Bachelor in Information Engineering at TUM Campus Heilbronn

TUM School of Computation, Information and Technology

Bachelor in Information Engineering

Winter Semester 2022/23

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Costanza Terino
06.10.2022
School of Computation, Information, Technology

- Computer Science
- Mathematics
- Electrical Engineering

Since Octob. 2022
TUM Locations

Federal State of Baden-Württemberg

Federal State of Bavaria
Heilbronn

City center: 1000 m from campus

Pictures: Heilbronn Marketing GmbH/Roland Schweizer
TUM Campus Heilbronn

Research
• 22 endowed professorships in total
• Research focus: Information Engineering, Digital Technologies, Family-run Businesses

Education
• Information Engineering and Management
• First programs (in Management) started in October 2018
• Objective: Approx. 1,000 students by 2026

Infrastructure
• TUM Tower on the Bildungscampus
• Library
• Canteen
Bildungscampus Heilbronn

Source: https://wissensstadt.hn/studieren/bildungscampus/
TUM Department of Informatics: Facts and Figures

- **49 Professors**
  - 39 Men
  - 10 Women

- **7 Gottfried Wilhelm Leibniz Prize Winners**

- **2 IEEE Computer Pioneer Award Winners**

- **3 Alexander von Humboldt Professors**

- **524 Research Assistants**
  - 422 Men
  - 102 Women

Close cooperation with industry
TUM Department of Informatics: Rankings

Germany’s Leading Department of Informatics
The QS World University Ranking by Subject has assessed the TUM Informatics as being the top Department of Informatics in Germany for several years now.

Best Career Opportunities for TUM Graduates
In the worldwide Global Employability University Ranking 2020 the TUM holds the 12th place as the only German university, among the 20 worldwide leading universities, in the assessment of graduates by international enterprises.

Living in Heilbronn
Wirtschaftswwoche Large City Ranking 2020. In a German-wide comparison of the 71 large cities, Heilbronn places 12th.
Some facts about our first semester…

- Male: 78%
- Female: 22%
Many International Students

Over 90% of all B.Sc. Information Engineering are international students
Bachelor in Information Engineering

Informatics

Business

Electrical Engineering
Information Engineering considers the **entire chain** from the **sensor** to the **IT system** to the **business model** and is thus a **significant building block** of the **digital transformation**.

**Digital technologies** provide more and more opportunities to **capture**, **integrate**, and **analyze** information.

To seize opportunities such as the introduction of **intelligent products**, companies need specialists for **planning** and **implementing** inter-connected, holistic **IT systems**.

Example: https://knowledge4retail.org
Information Engineering considers the entire chain from the sensor to the IT system to the business model and is thus a significant building block of the digital transformation.

The Bachelor’s program in Information Engineering at TUM Campus Heilbronn conveys the knowledge and skills necessary to design and implement IT systems along the entire life cycle of the resource information.

It offers you the opportunity to acquire solid theoretical, practical, and technical skills in a constantly evolving field and prepares you for your role as an information engineer.
Bachelor in Information Engineering

<table>
<thead>
<tr>
<th>Key Facts</th>
<th>Information</th>
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<tbody>
<tr>
<td>Degree:</td>
<td>Bachelor of Science</td>
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<tr>
<td>Duration:</td>
<td>6 semesters</td>
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<td>Program start:</td>
<td>Winter semester of 2021/22</td>
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<td>Language of instruction:</td>
<td>English, some Electives in German</td>
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<td>Location:</td>
<td>Heilbronn</td>
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<td>Fees:</td>
<td>92 € per semester</td>
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| Semester ticket (optional)*:     | For freshmen: free - you will receive a voucher from the city  
                                      | For higher semesters: 177€ per semester          |
| Consecutive Master's program:    | Start in Winter Semester 2023/24                 |
**Program Structure**

**1st semester**
- Introduction to Informatics (6 ECTS)
- Introduction to Software Engineering (6 ECTS)

**2nd semester**
- Fundamentals of Databases (6 ECTS)
- Computer Networking and IT Security (6 ECTS)
- Enterprise Architecture Management and Reference Models (6 ECTS)
- Electives in Informatics (6 ECTS)

**3rd semester**
- Business Process Management (5 ECTS)
- Embedded Systems, Cyber-Physical Systems, and Robotics (8 ECTS)
- Electives in Management (6 ECTS)

**4th semester**
- Discrete Probability Theory (6 ECTS)
- Embedded Systems, Cyber-Physical Systems, and Robotics (8 ECTS)
- Computational Mathematics 2: Calculus (8 ECTS)

**5th semester**
- Bachelor Practical Course (10 ECTS)
- Electives in Informatics (6 ECTS)
- Electives in Management (6 ECTS)
- Seminar (5 ECTS)
- Discrete Probability Theory (6 ECTS)

**6th semester**
- Bachelor's Thesis (12 ECTS)
- Bachelor's Colloquium (3 ECTS)
- Electives in Informatics (6 ECTS)
- Electives in Management (6 ECTS)
- Support Electives (2 ECTS)

**Support Electives**
- Discrete Structures (8 ECTS)
- Computational Mathematics 1: Linear Algebra (8 ECTS)

**Informatics**
- Int. Computer Organization and Technology – Computer Architecture (8 ECTS)
- Fundamentals of Algorithms and Data Structures (6 ECTS)
- Information Theory and Theory of Computation (6 ECTS)

**Mathematics**
- Fundamentals of Programming (6 ECTS)
- Basic Principles Operating Systems and System Software (6 ECTS)

**Support Electives in Informatics**
- Support Electives in Informatics (6 ECTS)

**Support Electives in Management**
- Support Electives in Management (6 ECTS)

**Bachelor's Thesis**
- Bachelor's Thesis (12 ECTS)

**TUM School of Computation, Information and Technology | TUM Campus Heilbronn | Bachelor of Information Engineering**
Bachelor in Information Engineering: Pilot Phase

**You will benefit from…**
- Small classes
- On-campus classes and tutorials
- Intensive support from professors and staff
- Modern and well-equipped infrastructure (lecture halls, library, canteen, …)
- Innovative degree program
- Campus Life (Buddy-Program, Events, …)

**But please note…**
- Not everything will work out perfectly in the beginning
- Many professorships will not be filled before 2023
- Very limited possibility to take courses earlier than planned in the curriculum
- List of elective modules will be finalized at a later point
TUM Exchange Programs (optional)

- Erasmus +: Study abroad in Europe, Internships in Europe
- TUMexchange: Study abroad outside the EU, Internships outside the EU
- ATHENS: One-week intensive course

http://www.international.tum.de/en/going-abroad/
Career Perspectives

- Innovation Manager
- Project Manager
- IT Manager
- IT Consultant
- Software Engineer
- Enterprise Architect
- Data Scientist
- Founder or Member of a Startup
- Researcher
- …
World Market Leaders in Heilbronn and Vicinity

Source: https://www.hs-heilbronn.de/ueber-hugs-f71e90df568c22c
TUM and Heilbronn – A Growing Ecosystem
Where can I find more information?

You can find more information on our website:

- Application and admission
- Program structure
- TUM Campus Heilbronn
- Important documents and information sheets

https://www.in.tum.de/in/fuer-studien interessierte/bachelor-studiengaenge/information-engineering/
Applying to TUM School of Computation, Information and Technology

Application Process

Apply online via TUMonline (http://campus.tum.de)

Please submit:
- University entrance qualification
- CV
- Letter of motivation
- Proof of German Language Proficiency (A2)
- Copy of valid passport/identity card

Apply (additionally) via uni-assist – If you do not hold a German university entrance qualification

July 15st: Application deadline

August – September: Interviews (virtual)

October, 16th: Start of the lectures

For international applicants:
- Uni-assist assesses an applicants’ university entrance qualification and determines their qualification to study in Germany
- The assessment process may take several weeks—please provide proof of your application via uni-assist in campus.tum.de until July 15st!

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Aptitude Assessment

Overall Grade
65 %

Grades in:
English
Mathematics (3x)
Natural Science
35 %

Conversion to a scale of 0 to 100 points. If you score…

≥ 73 points
Direct admission

60-72 points
Interview

< 60 points
Direct rejection

Overall Grade
50 %

Interview result
50 %

Admission with ≥ 70 points

TUM School of Computation, Information and Technology | TUM Campus Heilbronn | Bachelor of Information Engineering
Contact

Student Consultation
Carolin Schuster and Costanza Terino
Tel.: + 49 7131 26418904
ie-bachelor-heilbronn@in.tum.de (for questions regarding the program)
studium@tum.de (for questions regarding application and admission)

Virtual office hours via Zoom (UTC+2):
Thu. 4-5 pm
Meeting-ID: 622 1548 6938; Pin: 598361 (Please wait in the waiting room until we have a free slot.)
Thank you for your attention!

Q & A