WELCOME KIT‘ FOR COMPUTATIONAL ENGINEERING STUDENTS
WS 2018/19
| **CompEng Coordination Office**  
compeng-support@rub.de  
IC 03-733  
Tel. 32-22103 | **Course Director:**  
Prof. Dr. rer. nat. K. Hackl  
Chief Coordinator:  
Dipl.-Ing. J. Sahlmen  
Office hours:  
By appointment  
General Coordinator:  
Dipl.-Ing. S. Zimmermann  
Mon. - Fri. 10 a.m. - 4 p.m. and by appointment  
Social Coordinator:  
Julia Lippmann, M.A.  
Mon. - Fri. 10 a.m. - 4 p.m. and by appointment  
Head:  
Prof. Dr. rer. nat. K. Hackl  
Office:  
K. Schneider  
Certificates, registration/cancellation of exams, FlexNow  
Thu: 9 a.m. - 11 a.m.  
Mon-Wed: 1 p.m. - 3 p.m.  
Re-enrolment, leave of absence, student ID-card etc.  
Open: Mon. - Fri. 9 - 12 a.m.; Mon., Wed., Thu. 1:30 - 3 p.m. | **IC 03-711**  
Tel. 32-25729  
hackl@am.bi.rub.de |
| **Chief Coordinator:**  
Dipl.-Ing. J. Sahlmen |
| **CompEng Coordination Office**  
compeng-support@rub.de  
IC 03-733  
Tel. 32-22103 | **IC 6-91**  
Tel. 32-22103  
comp-eng@rub.de |
| **Student Services Center (SSC)**  
stud-sekretariat@uv.rub.de | **IC 03-549**  
Tel. 32-22473  
sven.zimmermann@rub.de |
| **CE Examination Office** |
| **Course Director:**  
Prof. Dr. rer. nat. K. Hackl  
Chief Coordinator:  
Dipl.-Ing. J. Sahlmen  
Office hours:  
By appointment  
General Coordinator:  
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Re-enrolment, leave of absence, student ID-card etc.  
Open: Mon. - Fri. 9 - 12 a.m.; Mon., Wed., Thu. 1:30 - 3 p.m. | **IC 6-93**  
Tel. 32-25485  
julia.lippmann@rub.de |
| **IC 03-711**  
Tel. 32-25729  
hackl@am.bi.rub.de  
| **IC 5-63**  
Tel. 32-22575  
konstanze.schneider@rub.de |
| **CE Examination Office** |
| **Student Services Center (SSC)**  
stud-sekretariat@uv.rub.de | **IC 03-711**  
Tel. 32-25729  
hackl@am.bi.rub.de  
| **IC 6-93**  
Tel. 32-25485  
julia.lippmann@rub.de  
| **IC 5-63**  
Tel. 32-22575  
konstanze.schneider@rub.de |
**CE Student Council**  
fs-compeng@rub.de  

**General Students’ Committee (ASTA)**  
service@asta-bochum.de  

**AKAFÖ**  
akafoe@akafoe.de  

**German courses:**  

**Department German as a Foreign Language (DAF)**  

**ASTA German courses**  

**International Office**  

**Printing Center**  

**Student representative body**  

**Financial, legal and social counseling, attestation of official documents**  

**Academic Support Services:**  
Accommodation, catering, financing, culture  

**Beate Hermans**  
Mon. 2 p.m. - 3 p.m.  

**International Students Services (RUBiss)**  
Counseling for international students  

**Mon. - Thu. 8 a.m. - 4:30 p.m.  
Fri. 8 a.m. - 3:30 p.m.**  

**IC 03-161**  
Tel. 32-23078  

**Students’ House SH 005, SH 006 and SH 007**  
Tel. 32-22416  

**Students’ House SH**  
Ground floor, Room 062  
Tel. 32-11413  

**1st floor**  
Tel. 32-11010  

**Universitätsstraße 90, House 1, Office 2.02**  
Tel. 32-23887  
beate.hermans@rub.de  

asta-bochum.de/english/studying/german-courses/  

www.international.rub.de/rubiss/kontakt.html.de  

**druckzentrum@uv.rub.de**
faculty of civil and environmental engineering sciences

– departments and project groups –

structural engineering

design + construction of concrete structures
prof. dr.-ing. mark – ic 5-185

steel, lightweight + concrete structures
prof. dr. sc. techn. knobloch – ic 5-59

tunneling, utility engineering + construction management
prof. dr.-ing. thewes – ic 6-127

building materials
prof. dr.-ing. breitenbücher – ic 6-117

foundation engineering, soil + rock mechanics
n.n. – ic 5-117

wind engineering + fluid mechanics
prof. dr.-ing. höffer – ic 5-127

structural health monitoring
jun.-prof. dr.-ing. müller – ic 5-143
infrastructure and environment

traffic engineering + management
prof. dr.-ing. geistefeldt – ic 4-117

highway + road engineering
prof. dr.-ing. radenberg – ic 4-127

hydrology, water management + environmental engineering
prof. dr. rer. nat. schumann – ic 4-185

urban water management + environmental engineering
prof. dr.-ing. wichern – ic 4-59

environmental engineering + ecology in civil engineering
prof. dr. rer. nat. stolpe – ic 5-153

resource efficient building
prof. dr.-ing. annette hafner – ic 5-159

structural health monitoring
jun.-prof. dr.-ing. müller – ic 5-143

high performance computing in the engineering sciences
jun.-prof. dr. vogel – ic 6-155

computational engineering

mechanics – material science
prof. dr. rer. nat. hackl – ic 03-711

mechanics – continuum mechanics
prof. dr.-ing. balzani – ic 03-739

mechanics of adaptive systems
prof. dr.-ing. nestorović – ic 03-725

structural mechanics
prof. dr. techn. meschke – ic 6-185

computing in engineering
prof. dr.-ing. könig – ic 6-59

high performance computing in the engineering sciences
jun.-prof. dr. vogel – ic 6-155
### Curriculum: Computational Engineering

#### Master's Program Computational Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Module Name</th>
<th>hours per week</th>
<th>CP</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Compulsory Courses 39 CP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE-P01</td>
<td>Mathematical Aspects of Differential Equations and Numerical Mathematics</td>
<td>4</td>
<td>6</td>
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<tr>
<td>CE-P02</td>
<td>Mechanical Modeling of Materials</td>
<td>4</td>
<td>6</td>
<td>1</td>
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<tr>
<td>CE-P03</td>
<td>Computer-based Analysis of Steel Structures</td>
<td>4</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>CE-P04</td>
<td>Modern Programming Concepts in Engineering</td>
<td>4</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>CE-P05</td>
<td>Finite Element Methods in Linear Structural Mechanics</td>
<td>4</td>
<td>6</td>
<td>1</td>
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<tr>
<td>CE-P06</td>
<td>Fluid Dynamics</td>
<td>2</td>
<td>3</td>
<td>2</td>
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<tr>
<td>CE-P07</td>
<td>Continuum Mechanics</td>
<td>4</td>
<td>6</td>
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**Subtotal CP: Compulsory Courses** 39

<table>
<thead>
<tr>
<th>WP</th>
<th>Compulsory Optional</th>
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<tbody>
<tr>
<td>WP01</td>
<td>Variational Calculus and Tensor Analysis</td>
<td>3</td>
<td>4</td>
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<tr>
<td>WP03</td>
<td>Dynamics and Adaptronics</td>
<td>4</td>
<td>6</td>
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<tr>
<td>WP04</td>
<td>Advanced Finite Element Methods</td>
<td>4</td>
<td>6</td>
<td>2</td>
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<tr>
<td>WP05</td>
<td>Computational Fluid Dynamics</td>
<td>4</td>
<td>6</td>
<td>2</td>
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<tr>
<td>WP06</td>
<td>Finite Element Methods for Nonlinear Analyses of Materials and Structures</td>
<td>2</td>
<td>3</td>
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<tr>
<td>WP08</td>
<td>Numerical Methods and Stochastics</td>
<td>4</td>
<td>6</td>
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<tr>
<td>WP09</td>
<td>Numerical Simulation in Geotechnics and Tunnelling</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>WP10</td>
<td>Object-oriented Modelling and Implementation of Structural Analysis Software</td>
<td>2</td>
<td>3</td>
<td>2</td>
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<td>WP16</td>
<td>Parallel Computing</td>
<td>4</td>
<td>6</td>
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<td>WP25</td>
<td>Finite Element Methods on Multicore Architectures</td>
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<td>WP11</td>
<td>Dynamics of Structures</td>
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<td>6</td>
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<td>WP12</td>
<td>Computational Plasticity</td>
<td>3</td>
<td>4</td>
<td>3</td>
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<tr>
<td>WP13</td>
<td>Advanced Control Methods for Adaptive Mechanical Systems</td>
<td>4</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

**Sum CP in total:**

- **Compulsory Courses:** 39 CP
- **Compulsory Optional Courses:** 35 CP
- **Master Thesis:** 16 LP
- **Total:** 90 CP

---

*Master's program Computational Engineering - Module Handbook*

*Last updated: September 2018*
<table>
<thead>
<tr>
<th>Code</th>
<th>Module Name</th>
<th>Semester</th>
<th>CP</th>
<th>Subtotal CP: Compulsory Courses</th>
<th>Subtotal CP: Master Thesis</th>
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<tbody>
<tr>
<td>CE-M</td>
<td>Master Thesis</td>
<td>1st, 2nd &amp; 3rd semester</td>
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<tr>
<td>CE-W01</td>
<td>Training of Competences (part 1)</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CE-W02</td>
<td>Applied Finite Element Method</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
<td>2</td>
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</tr>
<tr>
<td>CE-W03</td>
<td>Case Study B</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CE-W05</td>
<td>Training of Competences (part 2)</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
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<tr>
<td>CE-W07</td>
<td>Simulation of Incompressible Turbulent Flows with the Finite Volume Method</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CE-W08</td>
<td>other relevant courses of the faculty or from engineering faculties of other universities</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
<td>3</td>
<td>3</td>
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<tr>
<td>CE-W09</td>
<td>Master Thesis</td>
<td>1st, 2nd &amp; 3rd semester</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Subtotal CP: Compulsory courses:** 39 CP

**Subtotal CP: Master Thesis:** 16 CP

**CP in total:** 120 CP

*Other courses may vary depending on the specific requirements of the faculty or other universities.*
The ecampus client is required to access the wireless internet connection eduroam, to print the NRW ticket as well as a current certificate of enrolment, and to change your address, whenever you move.

You can easily access ecampus via a browser, though you need a card reader device. Both can found on most RUB's CIP-Pool computers. If you want to use ecampus at home, you can buy a card reader at the RUB-Info point (SSC building) and install a current driver. Find more information on technical requirements and how to install the driver here: https://www.ruhr-uni-bochum.de/ecampus/ecampus-webclient/treiber.html

Start ecampus and put your student ID-Card in the card reader.

The system will ask you to enter your personal PIN, which can be found in the documents you received upon enrolment.

Find the document with the two black stripes at the bottom. Cautiously pull off the left stripe and place it on a white surface to reveal your PIN.
After you obtained your PIN, type it in the indicated field and click ok. When you did everything correctly, you will be directed to the ecampus homepage.

From here you can set your password, which you will use in conjunction with your LoginID. It is also possible to print your NRW-Ticket as well as your “Studienbescheinigung” (proof of enrolment). You can use upper- and lower-case letters, as well as every number and the following special characters: !$%&*+,./:;=?@_{}
FlexNow is a software the faculty uses for the administration of examination related data. You'll need it to register for exams, or, if necessary, to deregister from them. Furthermore, it allows you to print an up-to-date transcript anytime.

Detailed instructions on the installation and application of FlexNow can be found here:

www.flexnow.rub.de

Registering in FlexNow requires a card reader!
Register in the moodle info course for the Master’s program Computational Engineering to receive up-to-date news relating to your studies. It provides exam regulations, examination dates, info concerning the contents of courses, the main contact persons and much more, at a glance.

Name: CompEng Info  
Password: compeng

Just use your LoginID and password that were given to you upon enrolment. Please register here:

moodle.rub.de
Join CE Welcome Program

Enrolment, health insurance, transfer of social fee

Install ecampus, change password, print NRW ticket + proof of enrolment (Studienbescheinigung)

City registration

Open bank account

Report your new address to Students’ Service Center (SSC)

Show health insurance certificate to Students’ Services Center (if not insured with KKH)

Register for DAF German Courses (www.daf.ruhr-uni-bochum.de/sbgk/anmeldung.html.en; deadline on 8th October)

Register in moodle and join the group ‘CompEng Info’

Visa extension
# 1st Semester Timetable *

## Computational Engineering

for the winter semester 2018/2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 10:00</td>
<td>Exercise: Finite Element Methods in Linear Structural Mechanics (Option 1)</td>
<td>IC 04-653/04-630 Prof. König</td>
<td>IC 03-112 Prof. König</td>
<td>Exercise: Finite Element Methods in Linear Structural Mechanics (Option 2)</td>
<td>IC 03-610 Prof. Meschke</td>
</tr>
<tr>
<td>10:00 – 11:00</td>
<td>Computer-based Analyses of Steel Structures</td>
<td>Mathematical Aspects of Differential Equations</td>
<td>Mathematical Aspects of Differential Equations</td>
<td></td>
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</tr>
<tr>
<td>11:00 – 12:00</td>
<td>HIC Prof. Meschke</td>
<td>IC 04-408 Prof. Knobloch</td>
<td>NC 6-99 Prof. Röhrle</td>
<td></td>
<td>ND 5/99 Prof. Le</td>
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<tr>
<td>12:00 – 13:00</td>
<td></td>
<td></td>
<td></td>
<td>Computer-based Analyses of Steel Structures</td>
<td>HZO 90 Prof. Le</td>
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<tr>
<td>13:00 – 14:00</td>
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<td></td>
<td>Mechanical Modeling of Materials</td>
<td>HZO 90 Prof. Le</td>
</tr>
<tr>
<td>14:00 – 15:00</td>
<td>Mechanical Modeling of Materials</td>
<td>Mechanical Modeling of Materials</td>
<td>Variational Calculus and Tensor Analysis</td>
<td>Mechanical Modeling of Materials</td>
<td>Variational Calculus and Tensor Analysis</td>
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<tr>
<td>15:00 – 16:00</td>
<td>HZO 90 Prof. Balzani</td>
<td>HZO 90 Prof. Balzani</td>
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<td>ND 5/99 Prof. Le</td>
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<td>16:00 – 17:00</td>
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<td>ND 5/99 Prof. Le</td>
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</table>

* Download the exact schedule @: [compeng.rub.de](http://compeng.rub.de)

[Register for DAF German Courses](http://www.daf.ruhr-uni-bochum.de/sbgk/anmeldung.html.en; deadline on 8th October)