

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

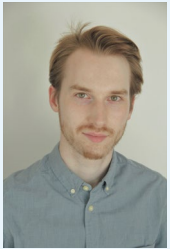


Chair of Structural Analysis

Prof. Dr.-Ing. Kai-Uwe Bletzinger



Course Coordinators



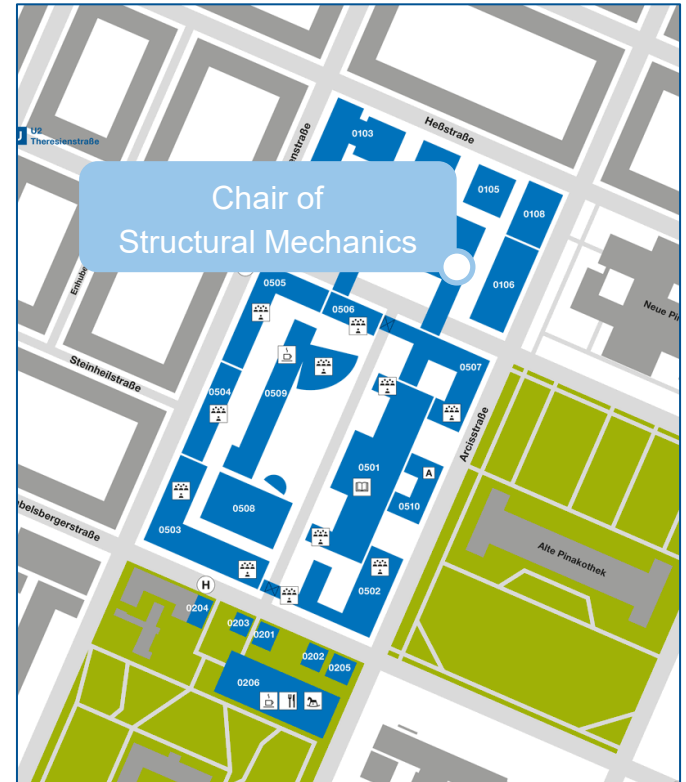
Sebastian Schopper, M.Sc.
Room N1151

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 Administration



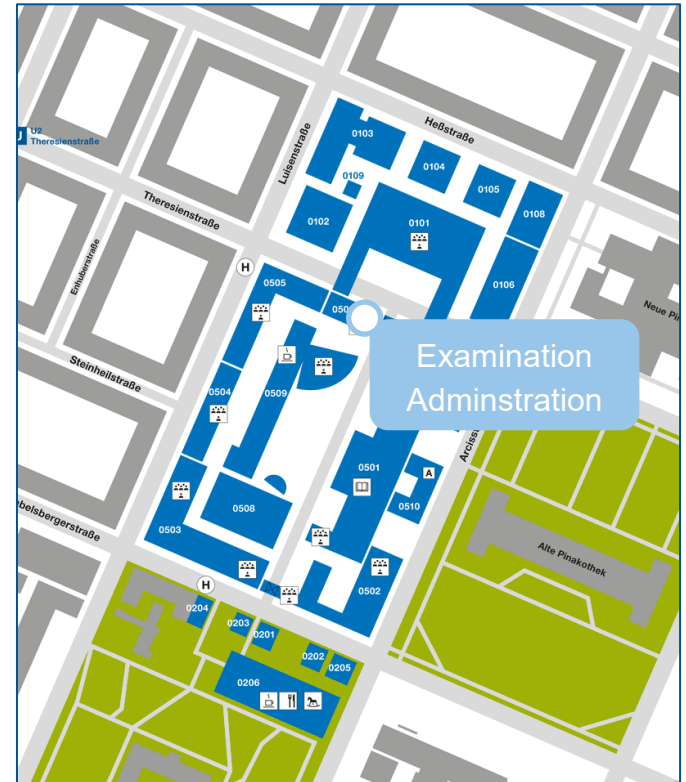
Christine Göppel
Room 1701

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

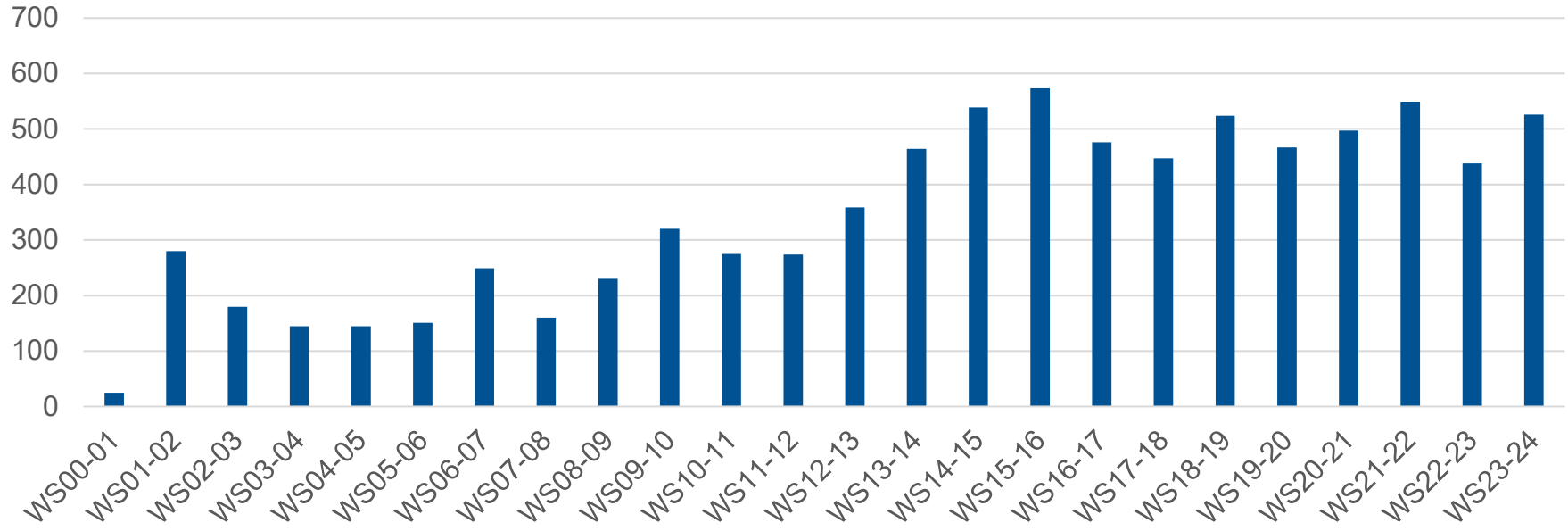


Overview

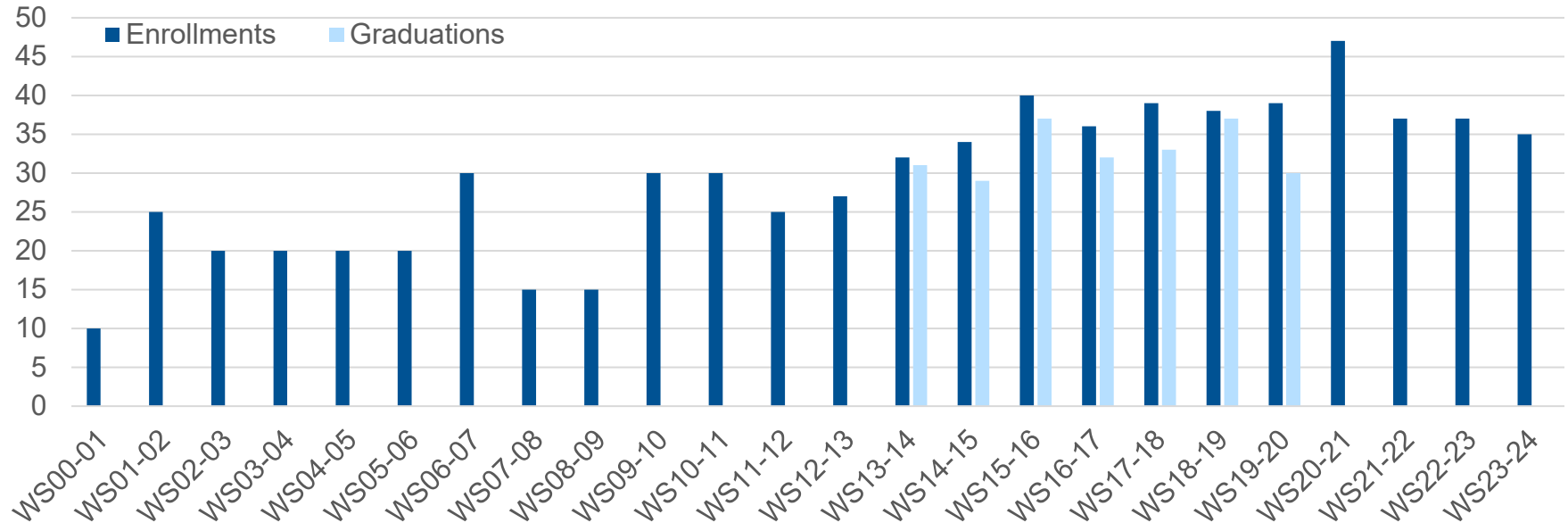
- Numbers
- Introduction to the Examination Regulations
- Study Plan/Curriculum
- TUMonline (enrollment, course registration)
- Moodle
- Schedule of courses (1st semester)
- welCoMe week program

Numbers

Applications

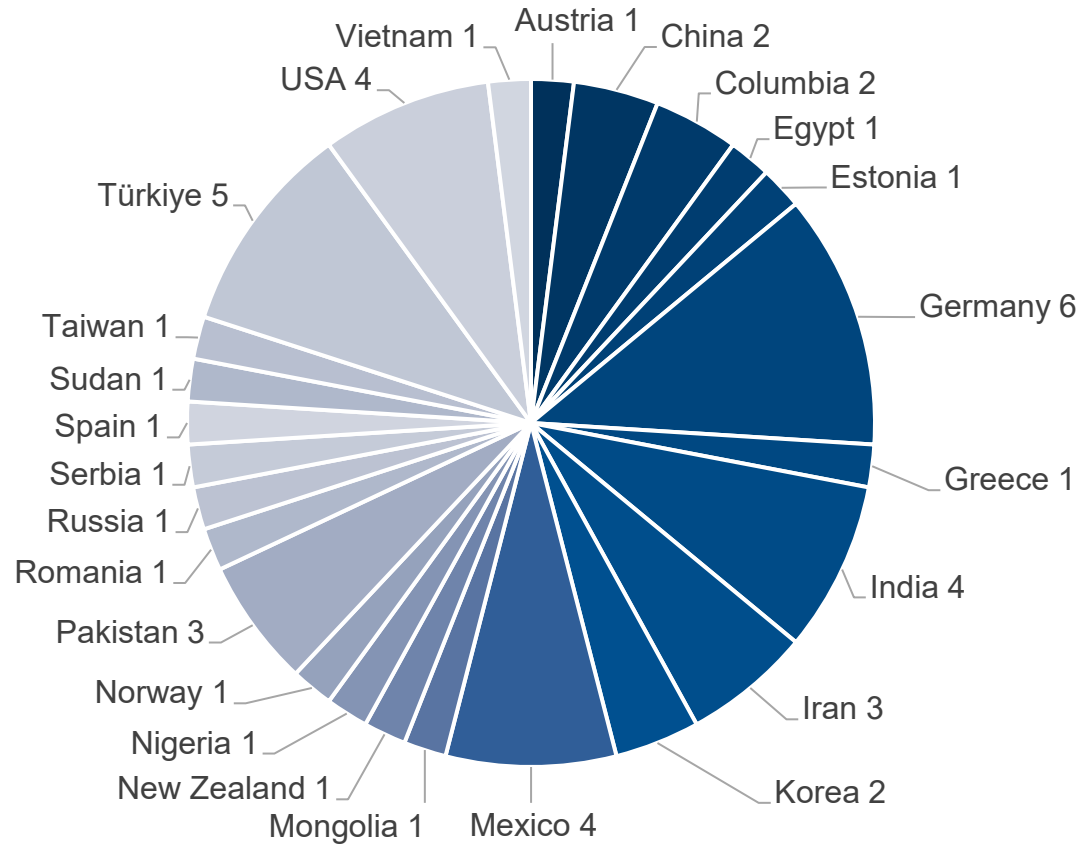


Enrollments and Graduations



Nationalities

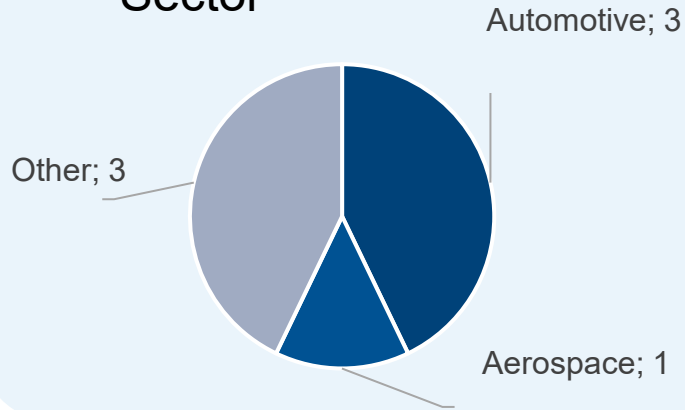
WS 23/24



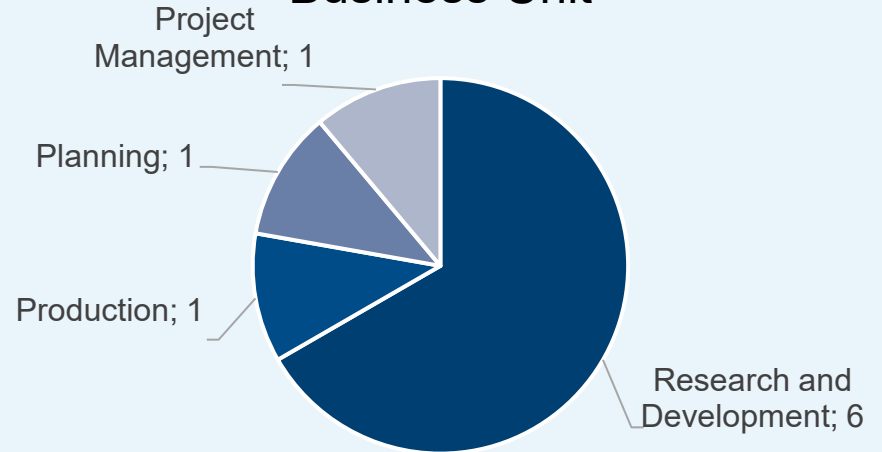
Career

Graduate Poll 2020

Sector



Business Unit

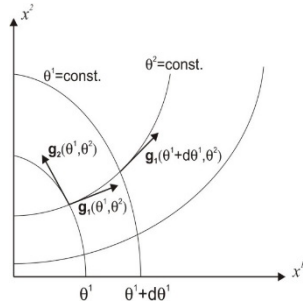


Further areas of activity:

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

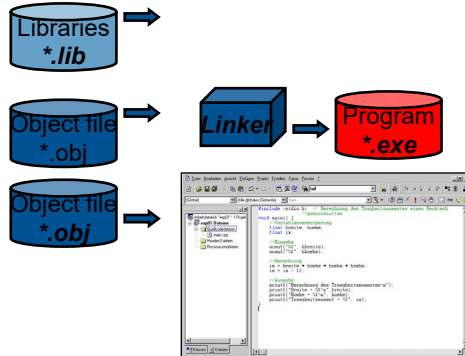
Study Plan and Examination Regulations

Study Content



$$\mu u^i|_j + (\lambda + \mu) u^j|_i - \rho \ddot{u}^i = 0$$

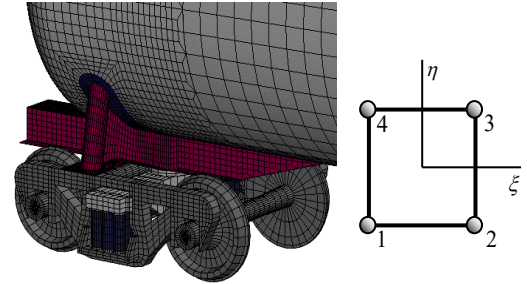
Derivation of differential equations for the description of mechanical systems



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

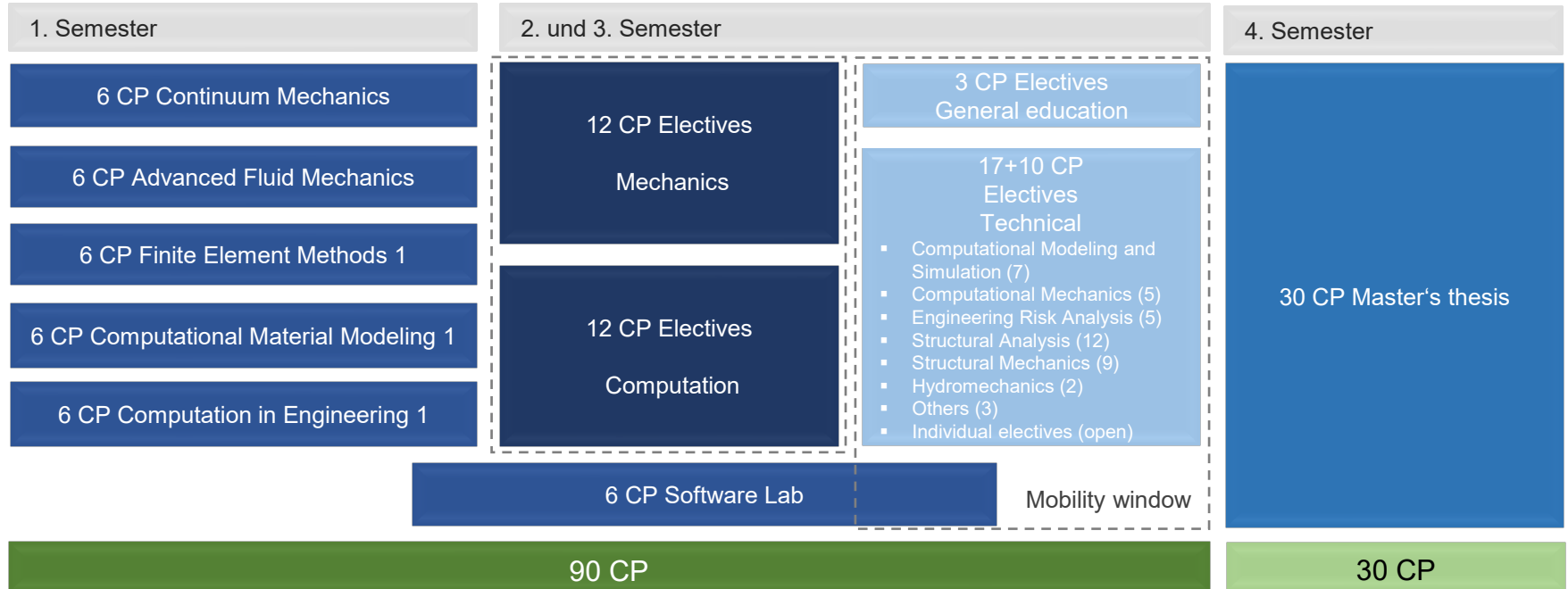
General Education Courses
3 Credit Points

General Elective Courses
27 Credit Points
(Minimum)

Master's thesis
30 Credit Points

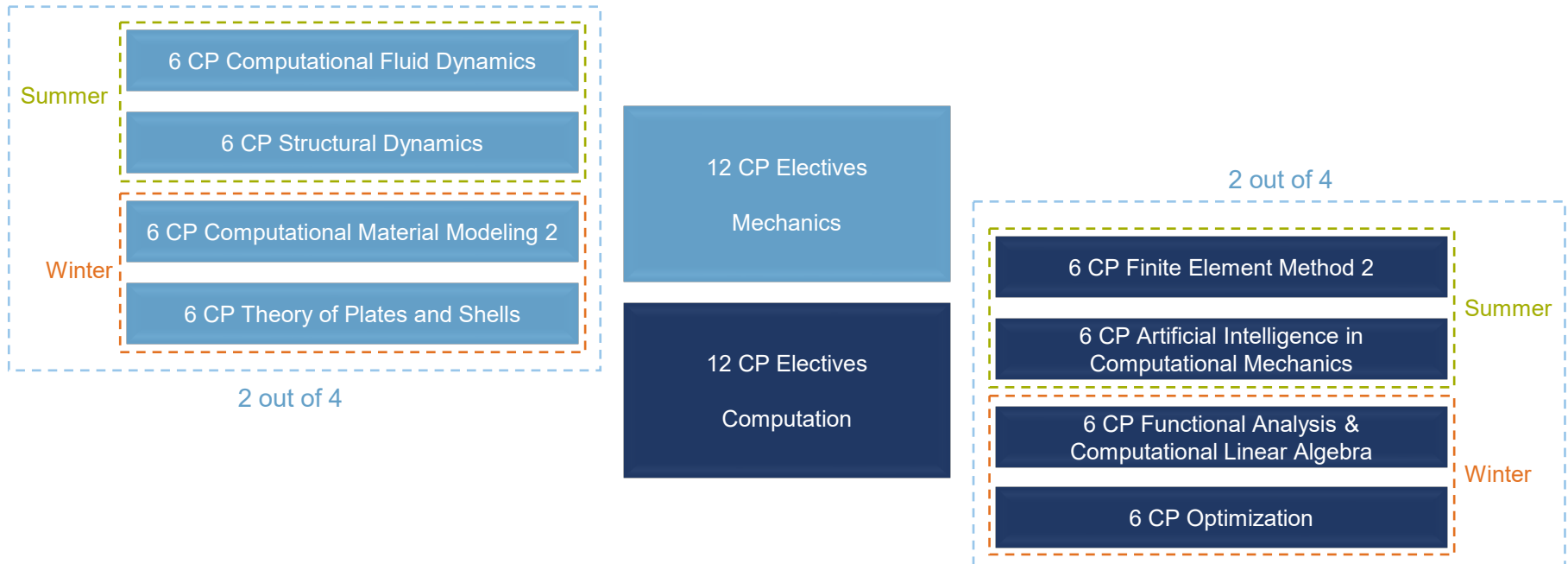
Minimum number of credits: 120 CP

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

The study regulations for the master's program Computational Mechanics are published in the CoMe-Wiki, please visit

<https://collab.dvb.bayern/x/Q9dfB>

→ Maximum duration of study: 6 semesters

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.goepfel@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”:

All applications ▾

Filter by application title...

Studies and Courses

- Study Status / Curriculum**
- Courses
- Module Catalog
- Student Files
- Calendar
- TUM Degree Programs

Exams

- Exams
- Recognitions / Achievement Supplements
- My Achievements
- Transcripts

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

Node filter-Name

- [-] [20161] Master Computational Mechanics 
- [-] Examination Modules
- [-] Degree Requirements
 - [-] [BGU44013T2] Computation in Engineering I
 - [-] [BGU44013P1] Computation in Engineering I - 1st element of assessment
 - [-] [BGU44013S1] Computation in Engineering I - 1st pass/fail credit requirement
 - [-] ▲ Computation in Engineering I

Course(s) in academic year	Part	Lecturer (Assistant)	Place (1st session)	Time (1st session)
0000002243 23W 2SWS VO Computation in Engineering I	+	Kollmannsberger S, Holla V	N 1189, Hans-Piloty-Hörsaal (0101.02.189)	18.10.23 09:45 - 11:15
 - [-] ▲ Exercises to Computation in Engineering I
 - [-] [BGU41021] Advanced Fluid Mechanics
 - [-] [BV320016] Finite Element Method 1
 - [-] [BV330009] Computational Material Modeling 1
 - [-] [BV020001] Continuum Mechanics
 - [-] [BV030004] Software Lab

TUMonline – Course Registration

Click on “Go to course registration”

Overview

Description

Dates and Groups

Status within Curriculum

Equivalent courses

Go to course registration

☺ Course open for registration

Overview

Title	Computation in Engineering I ☆
Number	000002243
Persons involved	Lecturer (Assistant) Kollmannsberger_Stefan Holla_Vijaya
Type	lecture (VO)
Semester weekly hours	2
ECTS credits	-
Course language/s	English
Offered in	Winter semester 2023/24
Organisation	Chair of Computational Modeling and Simulation (Prof. Bormann)

TUMonline – Course Registration

Select “Standardgruppe” and place your request

Computation in Engineering I
Course open for registration

Registration period	from 13.09.23, 00:00 to 29.10.23, 23:59	Ranking options	1. Studium: Studienplanzuordnung (PF vor WF vor FF) 2. Los (4 Stellen)
Deregistration	to 29.11.23, 23:59	Participants	For a possible maximum number of participants see course group
Date of Allocation	-		

Please select at least 1 groups of 1 different courses.

Collapse all

0000002243 **Computation in Engineering I - VO** Free registration

Standardgruppe (Participants: 141 / max. unlimited)

Lecturer

Next Date
 WED, 18.10.2023, 09:45 - 11:15
 N.1189_Hans-Piloty-Horsaal (0101.02.189)
[...show all](#)

0000002312 **Exercises to Computation in Engineering I - UE** Free registration

Standardgruppe (Participants: 126 / max. unlimited)

Lecturer

Next Date
 WED, 18.10.2023, 11:30 - 13:00
 N.1189_Hans-Piloty-Horsaal (0101.02.189)
[...show all](#)

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

TUM-Moodle

Willkommen!

Online-Lernen einfach, schnell & überall

Moodle ist die zentrale Lernplattform der TU München. Moodle bietet Online-Lernräume, in denen Dozierende Materialien und viele unterschiedliche Aktivitäten für Kommunikation, Zusammenarbeit und Selbstlernen bereitstellen. Studierende können die Moodle-Kurse unabhängig von Ort und Zeit und nach eigenen Lernbedürfnissen nutzen.

Web Login Service

Anmeldung mit Ihrem TUM Account an
www.moodle.tum.de

Benutzername

z.B. ga42tum / muster@tum.de

Passwort

angemeldet bleiben (1)

zu übertragende Daten anzeigen (2)

LOGIN

Passwort vergessen?

Moodle Login

[Mit TUM-Kennung](#)

[Mit LMU-Kennung](#)

[Als Gast \(ohne Kennung\)](#)

Kontakt

ProLehre | Medien und Didaktik

Technische Universität München
Barer Str. 21
80333 München

lms-support@tum.de

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

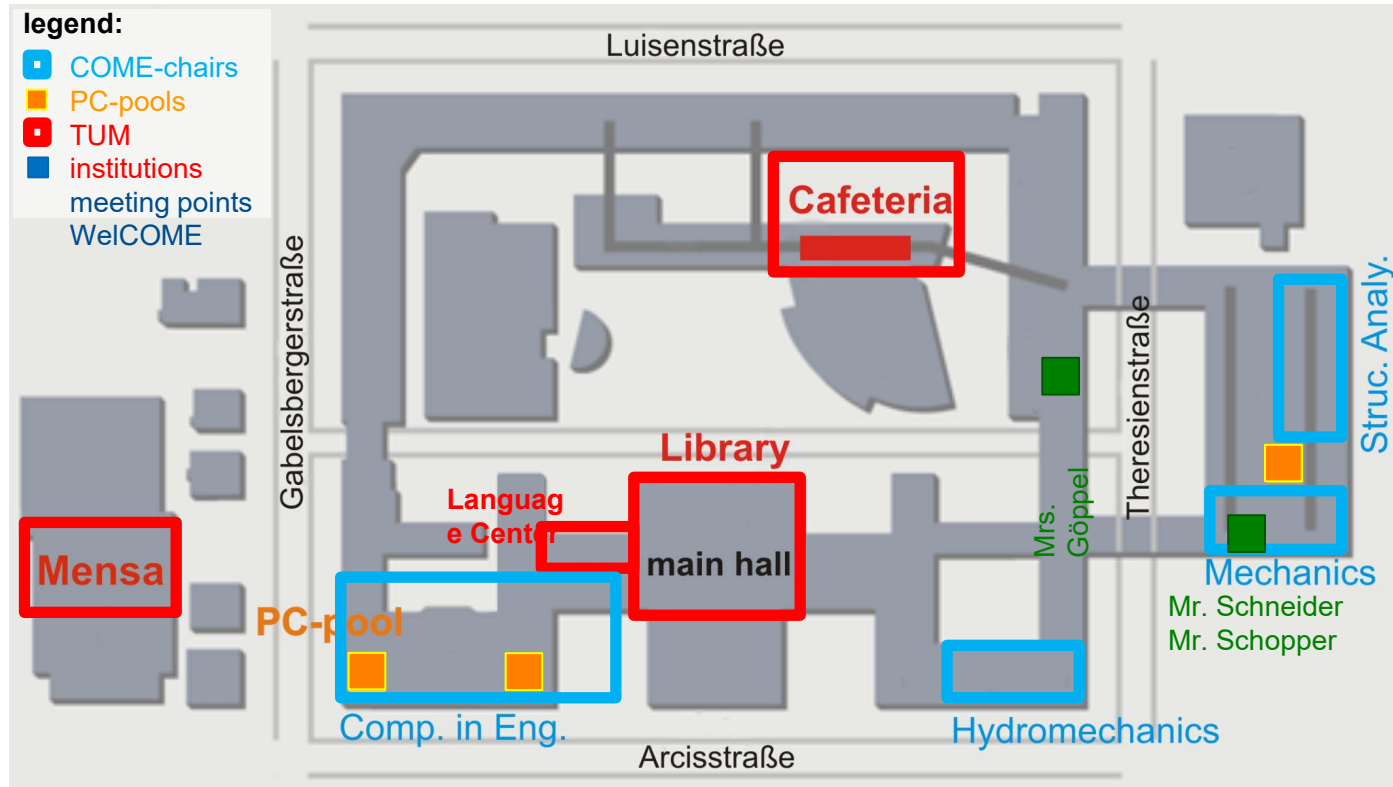
<https://wiki.tum.de/display/edschooloffice/M.Sc.+Computational+Mechanics>

Schedule of courses (1st semester)

Timetable 1st Semester (on Wiki)

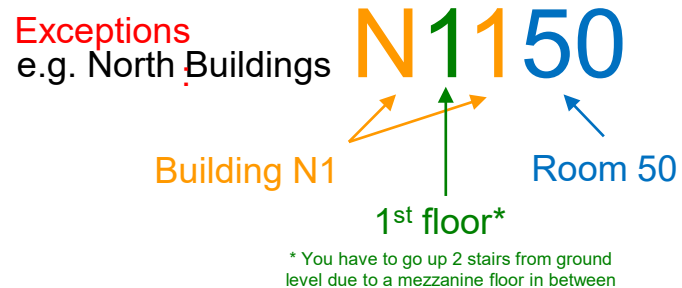
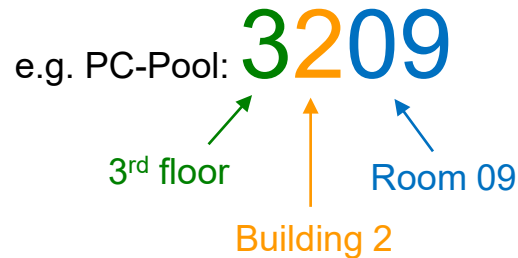
	Monday	Tuesday	Wednesday	Thursday	Friday
8.00	Advanced Fluid Mechanics (comp.) (Manhart) 2750	Advanced Fluid Mechanics (comp.) (Manhart) N1189	Intro. to Finite Element Methods (comp.) (Bletzinger) 1200		Continuum Mechanics (comp.) (Müller) N 1090
8.30					
9.00			belongs to the Module "Finite Element Methods II"		
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	<small>You have to visit only one of these seminars per week.</small>				
13.00		Theory of Plates* (comp. el.) (Bletzinger) N1190	Intro. to Finite Element Methods (comp.) (Bletzinger) N1189	Seminar Fluid Mechanics (comp.) (Manhart) N1039	FE-Modelling, Simulation & Validation (comp.) (Duddeck) cip pool 3238
13.30		belongs to the Module "Theory of Plates and Shells"	belongs to the Module "Finite Element Methods II"	<small>You have to visit only one of these seminars per week.</small>	belongs to the Module "Finite Element Methods II"
14.00					
14.30		Seminar Continuum Mechanics (comp.) (Müller) N1070	Seminar Fluid Mechanics (comp.) (Manhart) N1070	Seminar Computational Material Modeling (comp.) (Duddeck) 2100	
15.00		<small>not every week.</small>			
15.30		<small>will be announced in lecture.</small>	<small>You have to visit only one of these seminars per week.</small>		
16.00		Tutorial Theory of Plates* (comp. el.) (Bletzinger) N1179/2300			
16.30		belongs to the Module "Theory of Plates and Shells"			
17.00					
17.30					
18.00					
18.30					
	Structural Analysis (Bletzinger) Mathematics	Structural Mechanics (Müller) Engineering Risk Analysis (Straub)	Computation in Engineering (Rank) Computational Mechanics (Duddeck)	Hydromechanics (Manhart) comp. = compulsory	Faculty for Informatics 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...

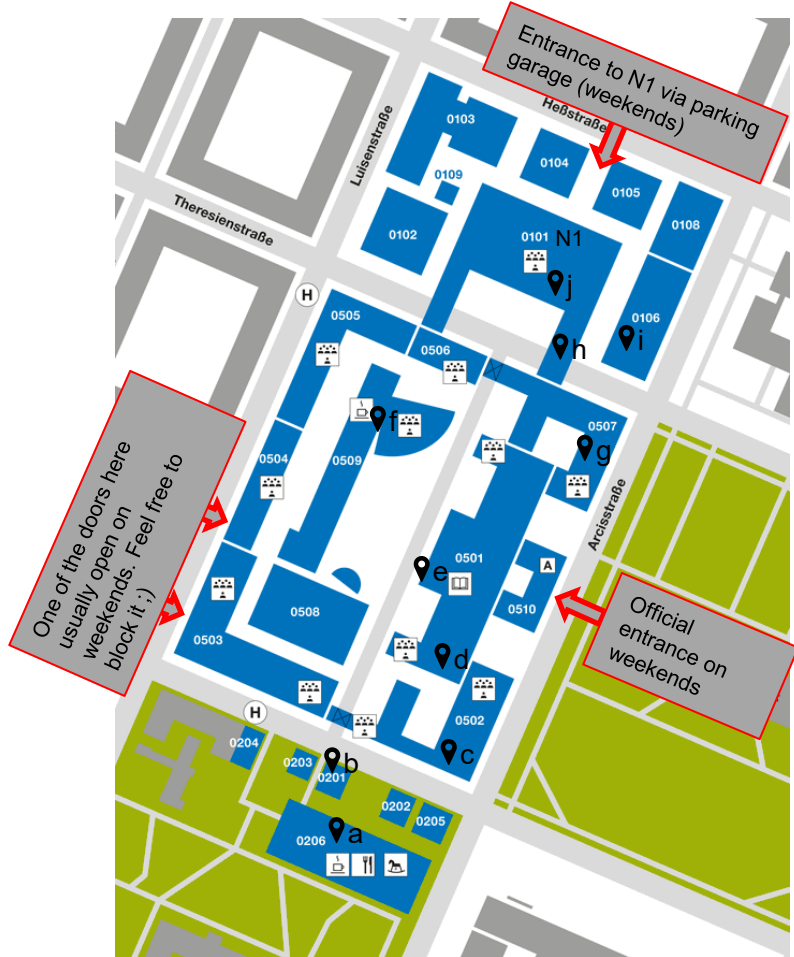








<https://www.zhs-muenchen.de>

WelCoMe week

Schedule of the WelCoMe week

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



📍 _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	3rd floor: Chair of Computational Modeling and Simulation – Prof. Borrmann	🪑
📍 _e	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

