

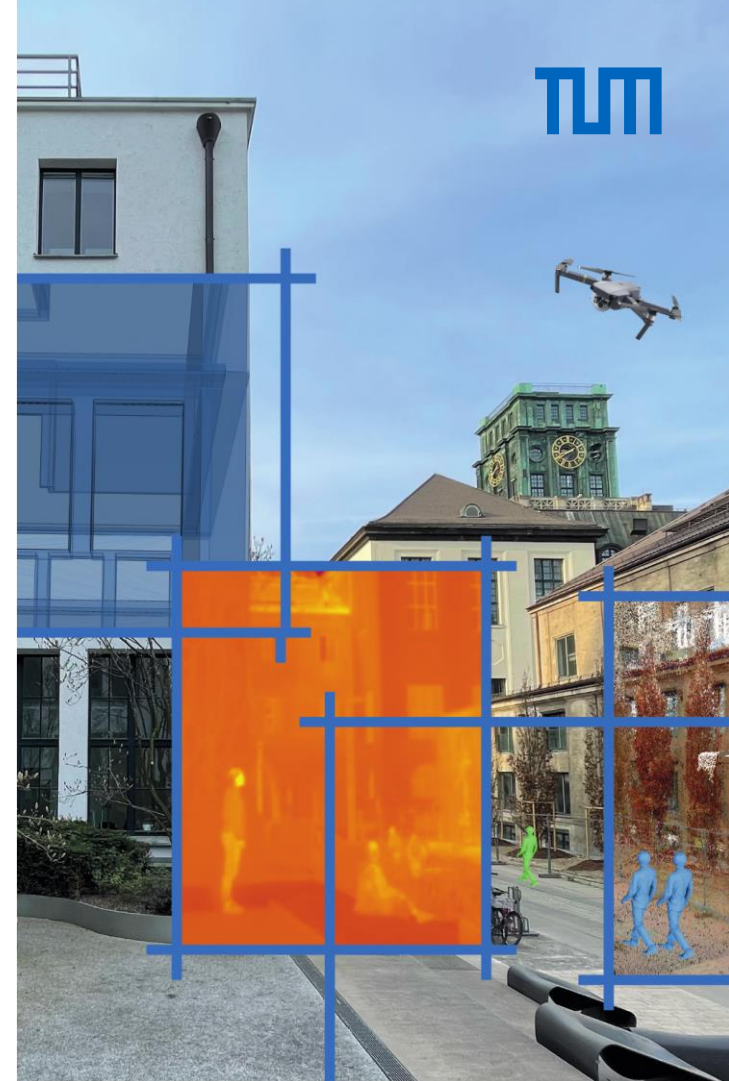
Master of Science

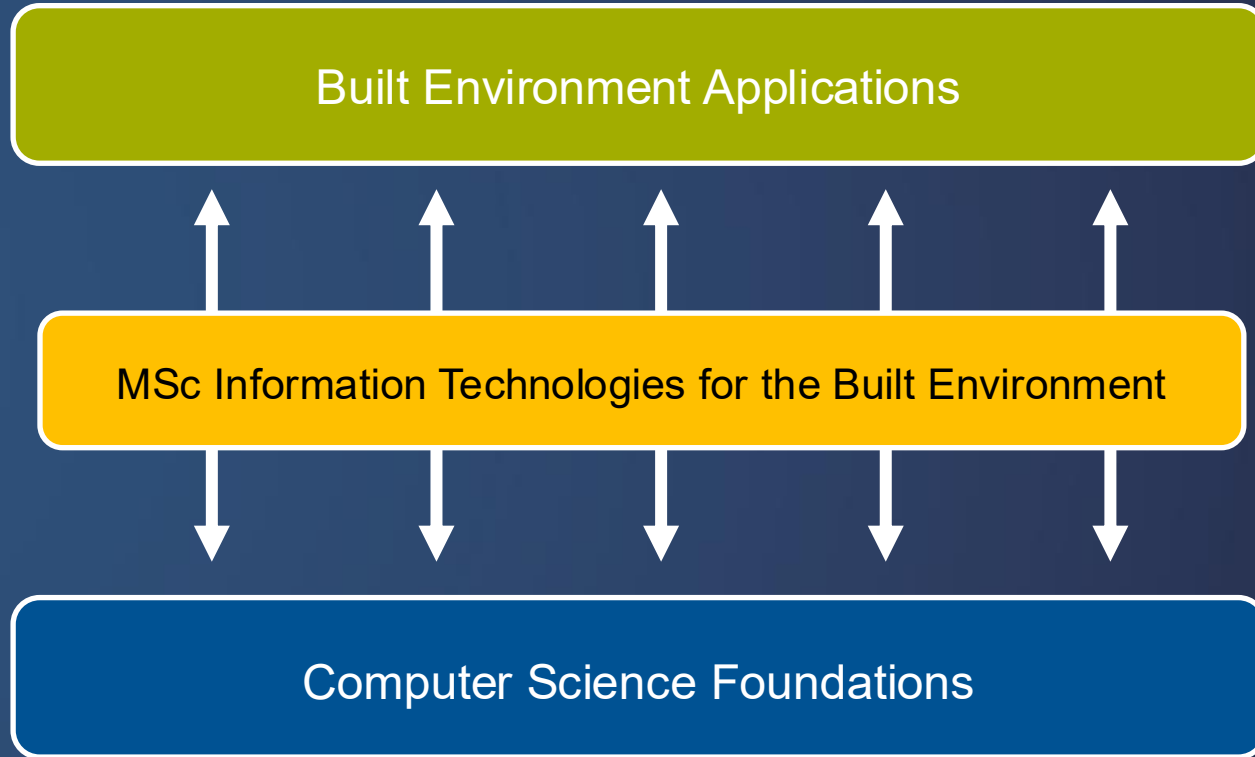
Information Technologies for the Built Environment

Master's Days

26. March 2026

TUM School of Engineering and Design
Architecture, Civil & Environmental Engineering, Geodesy





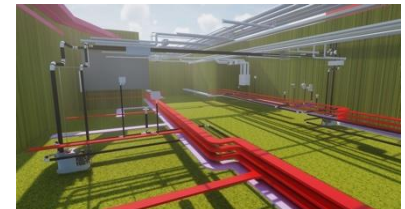
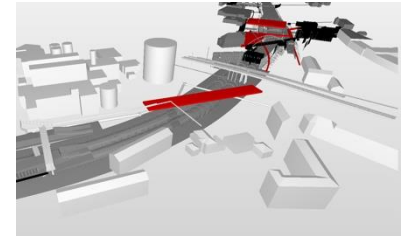
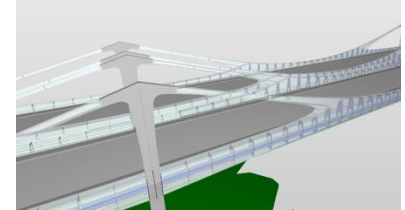


Master program will educate experts with:

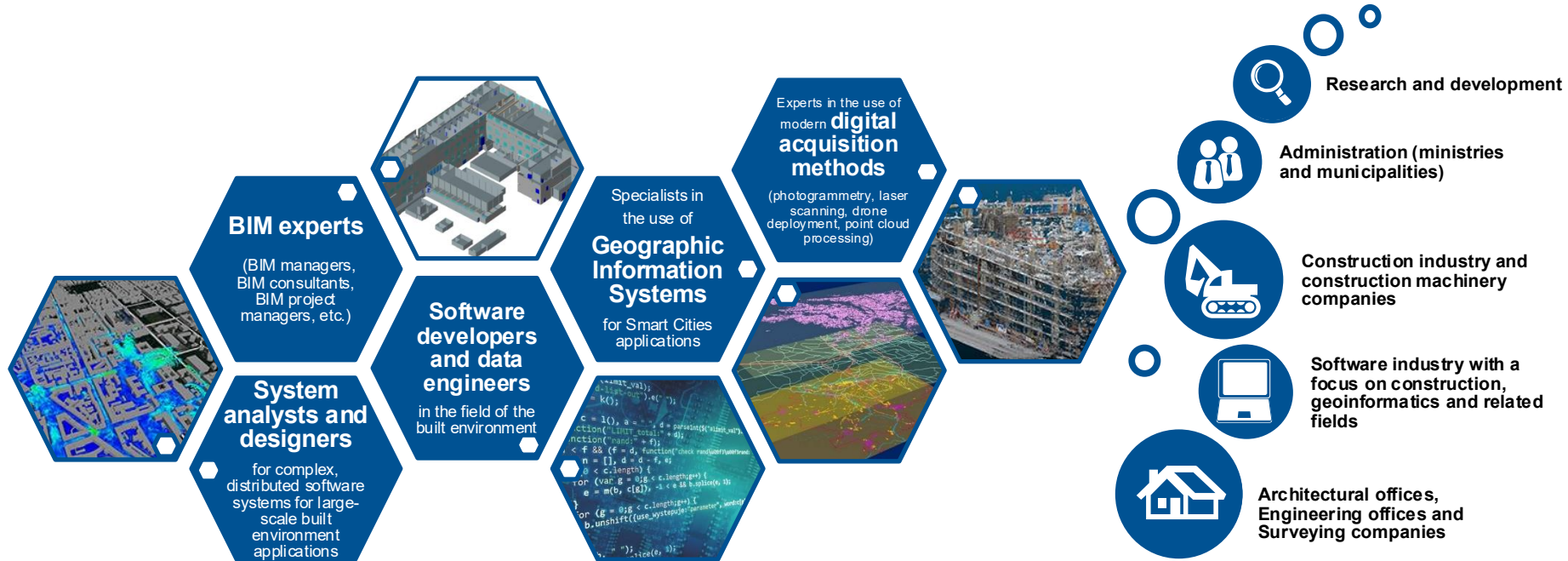
- a. fundamental knowledge of **information technology** in the field of digital methods of building models, construction processes and urban models
- b. skills for **developing new digital methods** in the fields of architectural informatics, construction and environmental informatics, geoinformatics and photogrammetry
- c. **domain knowledge** in digital architecture, digital construction, and digital geodesy
- d. skills in the development of (distributed) software systems, in-depth **programming knowledge**
- e. an understanding of **interdisciplinary cooperation** and **interface design** (GIS, BIM, etc.) in the field of semantic models and processes of the built environment
- f. an insight into **Design Thinking** methods and **socio-technical issues**, e.g., the impact of digitisation on work and communication processes and sustainability aspects

Information Technologies for the Built Environment

- geometric modeling (Brep, CSG, Octrees, etc.)
- semantic modeling: ontologies
- data modeling languages (UML, EXPRESS, XML, OWL, JSON)
- data models (CityGML, IFC, OKSTRA, XPlanung, XBau,)
- database technologies (triple stores, RDBMS, graph databases ...)
- distributed systems (client-server, cloud, security, TCP/IP, web services, REST)
- computer graphics (visualization, rendering, etc.)
- BIM methods (partial models, use cases, process management), GIS methods
- AI methods



Fields of employment



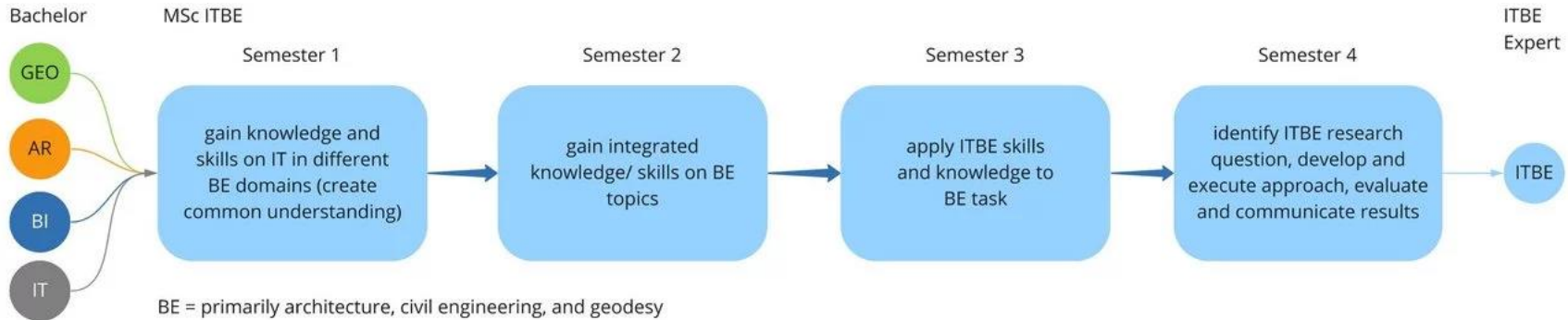
LOC Career Day



General Information

Degree:	<i>Master of Science (M. Sc.)</i>
Standard period of study (CP):	<i>4 (120 CP)</i>
Form of study:	<i>Full time</i>
Admission:	<i>Aptitude Assessment</i>
Start date:	<i>WS 2026/27</i>
Language:	<i>English</i>
Faculties involved in teaching:	<i>School of Engineering and Design (Architecture, Civil and Environmental Engineering, Geodesy), School of Social Sciences (MCTS)</i>

Program Structure



GEO = geodesy, AR = architecture, BI = civil engineering, IT = information technologies

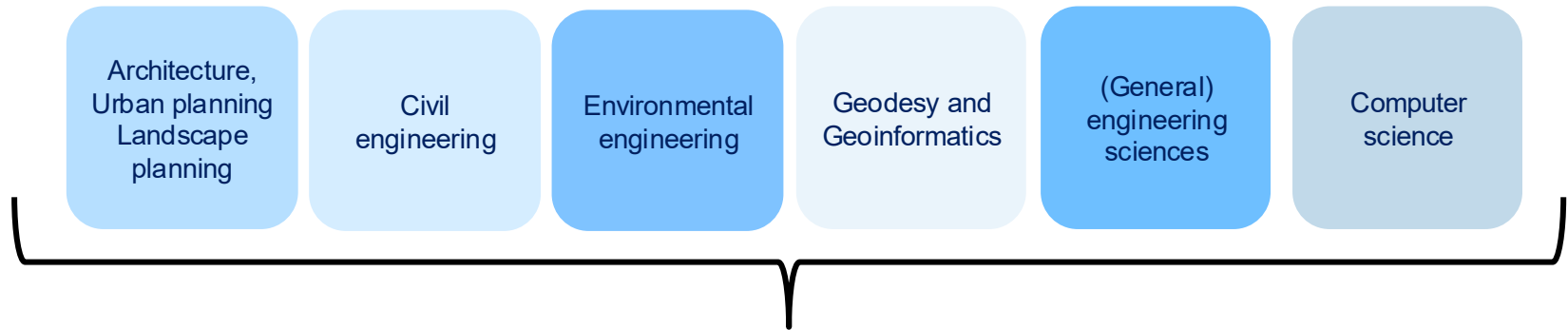
<u>1. Semester</u>	<u>2. Semester</u>	<u>3. Semester</u>	<u>4. Semester</u>
Geospatial Information Science 6 ECTS	Semantic Modelling of the Built World* 6 ECTS	Fusion Lab* 12 ECTS	Master Thesis 30 ECTS
Computational Design in Architecture, 3 ETCS	BIM Fundamentals* 6 ECTS		
Photogrammetry and Remote Sensing, 3 ETCS	System-Theoretical Principles of Project Management 6 ECTS	Distributed and Cloud-Based Systems* 6 ECTS	
Professional Software Engineering 6 ECTS	Elective 6 ECTS	Elective 6 ECTS	
Elective 6 ECTS	Elective 6 ECTS	Elective 6 ECTS	
Elective 6 ECTS	Elective 6 ECTS	Elective 6 ECTS	
Elective 6 ECTS	Elective 6 ECTS	Elective 6 ECTS	

**interdisciplinary module*

Possible Electives (examples)

- Internet of Things in the Built Environment, Chair of Geoinformatics (Prof. Kolbe),
- Modelling Urban Development, Assistant Professorship of Modeling Spatial Mobility (Prof. Moeckel),
- Big Geospatial Data, Professorship Big Geospatial Data Management (Prof. Werner),
- Principles of Spatial Data Mining and Machine Learning, Professorship Big Geospatial Data Management (Prof. Werner),
- Performance Based Design, Chair of Architectural Informatics (Prof. Petzold),
- Spatial Decision Support Systems, Chair of Cartography and Visual Analytics (Prof. Meng),
- Engineering Databases, Chair of Computational Modeling and Simulation (Prof. Borrmann),
- Robotic Fabrication in Architecture, Chair of Digital Fabrication (Prof. Dörfler),
- And many more...

Application from the following Bachelor's programs



MSc. Information Technologies for the Built Environment

Application

Required application documents:

- Online application.
- Bachelor's degree certificate.
- Proof of English language skills (e.g., TOEFL Test, IELTS, Cambridge Main Suite of English Examinations).
- Official Transcript of Records with modules adding up to at least 150 ETCS.
- Curriculum vitae (in table format).
- A motivation letter in English of maximum of two A4 pages, describing:
 - Why you have chosen to study this program at the TUM,
 - and why you consider yourself particularly suitable for the program incl. previous experience with IT in the built environment.

Further information on the application process available here:

<https://wiki.tum.de/pages/viewpage.action?pageId=944017053>

Admissions Process

First Phase

- The application is checked for completeness,
- the applicant's suitability for the course is evaluated based on:
 - technical qualification (max. 60 points),
 - bachelor grade (max. 10 points),
 - and the motivation letter (max. 30 points).

Applications with:

>70 points are accepted

<60 points are rejected

Between 60 and 70 points enter a second phase.

Second Phase

- A digital test to evaluate applicants' technical qualifications
 - Built environment (max. 30 points),
 - Information technologies (max. 30 points).

New score based on:

technical qualification, bachelor grade, digital test.

Applications with:

>105 points are accepted

Key Dates

Application

- Apply 1st Jan. – 31st May 2026 (for WS26/27)

Program Start

- Semester start: 1st Oct. 2026
- Welcome: 10th Oct. 2026 (date to be confirmed)
- Lecture Period: 12th Oct. 2026 to 5th Feb. 2026
- Exam Period: 15th Feb. 2027 to 5th March 2027

Optional: Introduction to OOP intensive course: 5th – 8th Oct. 2026

Master of Science

Information Technologies for the Built Environment

Contact:

Agata Dalach

Study Program Coordinator ITBE

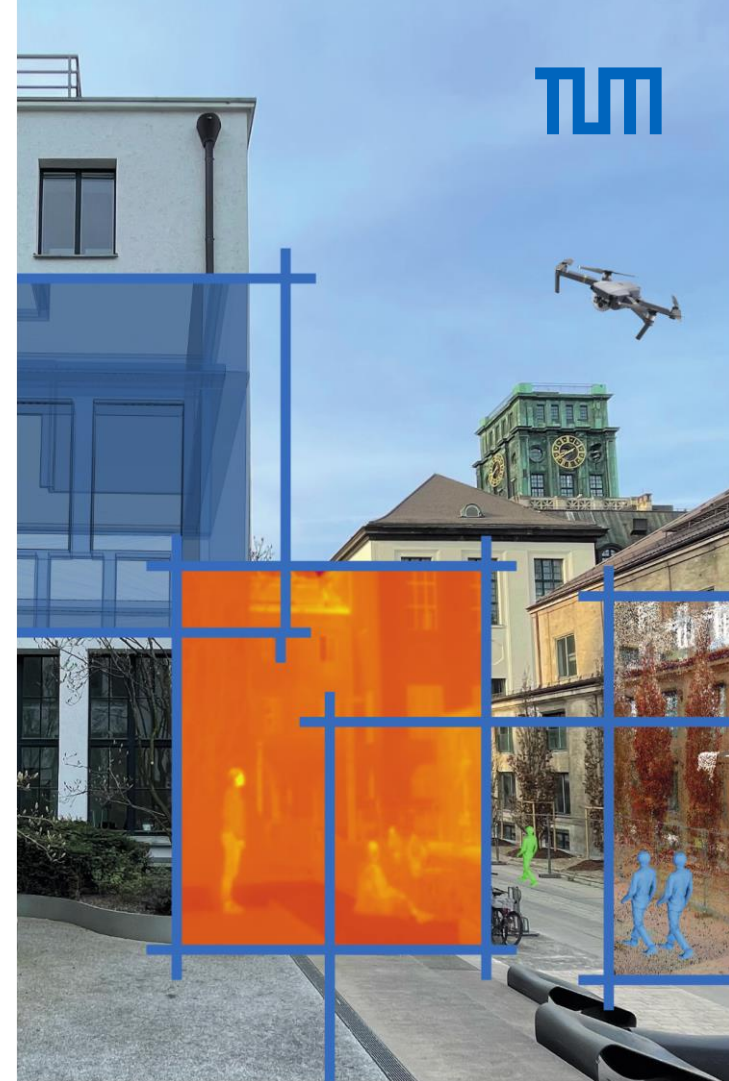
mscitbe@ed.tum.de

TUM Georg Nemetschek Institute
Artificial Intelligence for the Built World

Further information on the M.Sc. ITBE application process available here:

<https://www.ed.tum.de/ed/studium/studienangebot/information-technologies-for-the-built-environment-m-sc/>

MSc. „Information Technologies for the Built Environment“



TUM

Questions

- Could you please advise how we can prepare academically before starting the program?
- Hi! Does the program offer research opportunities in geospatial technologies such as aerial imaging, satellite data?
- How much connection does it have with architecture?
- How relevant is architecture in the master's program?
- Application process and future prospects
- What kind of real-world projects or collaborations with industry or cities do students typically work on?
- Entry requirements, scholarships and possibilities further aims after completing it.