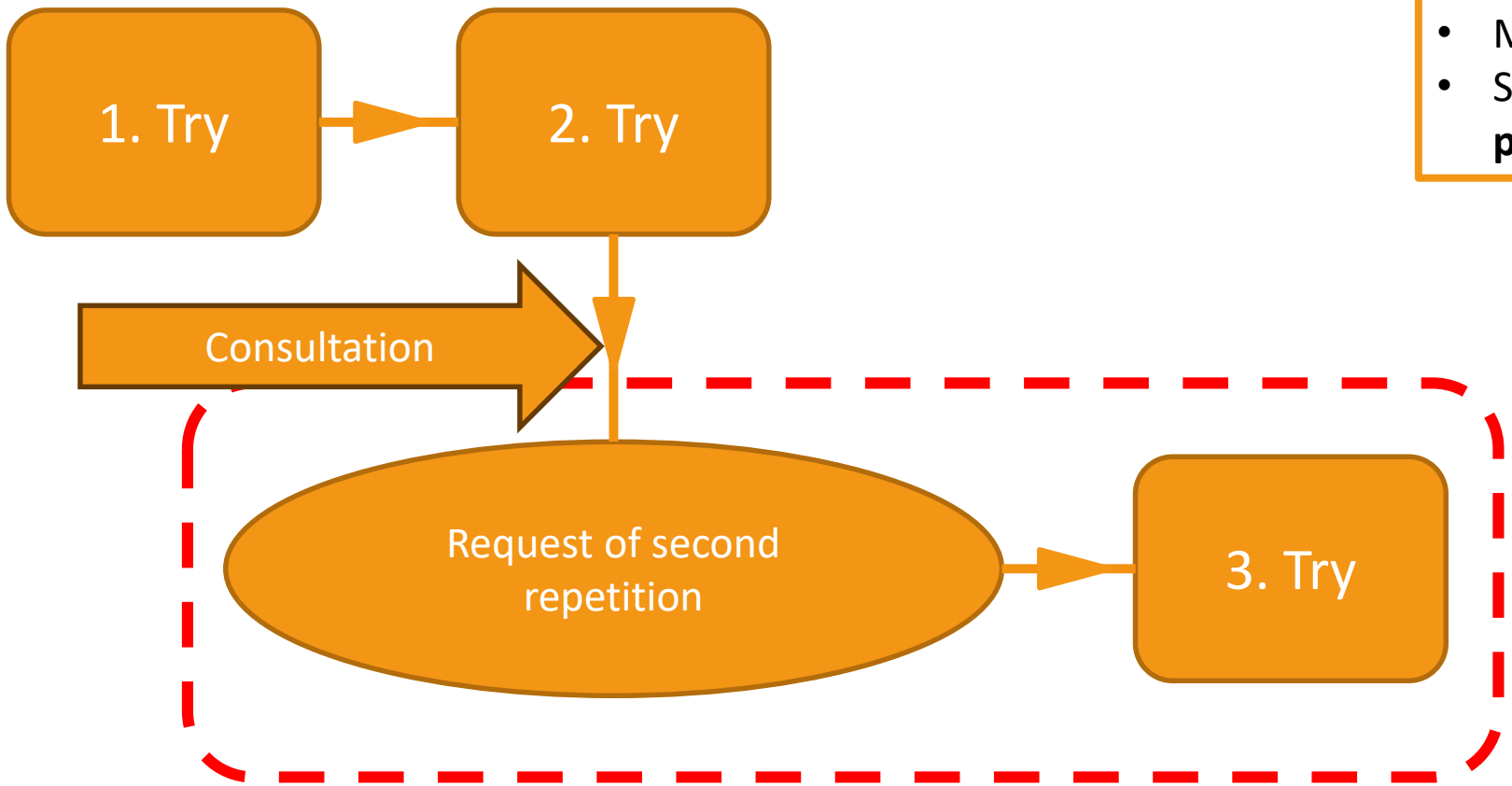
EXAMINATION PROCESS AFTER FAILING (WRITTEN EXAM)



ZWA:

- Max **one** per exam
- Second letter must be granted by the **president of the KIT**

EXAMINATION PROCESS AFTER FAILING (ORAL EXAM)



ZWA:

- Max **one** per exam
- Second letter must be granted by the **president of the KIT**

CONTACTS AND INFORMATIONS

CONTACT

- PA MatWerk (examination board):
  - for all problems and questions concerning admission to examination
  - can make legaly binding statements
  - Official: pa-matwerk@mach.kit.edu
  - Recommended: matwerk.mpa@fs-fmc.kit.edu

Prof. Dr. Hans Jürgen Seifert

Direktor, Institutsleiter

Raum: 226
CN 681

Tel.: +49 721 608-23895

hans seifert@kit edu

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

- Performance Coordinator:
  - Registration for examinations
  - Recognitions

Dr.-Ing. Johannes Schneider

Akad. Dir.

Room: 104

Phone: +49 721 608-41460

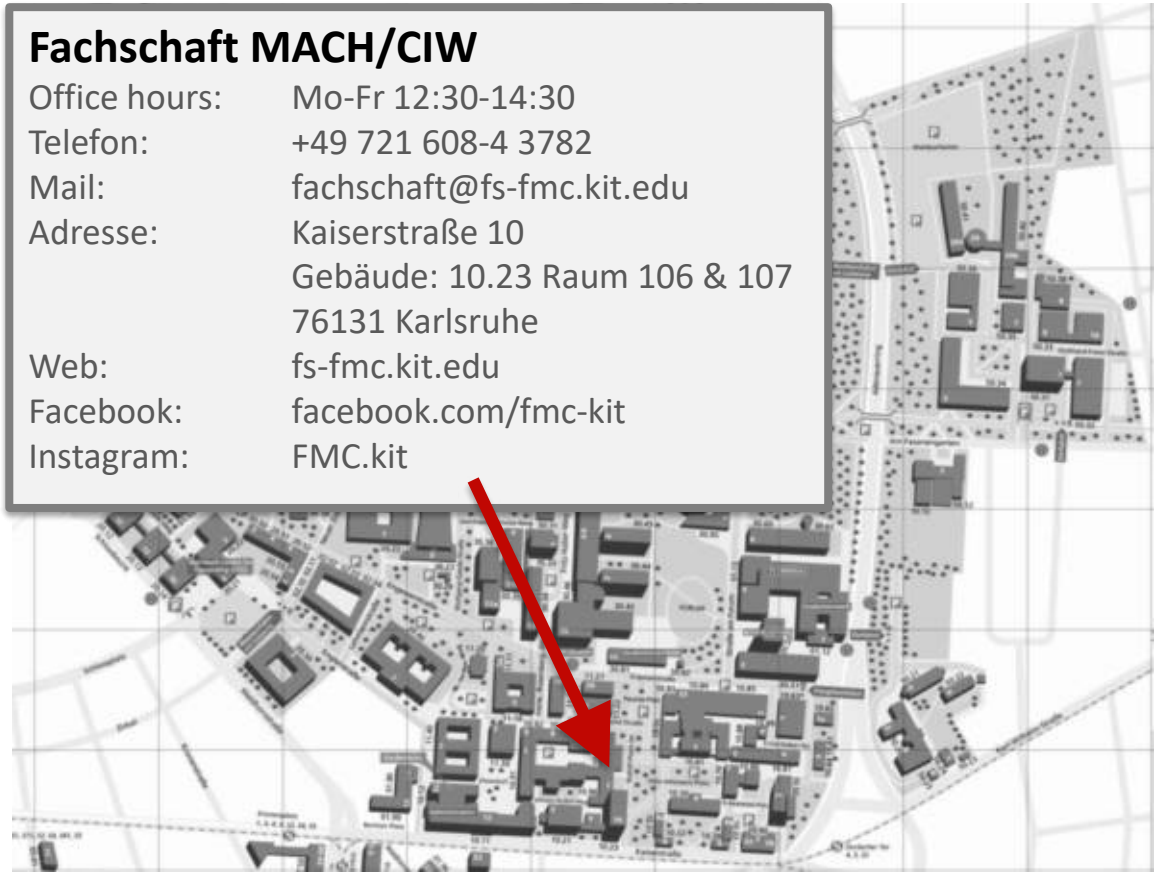
Fax: +49 721 608 941460

johannes schneider@kit edu

CONTACT

Fachschaft MACH/CIW

Office hours:	Mo-Fr 12:30-14:30
Telefon:	+49 721 608-4 3782
Mail:	fachschaft@fs-fmc.kit.edu
Adresse:	Kaiserstraße 10 Gebäude: 10.23 Raum 106 & 107 76131 Karlsruhe
Web:	fs-fmc.kit.edu
Facebook:	facebook.com/fmc-kit
Instagram:	FMC.kit



STUDENT COUNCIL MACH/CIW

Consultation

- Study plan
- Applications
- Problems with your studies
- Consultation from students for students
- Consultation hours
- Information events

Exam preparation

- Past papers
  - Officially from the institutes
  - Sale before and during the exam period
- Exam Protocols
  - Written by students after their exam
  - Write your own protocol after your exam
- Available during the consultation hours

WHERE CAN I FIND INFORMATION?

Website FS Mach/CIW: fs-fmc.kit.edu
Website of the study programme: www.mach.kit.edu/1982.php

Master‘s WhatsApp-Group:

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

BESIDE STUDIES

BESIDE STUDIES

Discovering new things by looking beyond the horizon

Abroad studies, university groups, social commitment

- Student co-determination in/at the university
  - Student Council
  - ASTA
- University groups
- HiWi-Job
- Sports

→ Entry possible at every time (except for sports)

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

UNIVERSITY GROUPS

Hochschulgruppen: https://www.asta-kit.de/de/engagier-dich/hochschulgruppen

LIFE ON CAMPUS

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

WELCOME TO THE MASTER PROGRAM MATERIAL SCIENCE!