

# Computational Engineering (B.Sc.) - Effective 01 October 2023

The degree programm consists of 180 Credit Points (CP) in total:

Language of Tuition:  
GERMAN  
certificates required

- Compulsory Courses:** 113 CP ■
- Area of Specialisation:** 50 CP ■
- Studium Generale:** 5 CP ■
- Research/Thesis:** 12 CP ■

The following **module overview** is an abbreviated, easy-to-read version of the **official course schedule** in the examination regulations, to be found in the Satzungsbeilagen of TU Darmstadt:

| 1 <sup>st</sup> semester  | 2 <sup>nd</sup> semester                                    | 3 <sup>rd</sup> semester   | 4 <sup>th</sup> semester  | 5 <sup>th</sup> semester   | 6 <sup>th</sup> semester                                   |
|---|---|--|---|--|--|
| Mathematics for Mechanical Engineering I (8 CP)                                     | Mathematics for Mechanical Engineering II (8 CP)            | Mathematics for Mechanical Engineering III (4 CP)                            | Scientific Methods in CE (3 CP)                                   | <p style="text-align: center;">Area of Specialisation (50 CP)</p> <p style="text-align: center;">The students choose one of the following five majors:</p> <ul style="list-style-type: none"> <li>- Applied Mathematics and Mechanics</li> <li>- Civil Engineering</li> <li>- Computer Science</li> <li>- Electrical Engineering and Information Technology</li> <li>- Mechanical Engineering</li> </ul> |  |
| Functional and Object-Oriented Programming Concepts (10 CP)                         | Algorithms and Data Structures (10 CP)                      | Introduction into Artificial Intelligence (5 CP)                             | Elementary Partial Differential Equations: Classic Methods (6 CP) |  |  |
| Engineering Mechanics I (Statics) (6 CP)  | Engineering Mechanics II (Elastostatics) (6 CP)             | Engineering Mechanics III (Dynamics) (6 CP)                                  | Statistics/ Probability Theory (ETIT) (4 CP)                      |  |  |
| Electrical Engineering and Information Technology I (7 CP)                          | Electrical Engineering and Information Technology II (7 CP) | Materials Technology for CE (4 CP)   | Scientific Calculating (ETIT) (4 CP)                              |  |  |
| Introduction into CE Studies (1 CP)   |   | Parallel Programming (5 CP)  | Project Course in CE (4 CP)                                       |  |  |
|   |   | Introduction into the numerical Computation of Electromagnetic fields (5 CP) |   |  | <p style="text-align: center;">Bachelor Thesis (12 CP)</p> |
| <p>General Studies (Studium Generale)<br/>Open Catalogue of TU Darmstadt (5 CP)</p> |   |  |   |  |  |

Study Programmes

[www.tu-darmstadt.de/studieren](http://www.tu-darmstadt.de/studieren)

hobit – Information fair for pupils

[www.hobit.de](http://www.hobit.de)

TU Day – Info day for prospective students

[www.tu-day.de](http://www.tu-day.de)

Online Self-Assessment

[www.self-assessment.tu-darmstadt.de](http://www.self-assessment.tu-darmstadt.de)

Course Schedule

[www.tucan.tu-darmstadt.de](http://www.tucan.tu-darmstadt.de)

Application and Admission for international students  
(International Office)

[www.tu-darmstadt.de/international](http://www.tu-darmstadt.de/international)

Zentrale Studienberatung und -orientierung ZSB  
(Central Student Advisory and Orientation Office)

Karolinenplatz 5, 64289 Darmstadt

Gebäude S1 | 01

E-mail: [info@zsb.tu-darmstadt.de](mailto:info@zsb.tu-darmstadt.de)

Opening hours: [www.zsb.tu-darmstadt.de](http://www.zsb.tu-darmstadt.de)

## Imprint

**Publisher**

President of TU Darmstadt

**Editorial office**

Zentrale Studienberatung und  
-orientierung ZSB

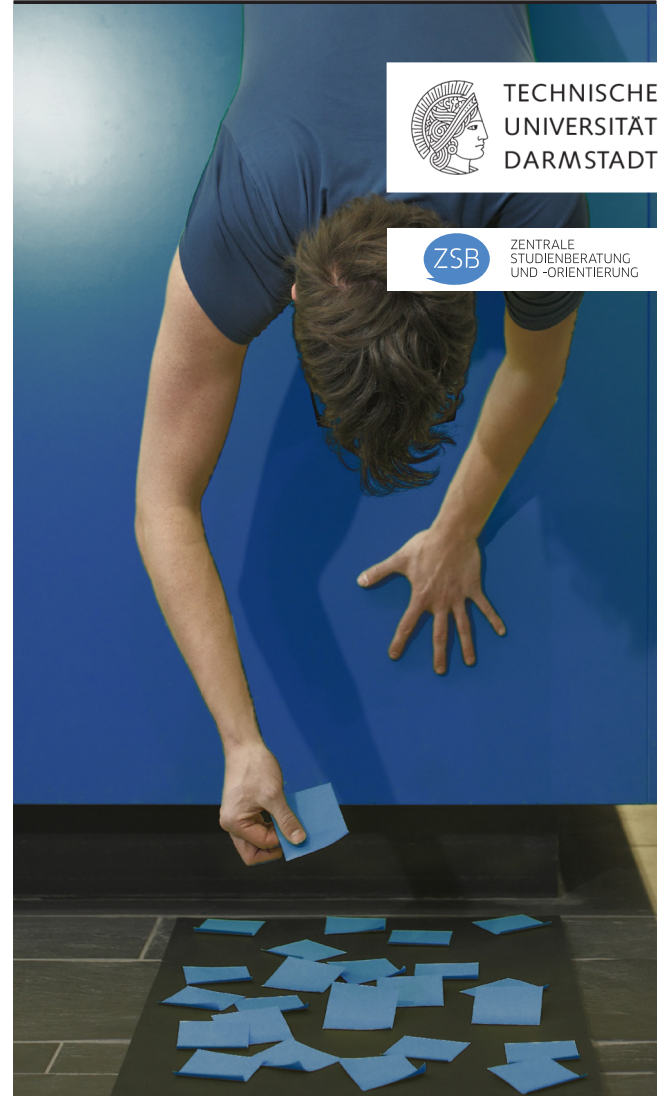
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For information on application deadlines please refer to

[www.tu-darmstadt.de/international](http://www.tu-darmstadt.de/international)

Admission

# Computational Engineering Bachelor of Science



Design: DUBBEL SPÄTH, Darmstadt | Teilfoto: Gregor Schuster, Darmstadt

Brief Description

Computer-assisted modeling, analysis, and simulation of physical and technical systems in engineering is called Computational Engineering. In the recent past, computer simulation has taken root – besides the classical methods of theory and experiment – as the third way of gathering scientific knowledge. The Computational Engineering (CE) programme is interdisciplinary in its approach. It represents the cooperation of the departments and study fields of Mathematics, Mechanics, Civil Engineering and Geodesy, Mechanical Engineering, Electrical Engineering and Information Technology, Informatics.

[www.study.ce.tu-darmstadt.de](http://www.study.ce.tu-darmstadt.de)