WelCoMe to come.tum

Master of Science in Computational Mechanics

Munich, 9. October 2023

Who‘s involved?

Formative Chairs

Chair of Structural Mechanics

Prof. Dr.-Ing. Gerhard Müller

Chair of Computational Modelling and Simulation

PD Dr.-Ing. habil. Stefan Kollmannsberger

Professorship for Computational Solid Mechanics

Prof. Dr.-Ing. habil. Fabian Duddeck

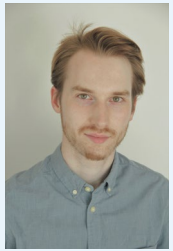
Chair of Hydromechanics

Prof. Dr.-Ing. habil. Michael Manhart

Chair of Structural Analysis

Prof. Dr.-Ing. Kai-Uwe Bletzinger

Course Coordinators

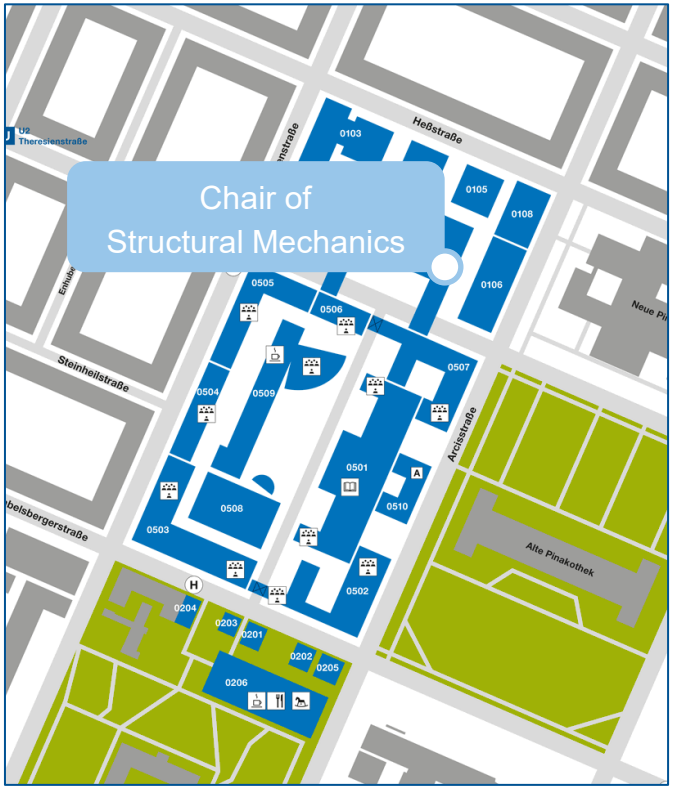


Sebastian Schopper, M.Sc.
Room N1151

E-Mail: sebastian.schopper@tum.de
Telephone: 089-289-28322

Felix Schneider, M.Sc.
Room N1149

E-Mail: felix.w.schneider@tum.de
Telephone: 089-289-28393



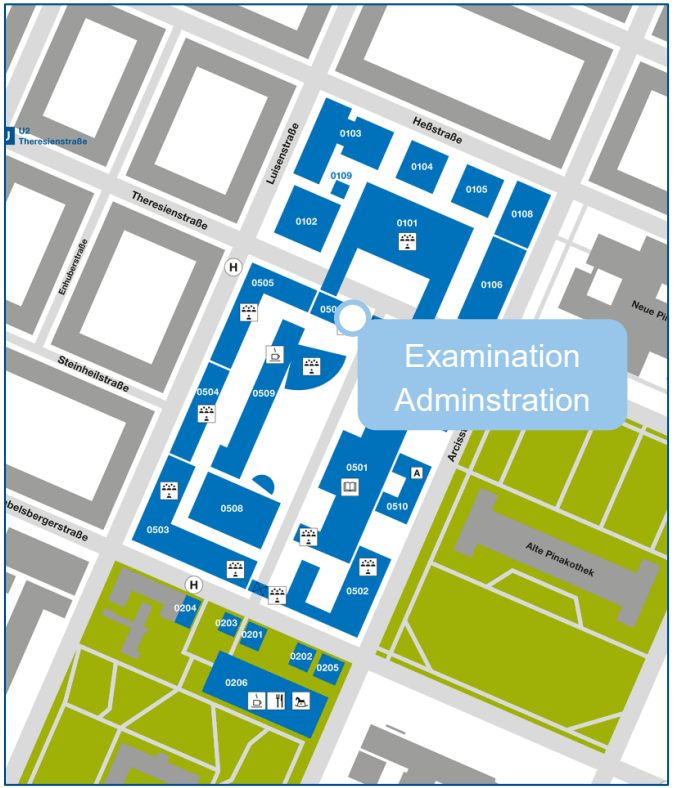
Examination Adminstration

Christine Göppel
Room 1701

E-Mail: Christine.Goeppel@tum.de
Telephone: 089-289-28194 or -28577

Office Hours:
Mondays 13:30 – 15:30 h
Make an appointment via phone or e-mail.

Responsible for exam administrations and compliance of study regulations

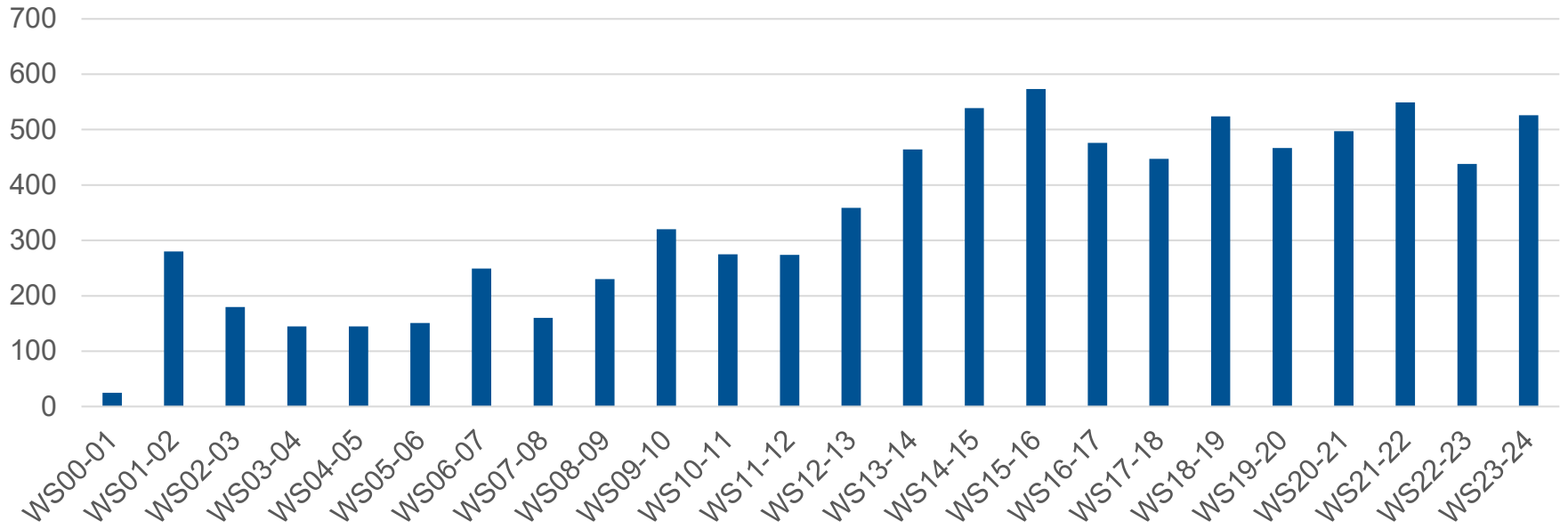


Overview

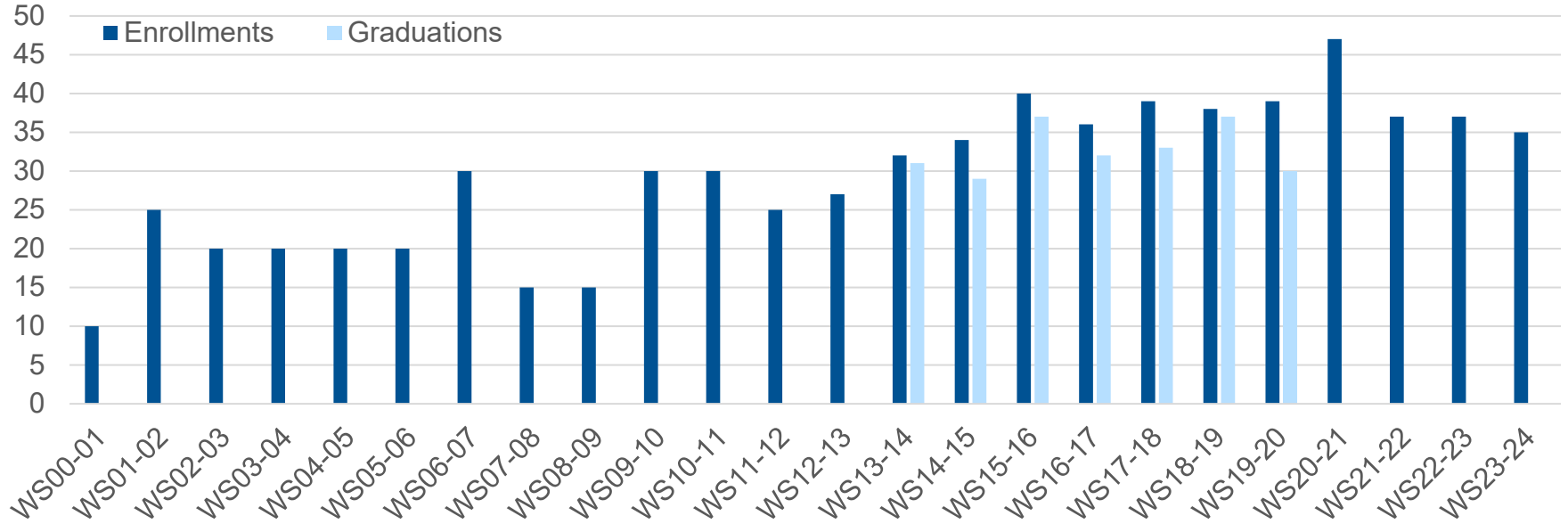
- Numbers
- Introduction to the Examination Regulations
- Study Plan/Curriculum
- TUMonline (enrollment, course registration)
- Moodle
- Schedule of courses (1st semester)
- welCoMe week program

Numbers

Applications

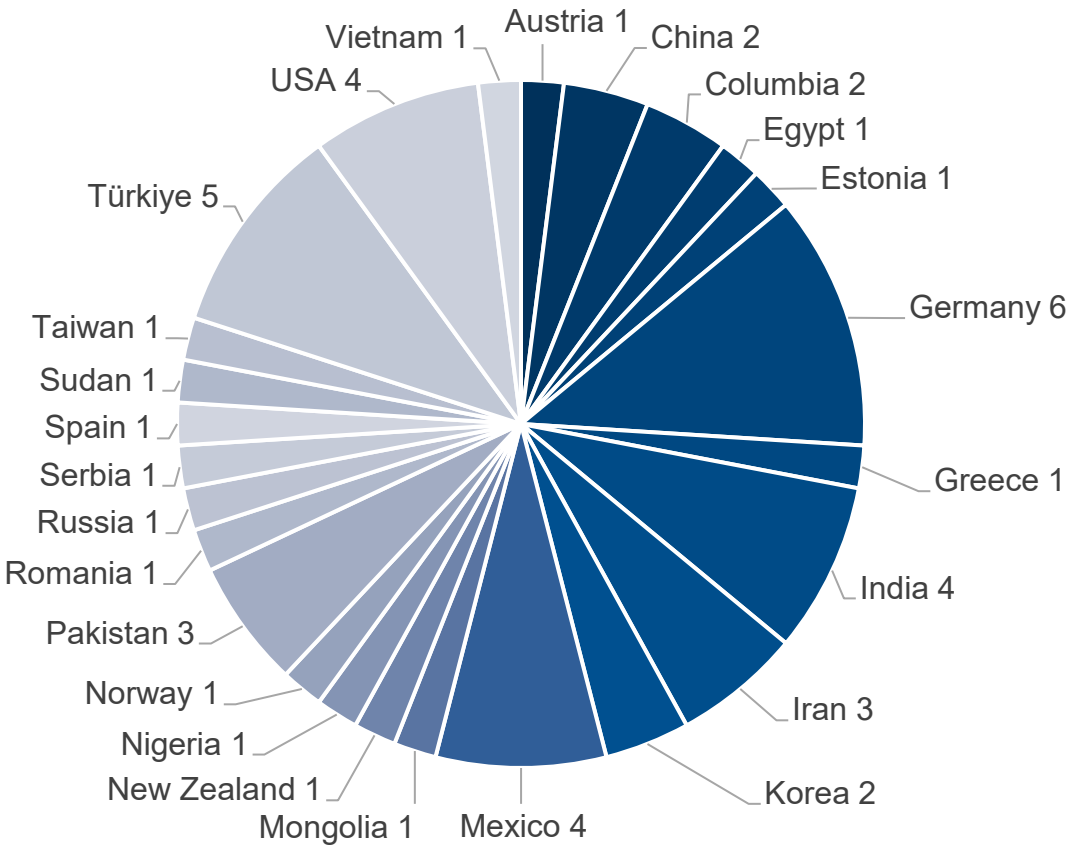


Enrollments and Graduations



Nationalities

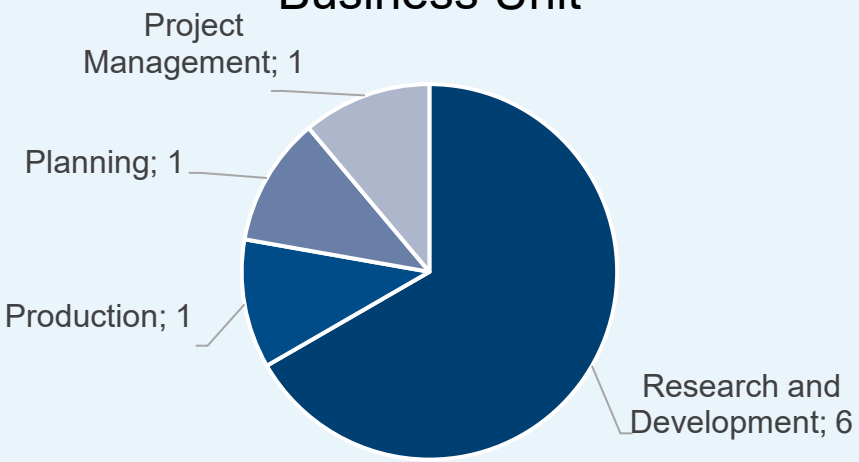
WS 23/24



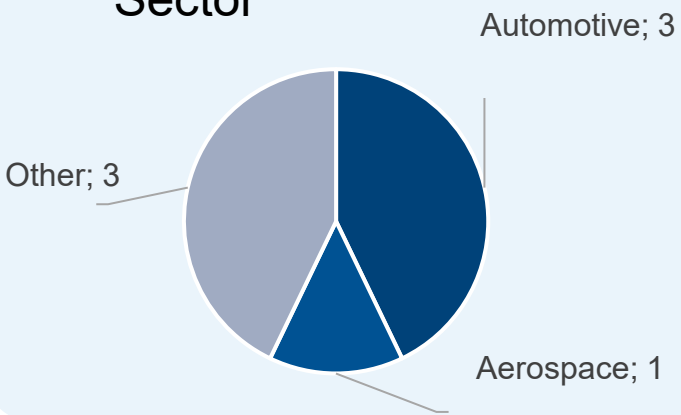
Career

Graduate Poll 2020

Business Unit



Sector

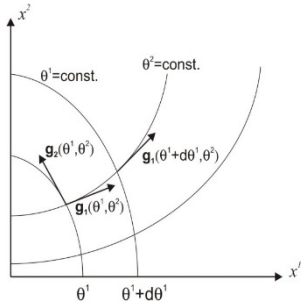


Further areas of activity:

- Structural Engineering (2)
- Software Development (4)

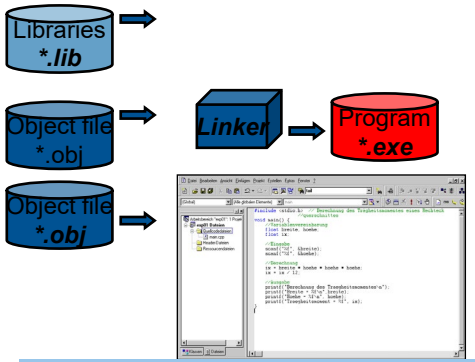
Study Plan and Examination Regulations

Study Content



$$\mu u^i\big|^j_j + (\lambda+\mu)u^j\big|^i_j - \rho \ddot{u}^i = 0$$

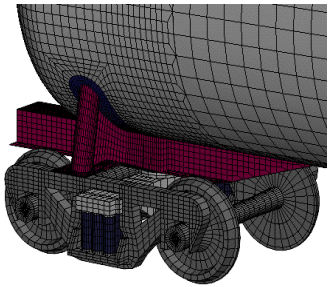
Derivation of differential equations for the description of mechanical systems

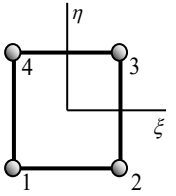


Implementation in software

Solution of technical problems using numerical methods

$$\mathbf{K} = \int_{-1}^{1}\int_{-1}^{1} t\,\mathbf{B}^T \cdot \mathbf{C} \cdot \mathbf{B}\,|J|\,d\xi d\eta$$





Numerical solution methods

Examination regulations

Standard study period: 4 Semesters (including Master‘s Thesis)

Compulsory Courses

36 Credit Points

Core Elective Courses

in catalogues
Mechanics
&
Computation

24 Credit Points

General Education Courses

3 Credit Points

General Elective Courses

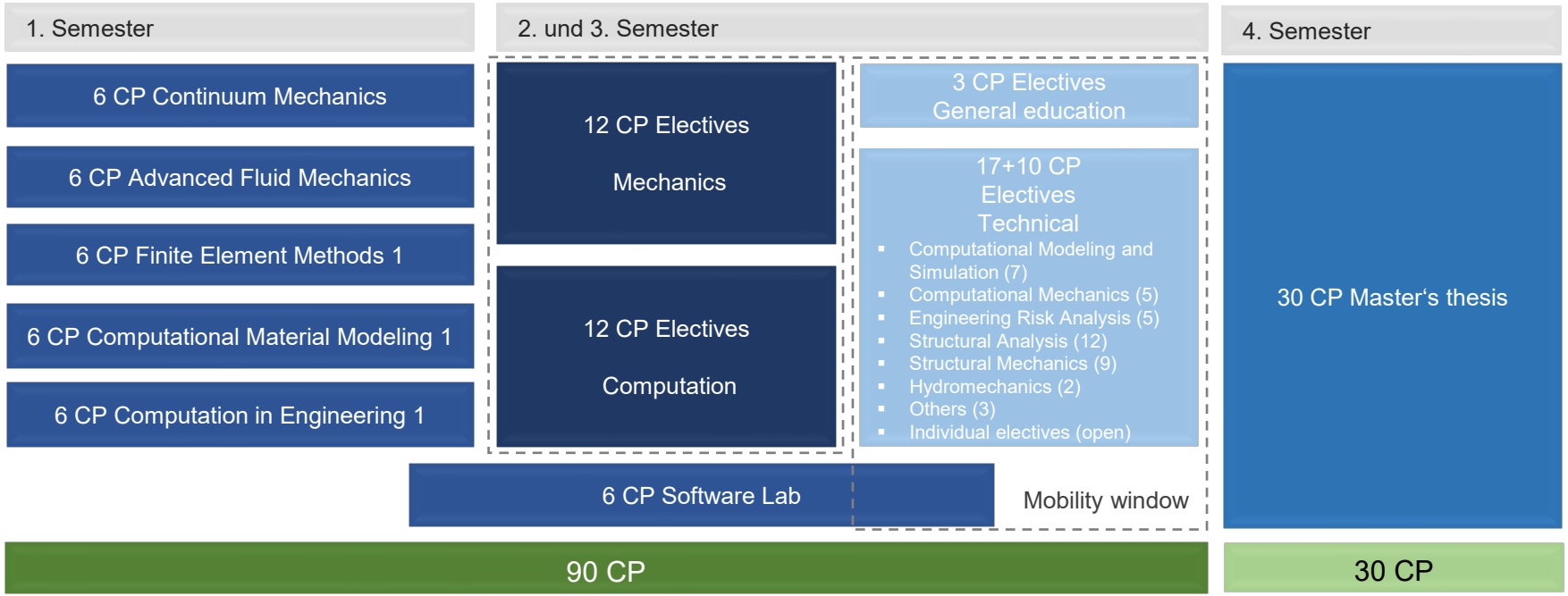
27 Credit Points
(Minimum)

Master‘s thesis

30 Credit Points

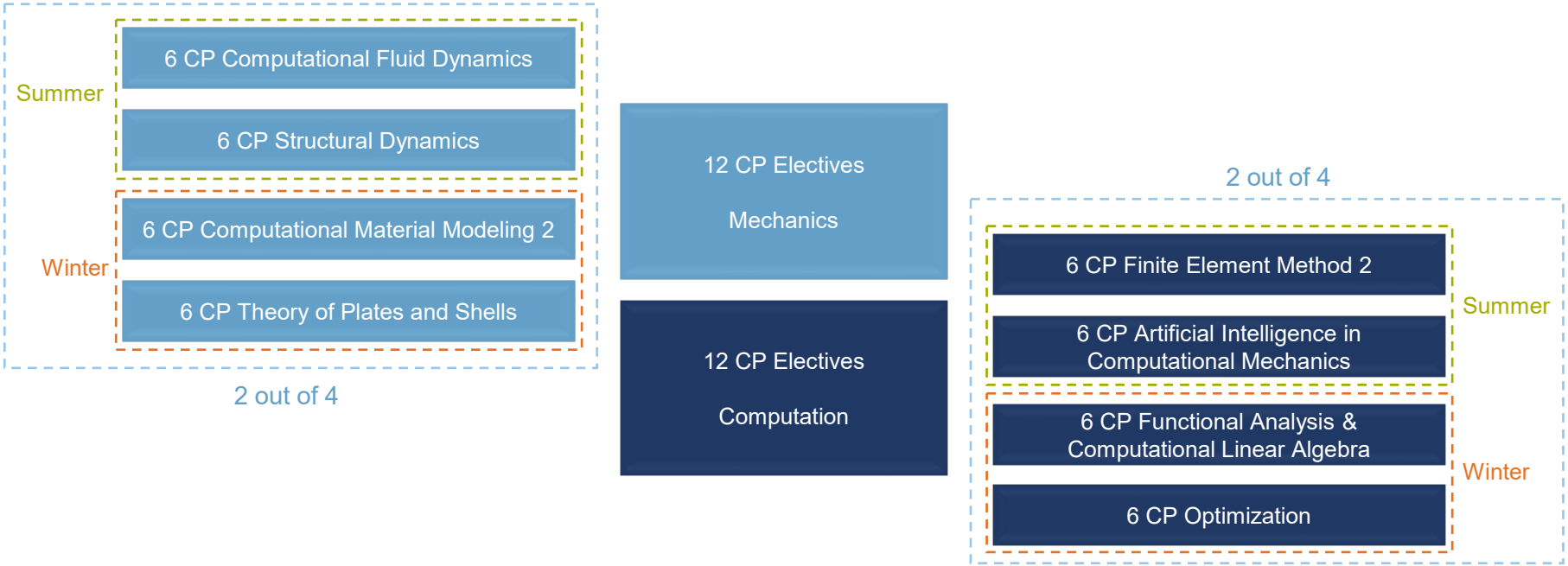
Minimum number of credits: 120 CP

Study Plan/Curriculum



Study Plan/Curriculum (Core Electives 2nd & 3rd semester)

12 CP (2 modules) per electives catalogue



Study Plan/Curriculum (Electives)

- Technical Elective Courses (27 Credits):
  - available courses published at https://wiki.tum.de/display/edschooloffice/Curriculum
  - 17 out of 27 credits have to be from this curriculum
  - 10 out of 27 credits can be accredited as individual elective courses
    (that means selection from the complete module catalog of TUM is possible)

    All individual elective courses have to be approved by the course coordinator.

Study Plan/Curriculum (General Electives)

- General Elective Courses (3 Credits):
  - available courses published at https://collab.dvb.bayern/display/TUMedschooloffice/Curriculum
  - 3 credits have to be taken
  - Language courses, Carl von Linde-Akademie (https://www.cvl-a.mcts.tum.de),...
  - Please make suggestions, if you would like to include a specific course

Study Progress Regulations

One compulsory exam has to be passed after two semesters

Minimum credits:

- 30 credits after 3 semesters
- 60 credits after 4 semesters
- 90 credits after 5 semesters
- 120 credits after 6 semesters

→ Maximum duration of study: 6 semesters

The study regulations for the master´s program Computational Mechanics
are published in the CoMe-Wiki, please visit
https://collab.dvb.bayern/x/Q9dfB

Proof of Basic German Language Proficiency

A certificate of basic proficiency in German is required until the end of the second semester (30.09.2024)

Required level: A1.1 or higher

Possible Courses

- TUM language center: https://www.sprachenzentrum.tum.de/en/sprachenzentrum/languages/german/
- Any German course offered at an institute (e.g. University Munich, Goethe-Institute, Volkshochschule, …) or online

Send your proof (certificate or exam result) to Mrs. Göppel (christine.goeppel@tum.de)

Exam Registration

Via TUMonline (www.tumonline.de)

Registration Periods:

winter term:	1st – 31st January
summer term:	1st – 31st July

Cancellation possible until 3 days before the exam

Exam Review

Right to a post-exam review

Different procedures at the chairs:

- General date announced by the chair
- Registration necessary via e-mail or online
- Individual appointment upon request

→ Check with the course supervisor if you want to review your exam

Important Webpages and Further Information

TUMonline – www.tumonline.de

- TUM-Wiki:

  https://collab.dvb.bayern/display/TUMdocs/Students

- Course Registration:

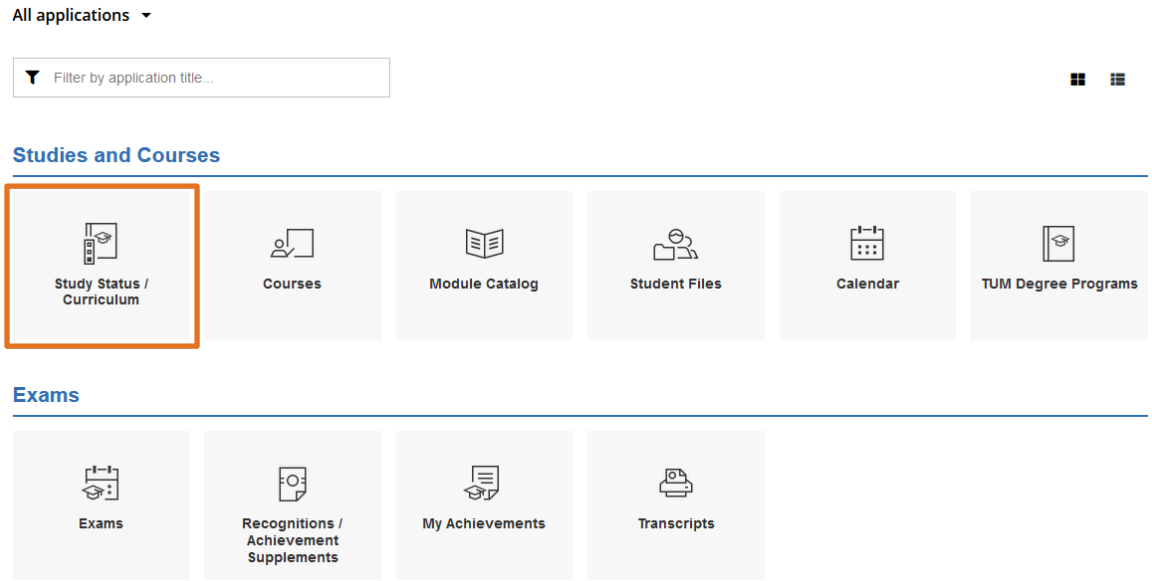
  https://www.tum.de/en/studies/during-your-studies/organizing-your-studies/course-offerings

- YouTube - Tutorials:

  - general information: https://www.youtube.com/watch?v=e-67iU_DH34
  - TUM student info channel:
    https://www.youtube.com/channel/UCx0umWxDASjFmTYlttdkelA

TUMonline – Course Registration

We recommend to register for courses via “Study Status / Curriculum”:



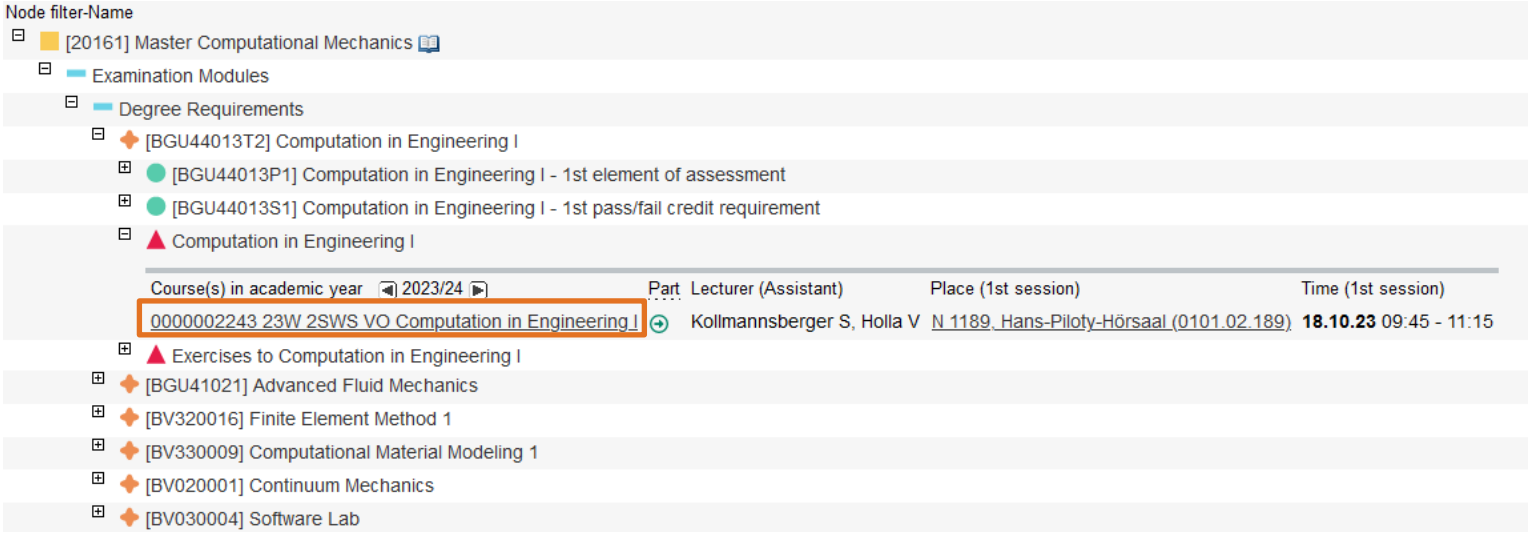
TUMonline – Course Registration

Select the program “Computational Mechanics”

ID of degree programme	Name of degree programme	Curriculum
1630 06 671	[redacted]	20211
1630 17 310	[redacted]	20161
1630 16 331	Computational Mechanics	20161

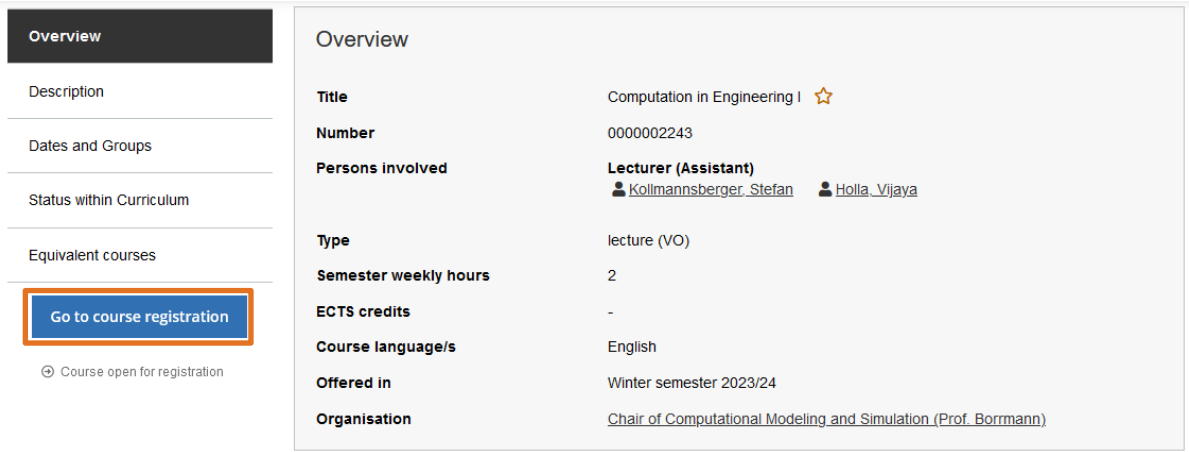
TUMonline – Course Registration

Uncollapse the required modules and click on the link for the registration



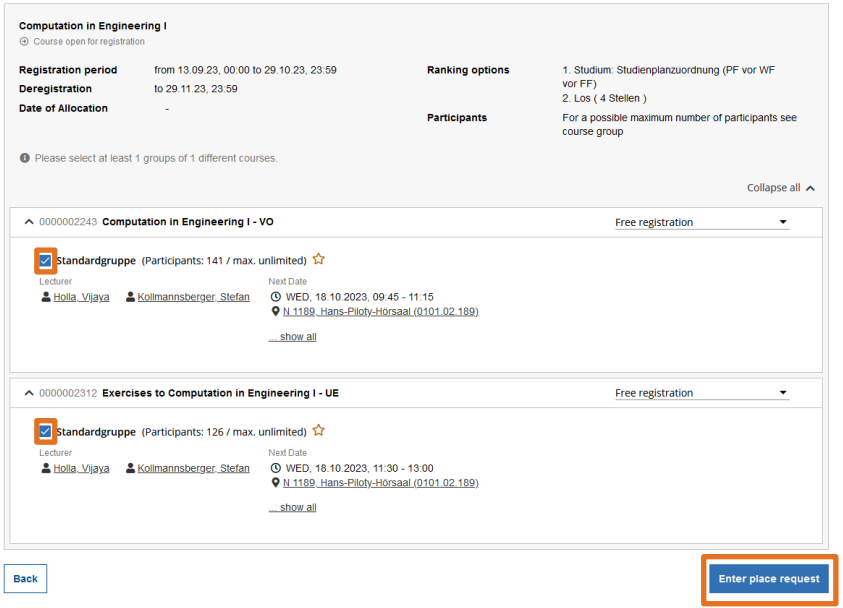
TUMonline – Course Registration

Click on “Go to course registration”



TUMonline – Course Registration

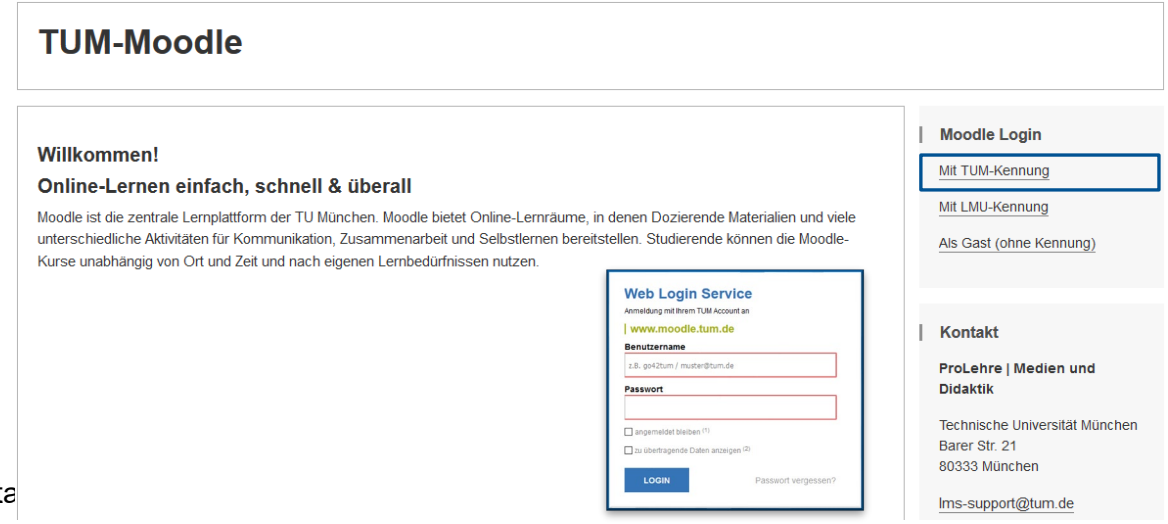
Select “Standardgruppe” and place your request



Moodle – www.moodle.tum.de

Moodle = e-learning platform of TUM

- Lectures provide there their supporting material (lecture notes, task sheets, …)
- Login also with @tum address and TUMonline password
- Registration for courses is transferred automatically from TUMonline



Website – www.come.tum.de

- Web presence at www.come.tum.de, directing to

  https://www.ed.tum.de/en/ed/studies/degree-program/computational-mechanics-m-sc/

- Most of the detailed information can now be found on our Wiki page

  https://wiki.tum.de/display/edschooloffice/M.Sc.+Computational+Mechanics

Schedule of courses (1st semester)

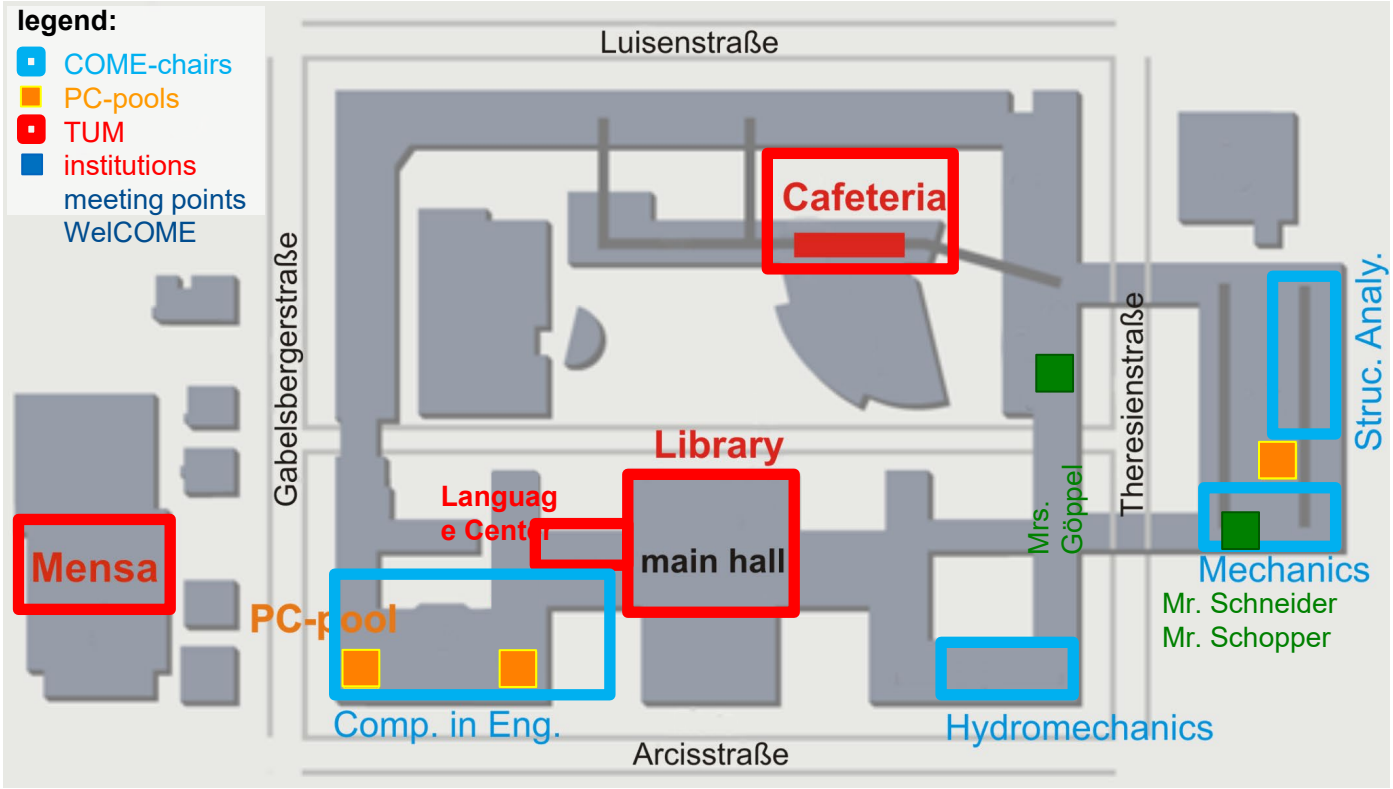
Timetable 1st Semester (on Wiki)

	Monday	Tuesday	Wednesday	Thursday	Friday
8.00	**Advanced Fluid Mechanics (comp.)** (Manhart) 2750	**Advanced Fluid Mechanics (comp.)** (Manhart) N1189	**Introd. to Finite Element Methods (comp.)** (Bletzinger) 1200		**Continuum Mechanics (comp.)** (Müller) N 1090
8.30					
9.00			"belongs to the Module "Finite Element Methods 1"		
9.30			**Computation in Engineering 1 (comp.)** (Kollmannsberger) N1189	**Computational Material Modeling 1 (comp.)** (Duddeck) 2100	**Continuum Mechanics (comp.)** (Müller) N 1090
10.00					
10.30					
11.00					
11.30	**Seminar Fluid Mechanics (comp.)** (Manhart) Online		**Exercises to Computation in Engineering 1 (comp.)** (Kollmannsberger) 2300	**Computational Material Modeling 1 (comp.)** (Duddeck) 2100	
12.00					
12.30	"You have to visit only one of these tutorials per week.				
13.00					
13.30		**Theory of Plates* (comp. el.)** (Bletzinger) N1190	**Introd. to Finite Element Methods (comp.)** (Bletzinger) N1189	**Seminar Fluid Mechanics (comp.)** (Manhart) N1039	**FE-Modelling, Simulation & Validation (comp.)** (Duddeck) cip pool 3238
14.00					
14.30		"belongs to the Module "Theory of Plates and Shells"	"belongs to the Module "Finite Element Methods 1"	"You have to visit only one of these tutorials per week.	"belongs to the Module "Finite Element Methods 1"
15.00		**Seminar Continuum Mechanics (comp.)** (Müller) N1070	**Seminar Fluid Mechanics (comp.)** (Manhart) 2770	**Seminar Computational Material Modelng (comp.)** (Duddeck) 2100	
15.30					
16.00		"not every week, dates will be announced in lecture	"You have to visit only one of these tutorials per week.		
16.30		**Tutorial Theory of Plates* (comp. el.)** (Bletzinger) N1179/2300			
17.00					
17.30		"belongs to the Module "Theory of Plates and Shells"			
18.00					
18.30					

Structural Analysis (Bletzinger) | Structural Mechanics (Müller) | Computation in Engineering (Rank) | Hydromechanics (Manhart) | Faculty for Informatics

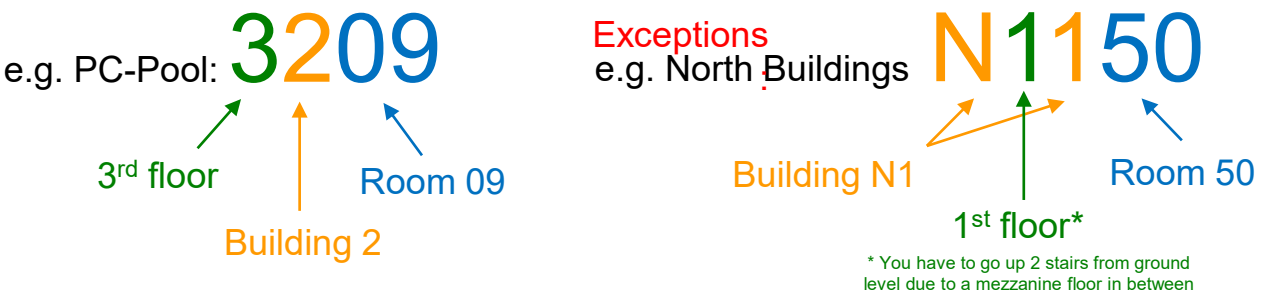
Mathematics | Engineering Risk Analysis (Straub) | Computational Mechanics (Duddeck) | comp. = compulsory | el. = elective

Locations on Main Campus



Room Numbering at TUM

- Room Numbers at TUM Main Campus (Arcisstr.):



TUM-RoomFinder: https://portal.mytum.de/campus/roomfinder

University Sports Center

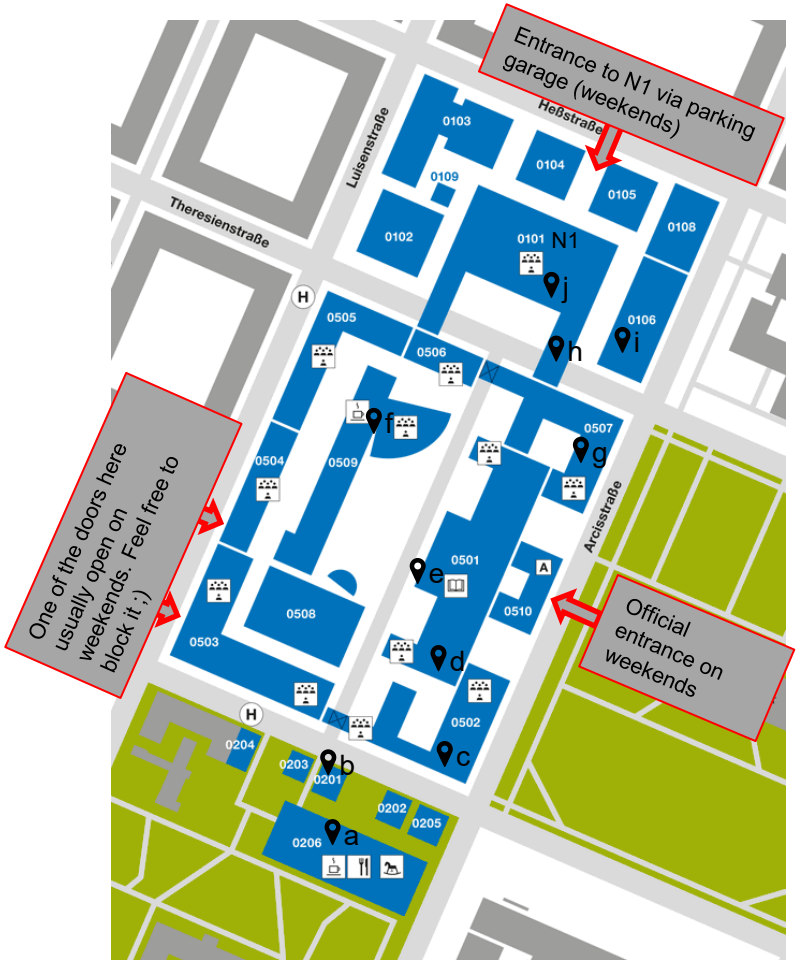
- Classes in sports, climbing, fitness and health, and much more…

https://www.zhs-muenchen.de

WelCoMe week

Schedule of the WelCoMe week

	Monday	Tuesday	Wednesday	Thursday	Friday
Morning	08:30 - 10:00 **Welcome Address** Room 2770	09:00 - 10:30 **Introduction to Programming in C++** online/room 3238	09:00 - 12:00 **Introduction to Programming in C++** online/room 3238	09:00 - 12:00 **Introduction to Programming in C++** online/room 3238	09:00 - 12:00 **Introduction to Programming in C++** online/room 3238
	10:00 - 11:00 **Campus Tour** starting after welcome address				
	11:00 - 12:00 **Library Tour** meeting point: in front of the library on main campus				
	Lunch Break				
Afternoon	13:15 - 16:45 **Introduction to Programming in C++** Room 1100	13:15 - 16:45 **Introduction to Programming in C++** online/room 3238	13:15 - 16:45 **Introduction to Programming in C++** online/room 3238	13:15 - 16:45 **Introduction to Programming in C++** online/room 3238	13:15 - 16:45 **Introduction to Programming in C++** online/room 3238
	17:00 – 18:00 **Office Hour Prof. Duddeck** t.b.a.				17:00 - 19:00 **Guided City Tour** Meeting point: in front of Mensa Arcisstraße
	18:00 **Potluck Dinner** Vorhoelzer Forum (take elevator to foruth floor, from there take stairs)				



a	Mensa
b	StudiTUM (for all TUM students)
c	3238: CIP-Pool → C++ exercises take place here 3209: CIP-Pool (on opposite side of building)
d e	3rd floor: Chair of Computational Modeling and Simulation – Prof. Borrmann 5th floor: Vorhoelzer – Potluck Dinner
    f	Ground floor: Studenten Service Zentrum Validation machines for student card First floor: Library
g	Stu-Café
  h	Chair of Hydromechanics – Prof. Manhart First/second floor: 2710 & 3701: Study rooms (for BGU students)
i	N1160: Study room (for BGU students)
j	Chair of Computational Mechanics – Prof. Duddeck
	Chair for Structural Mechanics – Prof. Müller & Chair of Structural Analysis – Prof. Bletzinger Ground floor: CIP-Pool N0199a

Scan this to download map

Potluck Dinner

- Bring your own food
  - A regular portion is enough
  - No heating or cooling available
  - Bring something that you like yourself or that is traditional in your home country
- All food is shared
- We provide drinks

City Tour

City tour from 5 to 7 pm

- 2 hour walk to the city centre
- Check weather forecast and bring rain-proof clothes if necessary

Hofbräuhaus afterwards – Drinks and Dinner

Thank you for your attention!

Have a great start at TUM and enjoy your

Master‘s in

Computational Mechanics