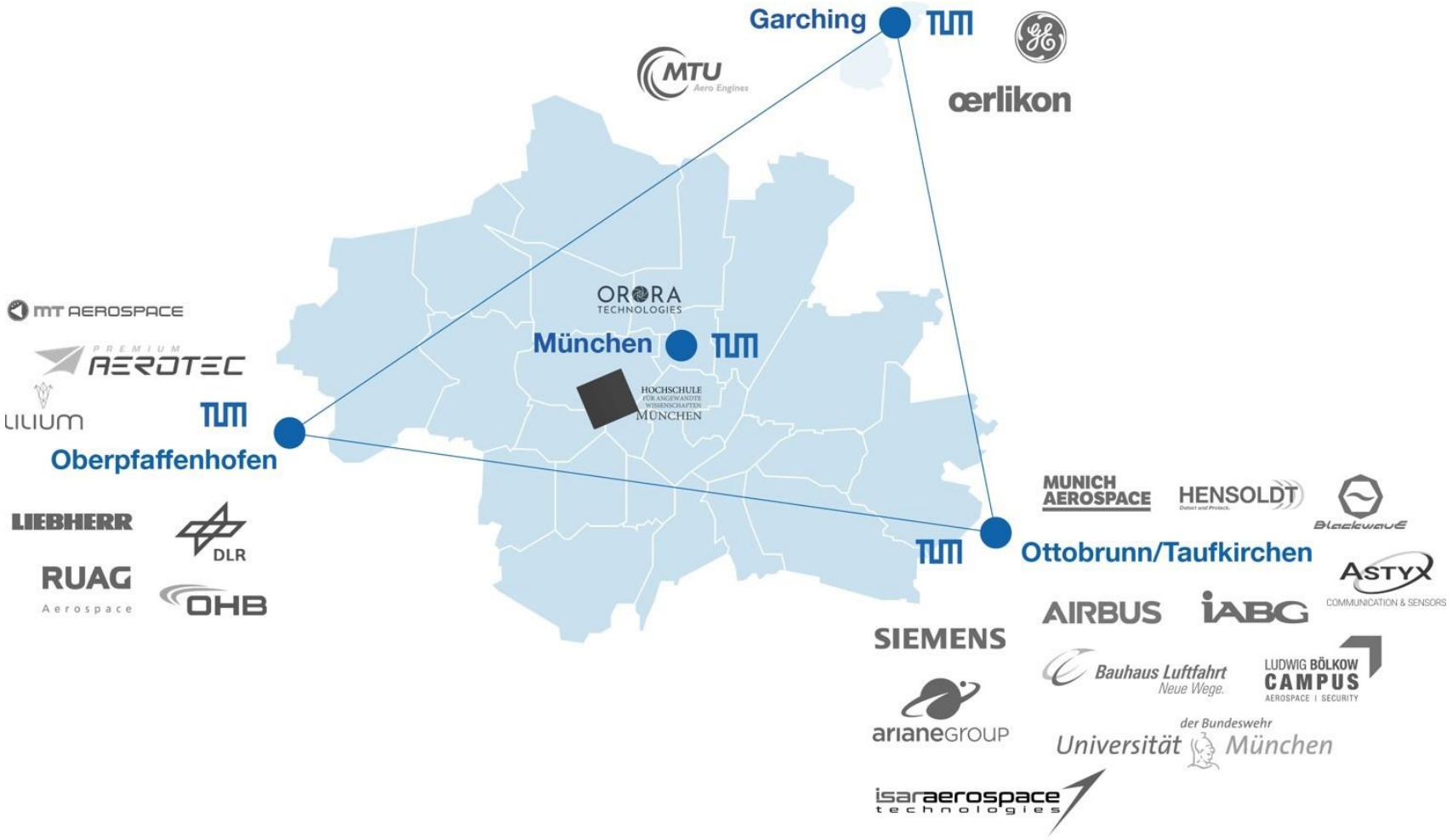
MISSION EARTH

COMPREHENDING OUR WORLD
IS MOVING OUR WORLD

TUM Bachelor Sessions
ED School, B.Sc. Aerospace
Dr. Dimitri Franz

“Space Valley” in the Metropolitan Region of Munich



Since 01.10.2021 → **TUM School of Engineering and Design**

Departments:

Aerospace & Geodesy

Architecture

Civil and Environmental Engineering

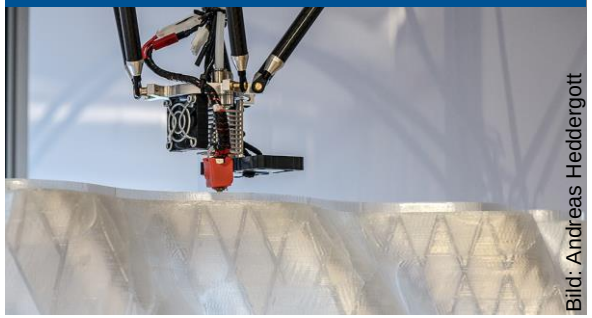
Energy and Process Engineering

Engineering Physics and Computation

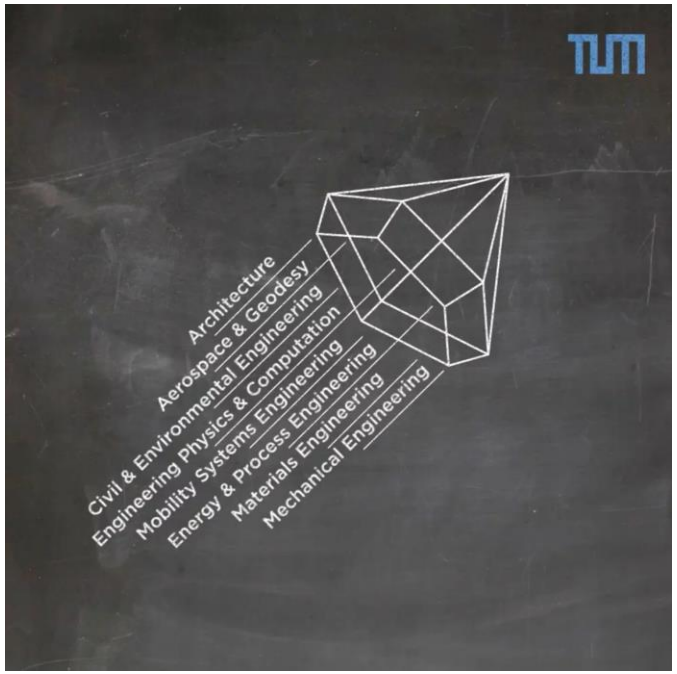
Mechanical Engineering

Mobility Systems Engineering

Materials Engineering



TUM School of Engineering and Design - Departments



YouTube Link: https://www.youtube.com/watch?v=gyF2WpRIZ4k

Figures and Facts - TUM School of Engineering and Design *

Overall Students
(B.Sc., M.Sc.)

ca. 11.600

First-year Students
Bachelor + Master per year

ca. 4.700

Degree Programs

42

Overall Lecturers

124

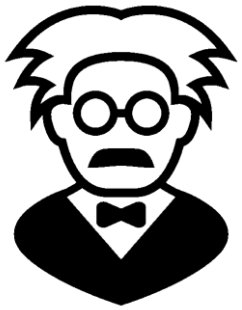
Academic Staff

ca. 1.600

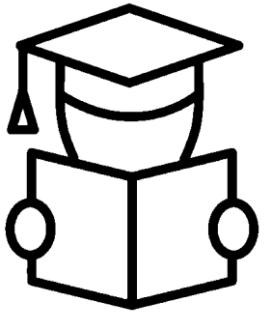
* Numbers from 2022

Department of Aerospace and Geodesy

Launched by TUM on May 9, 2018 as an engineering department



30+
Professors



1000+
Students,
thereof 1/3 female and
1/2 international

5
Locations:
Ottobrunn/Taufkirchen
Garching
Oberpfaffenhofen
Munich
Wettzell

Degree courses

Attractive international study programs with strong focus on practical application and entrepreneurship

- Bachelor:
  - Aerospace
  - Geodesy and Geoinformation
  - Land Management (@LMU)
- Master:
  - Aerospace
  - Aerospace Systems Engineering (with ISAE)
  - Aerospace Engineering (in Singapore)
  - Geodesy and Geoinformation
  - Earth-Oriented Space Science and Technology
  - Cartography
  - Land Management and Geospatial Science

Degree courses

Bachelor Aerospace

- Teaching language: **English**
- Main locations: **Garching and Ottobrunn**
- Interdisciplinary training (e.g. engineering and navigation disciplines)
- Solid basic knowledge for future aerospace engineers
- Career in the international professional field of research and industry
- Sustainable solutions for mobility in times of global, ecological and economic challenges

Professorships

Strengthening future fields of research – bridging between disciplines - attracting ambitious young talents

Aeronautics

Aerospace Aerodynamics
Prof. Christian Breitsamter

Aerospace Structure Design
Fernaß Daoud

Aircraft Design
Prof. Mirko Hornung

Autonomous Aerial Systems
Prof. Markus Ryll

Carbon Composites
Prof. Klaus Drechsler

eAviation
Prof. Sophie Armanini

Flight System Dynamics
Prof. Florian Holzapfel

Rotorcraft and Powered Lift Vehicles
Prof. Ilkay Yavrucuk

Sustainable Future Mobility
Prof. Agnes Jocher

Turbomachinery and Flight Propulsion
Prof. Volker Gümmer

Space

Astronautics
Prof. Ulrich Walter

Lunar and Planetary Exploration Technologies
Prof. Philipp Reiß

Pico and Nano Satellites, and Satellite Constellations
Prof. Alessandro Golkar

Space Propulsion
Prof. Chiara Manfletti

Human Space Flight
Prof. Gisela Detrell

Geodesy

Astronomical and Physical Geodesy
Prof. Roland Pail

Big Geospatial Data Management
Prof. Martin Werner

Cartography and Visual Analytics
Prof. Liqiu Meng

Communication and Navigation (NN)
Prof. Christoph Günther

Data Science in Earth Observation
Prof. Xiaoxiang Zhu

Earth System Modelling
Prof. Niklas Boers

Engineering Geodesy
Prof. Christoph Holst

Geodetic Geodynamics
Prof. Florian Seitz

Geoinformatics
Prof. Thomas Kolbe

Land Management and Land Tenure
Prof. Walter de Vries

Remote Sensing Technology
Dr. Marco Körner

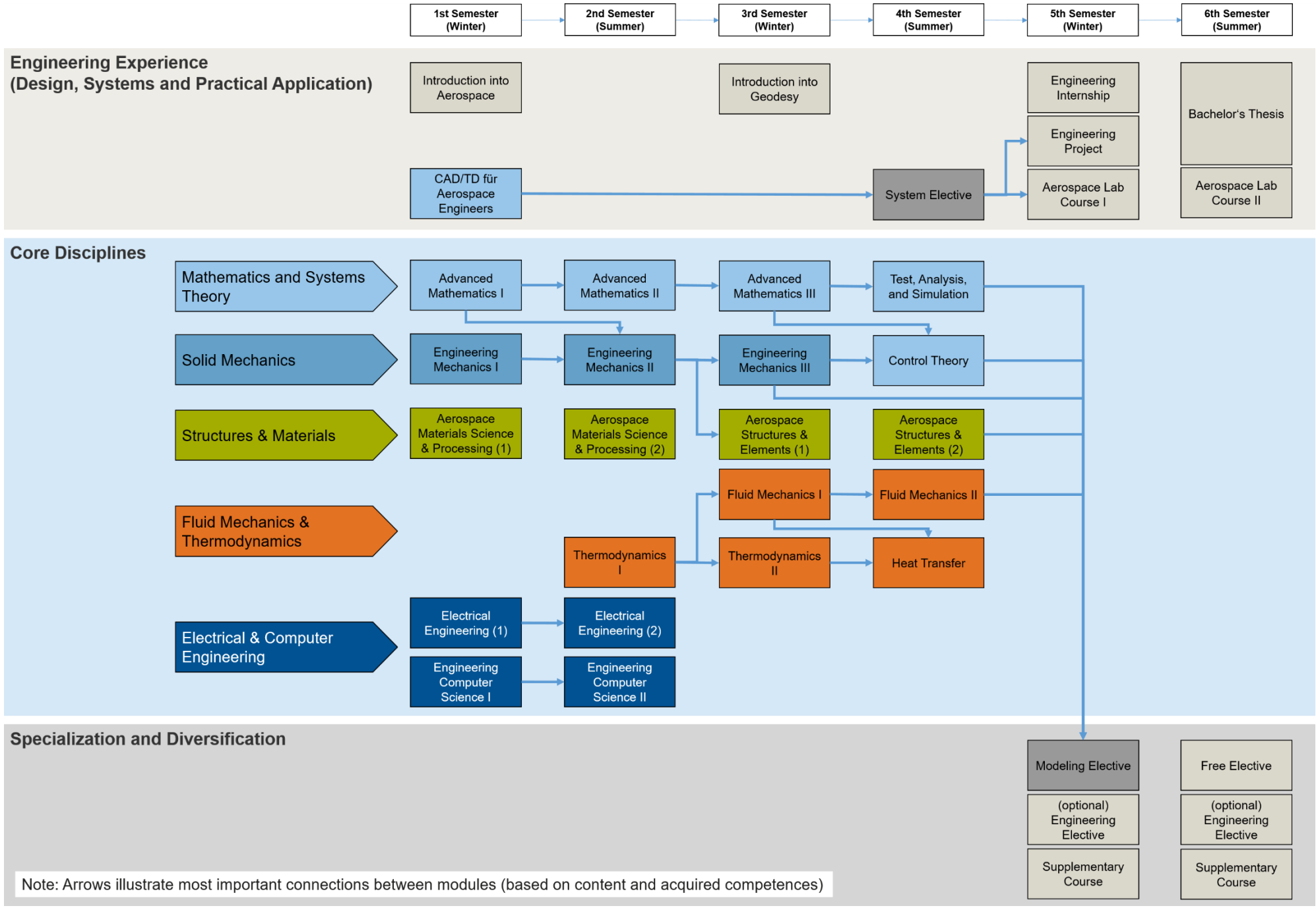
Satellite Geodesy
Prof. Urs Hugentobler

Remote Sensing Appl.
Prof. Katharina Anders

50+ professorships until 2024

Curriculum

- Content: Competences are acquired and build upon each other.
- The program is taught entirely in English.

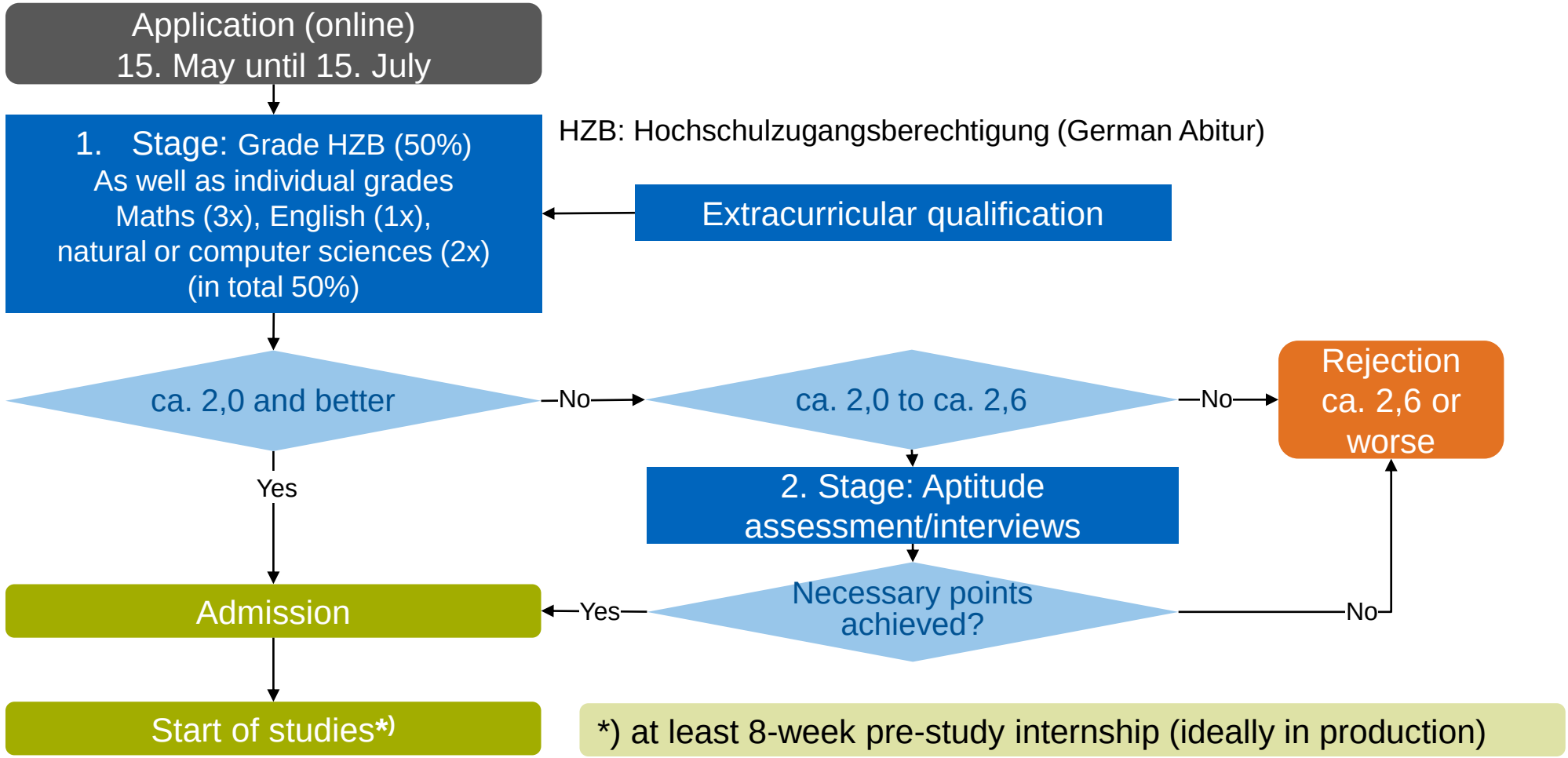


Module

1st Semester (Winter)	2nd Semester (Summer)	3rd Semester (Winter)	4th Semester (Summer)	5th Semester (Winter)	6th Semester (Summer)
Advanced Mathematics I	Advanced Mathematics II	Advanced Mathematics III	Test, Analysis, and Simulation	Engineering Internship	Bachelor‘s Thesis
Engineering Mechanics I	Engineering Mechanics II	Engineering Mechanics III	Control Theory	Aerospace Lab Course I	Aerospace Lab Course II
Aerospace Materials Science and Processing		Aerospace Structures and Elements		Engineering Project	Free Elective
CAD/TD für Aerospace Engineers	Thermodynamics I	Thermodynamics II	Heat Transfer	(optional) Engineering Elective	(optional) Engineering Elective
Engineering Computer Science I	Engineering Computer Science II	Fluid Mechanics I	Fluid Mechanics II	Supplementary Course	Supplementary Course
Electrical Engineering		Introduction into Geodesy	System Elective	Modeling Elective	
Introduction into Aerospace					

Key: To complete within first year | Required Core Subjects | Pass/Fail Requirements | Core Electives | Additional Electives | Practical Engineering Experience | Bachelor‘s Thesis

Admission to the B.Sc. Aerospace



*) at least 8-week pre-study internship (ideally in production)

Preliminary maths course (optional) in the first two weeks of October before the start of the course

End of July – mid of September

End of September

Admission to the B.Sc. Aerospace

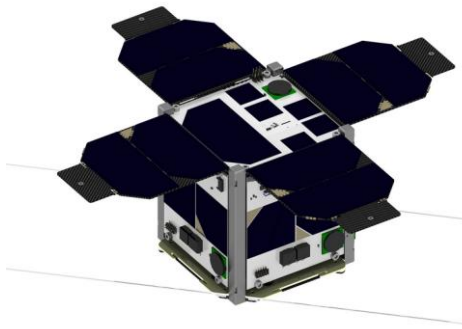
- Application needs to be in the TUMonline application portal
- Higher education entrance qualification (HZB)
  → for international applicants: preliminary examination documentation (VPD) from uni-assist
- English language cover letter (motivation, personal interest)
- Complete, current CV in English
- Potentially German A2 language certificate
- Potentially English B2 language certificate (or stage II of Aptitude Assessment Procedure)
- If available, proof of relevant extracurricular activities
  (e.g. participation in "Jugend forscht", Mathematics Olympiad, Science Competitions, Awards, etc.)
- Proof of 8-week pre-study internship

Please check our Wiki page where all important details are summarized!

- Google “TUM bachelor aerospace wiki” → First result → Click on “Prospective Students”

Student Groups

Join student initiatives, design, build your ideas, compete and have fun!



WARR
Invent CubeSats, Nano-Satellites, Rocketry and MARS rovers

TUM Hyperloop
Model your way to success

LEVITUM
Building the world's longest range eVTOL drone

Akaflieg
Construct a plane and fly

Horyzn
Create a startup and take off vertically

and many more…

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LEVITUM:
Building the world's longest range eVTOL drone

Youtube Link: https://www.youtube.com/watch?v=FsTqlNhHQFA

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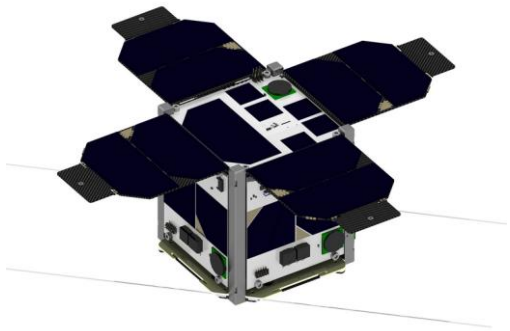


WARR: Invent CubeSats, Nano-Satellites, Rocketry and MARS rovers

Youtube Link: https://www.youtube.com/watch?v=c3lhw0QJZkw

Support and contact

- Study program coordinator, B.Sc – academic counselling:
  Dimitri Franz, coordination.asg@ed.tum.de

- Application questions for the B.Sc. Aerospace in specific:
  applications.asg@ed.tum.de

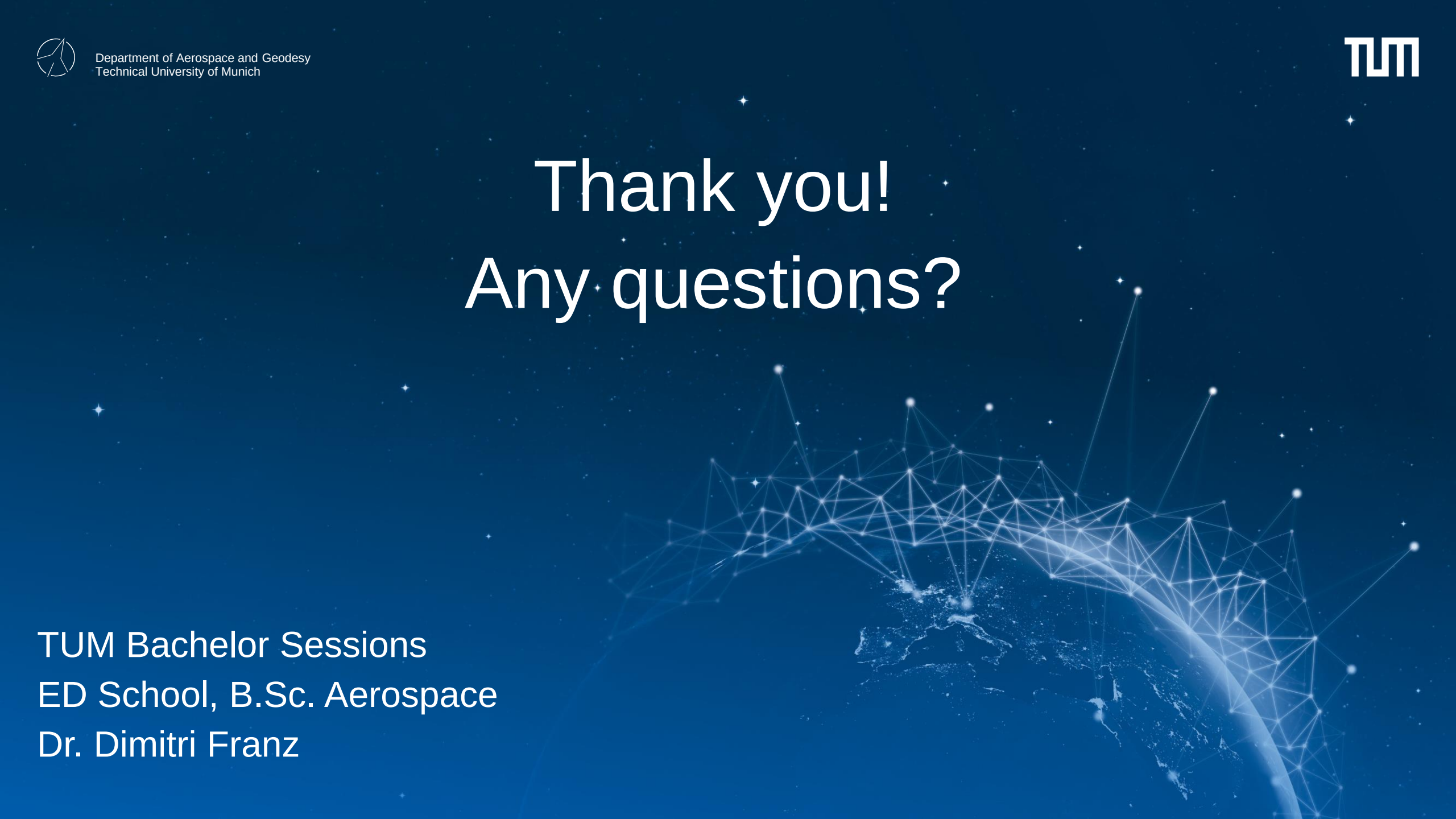
- Student advising office: Responsible for formal checks of the documents
  studium@tum.de

- Student council: https://fslrg.de/
  info.fslrg@ed.tum.de

- uni-assist “check university admission”: https://www.uni-assist.de/en/tools/check-university-admission/

Department of Aerospace and Geodesy
Technical University of Munich

Thank you!
Any questions?



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