TECHNISCHE UNIVERSITÄT
BERGAKADEMIE FREIBERG
Die Ressourcenuniversität. Seit 1765.

# STUDY IN GERMANY





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Vice Rector for Research

# Content

- Study in Germany
- Qualification possibilities
- Kind of Universities
- Universities of Cooperative Education (Dual System)
- Examples of study on Dual Systems

# Schools and universities - responsibility of the single states

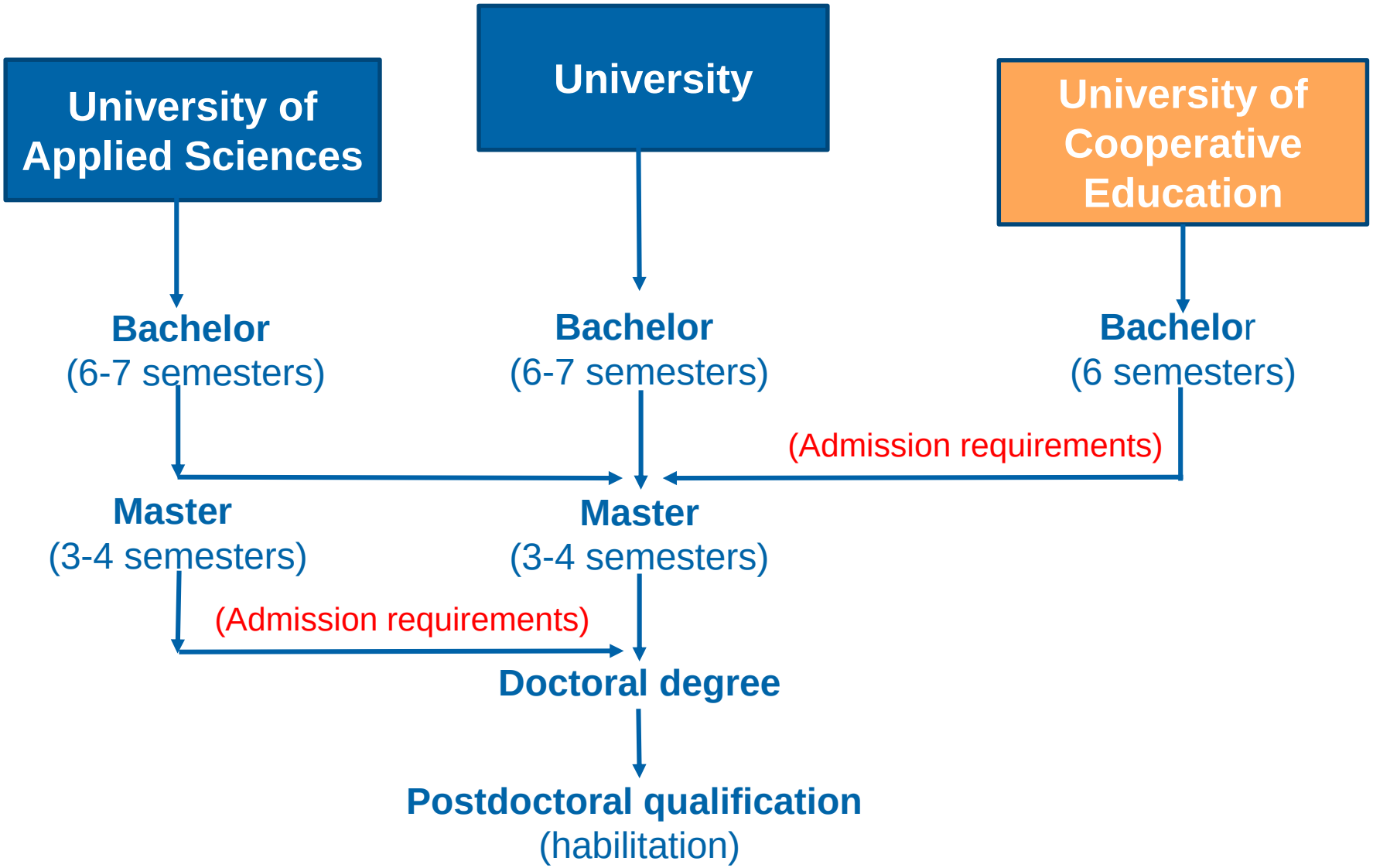
- 16 federal states!
- 16 different laws for higher education!



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# Qualification possibilities (accredited)



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# Types of Universities

**There are three types of higher education institutions in Germany:**

- Universities and technical universities (state - accredited universities)
- Universities of applied sciences - Fachhochschulen
- Colleges of art, film and music



# **New structure - new programs in Germany** (Bachelor & Master)

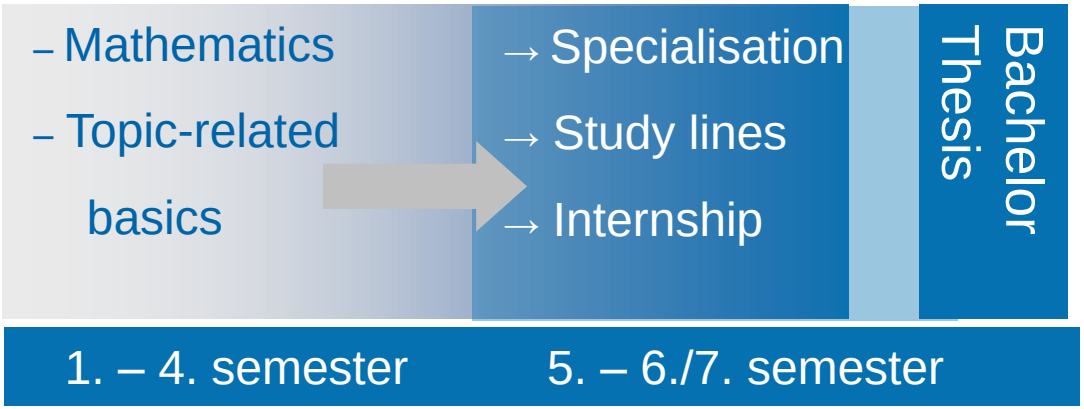
Bachelor and master programs offered parallel to or in lieu of the traditional programs (Diploma)

within this two-step (cycle) degree system:

- **Bachelor** after 3 to 4 years
- **Master** after 1 to 2 years

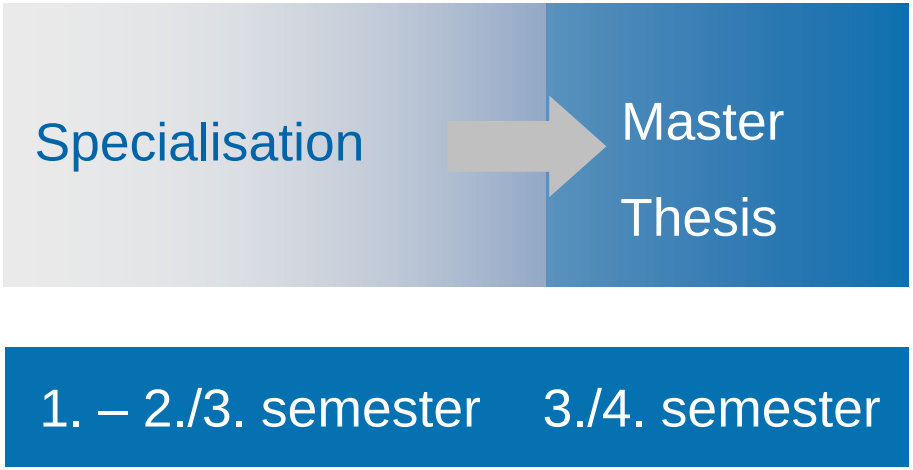
total standard period of study for consecutive Bachelor and Masters study courses is a maximum of 5 years

# Characteristics of Bachelor studies




**Study duration: 6 or 7 semesters**

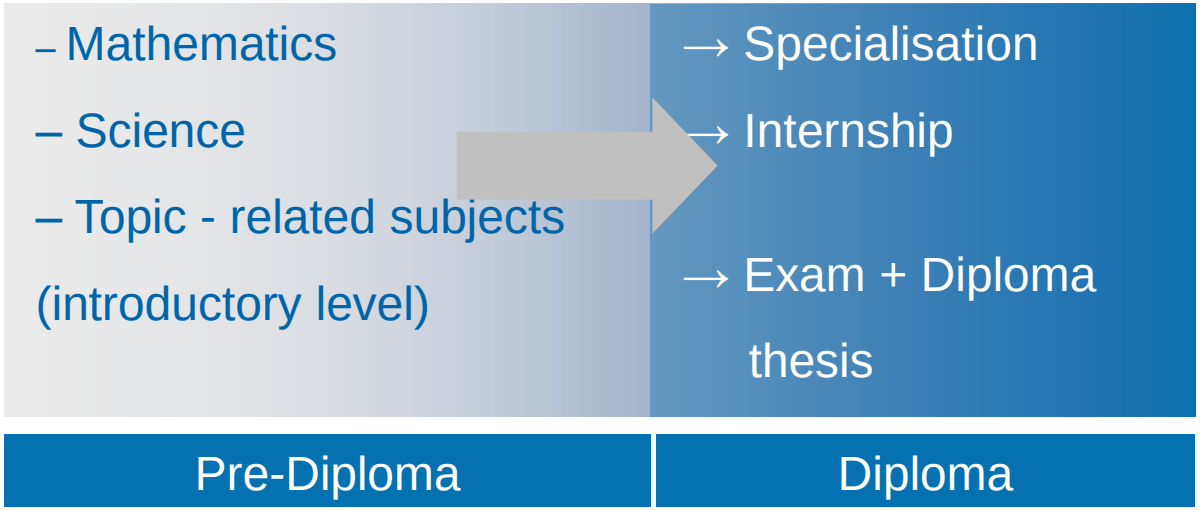
# Characteristics of Master studies




**Study duration: 3 or 4 semesters**

# Characteristics of traditional Diplom programmes

(only Saxony)




**Total duration of study: usually 9 or 10 semesters**

# Differences between universities of applied sciences (Fachhochschulen) and state - accredited universities

Importance of research

- at universities
  - research and education as duties of equal importance and time demand

- at universities of applied sciences:
  - teaching as duty of main importance

# Differences between universities of applied sciences (Fachhochschulen) and state-accredited universities

Scientific staff

- at universities of applied sciences 1 scientist for 13 students
- at universities 1 scientist for 7 students

| Teaching load | | |
|---|---|---|
| **scientific staff** | **university** | **university of applied sciences** |
| professor | 8 hours | 18 hours |
| assistant | 4 hours | 12 hours |
| | per week; semester (15 weeks) but not in the period without lectures | |

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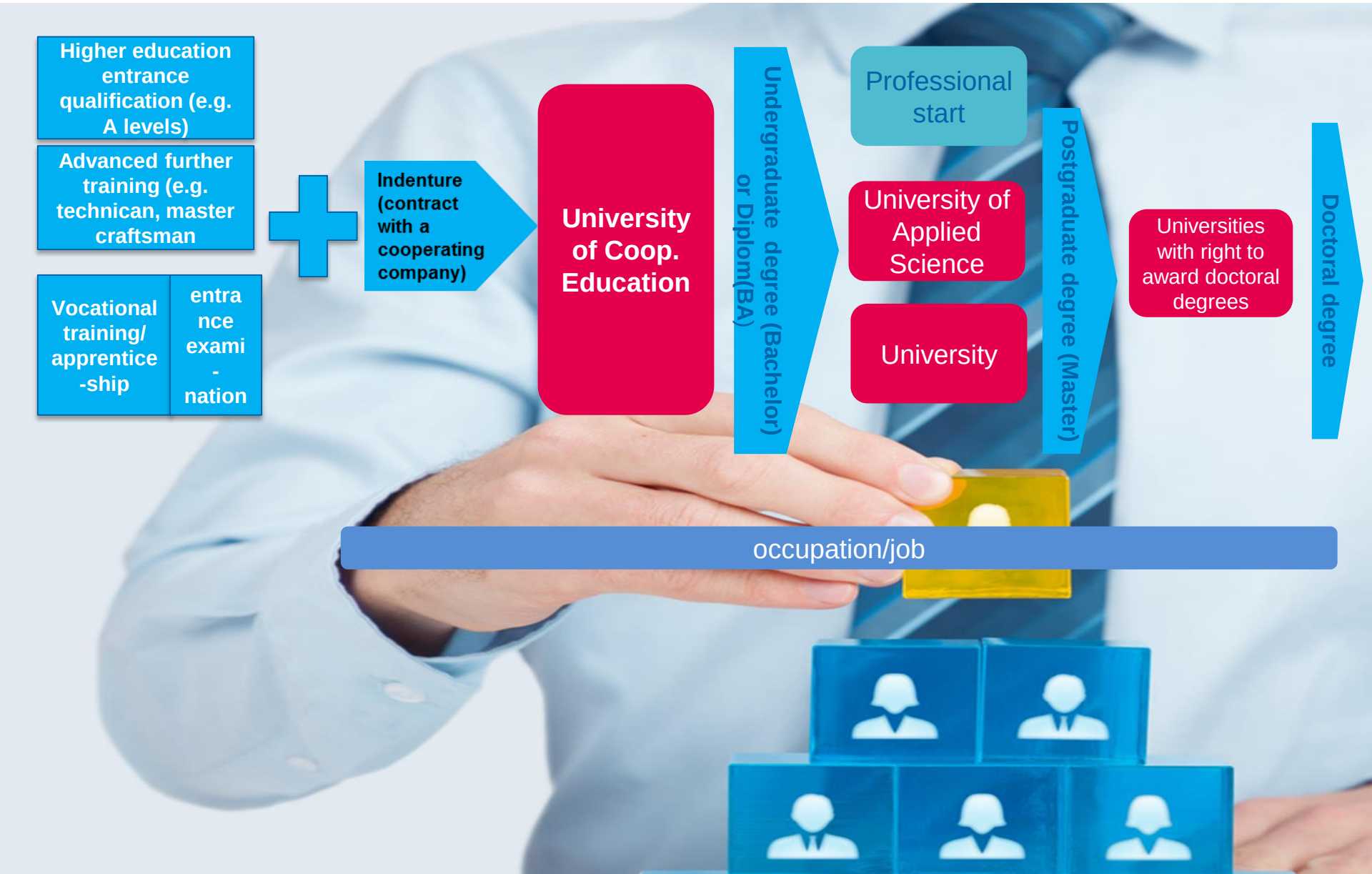
# UNIVERSITY OF COOPERATIVE EDUCATION
## (BERUFSAKADEMIEN – DUAL - SYSTEM )

- tight integration of academic instruction and practical training
- half of program at the college and the other half in a private company (such as a technology business or bank) or public institution
- theoretical training at the college and practical work at the company alternate in 3-month blocks
- companies select the students and offer them a salaried contract
- at the end of the three-year program, students receive a Bachelor's degree; some also pursue Master's degrees

www.duales-studium.de



# University of Cooperative Education – classification within German higher education





Asset Management Service
Auditing, Tax and Management Consultancy
Real Estate Management
Controlling
Service Engineering
Construction Industry
Computer Science



Mechanical Engineering
Laboratory Technologies and Process Engineering
Business Administration and Service Management
Energy and Environmental Engineering

STUDIEREN IM MARKT



Electrical Engineering
Finance Management
Medical Technology
Public Management
Business Information Systems
Industrial Engineering

LEIPZIG

RIESA

BAUTZEN

DRESDEN



Banks
Construction Management
Mid-size Business Economy
Transport Business Management
Business Information Systems
Automotive Management
Constructional Engineering
Industrial Production
Computer Ebgineering
Supply and Environmental Engineering

GLAUCHAU

BREITENBRUNN

PLAUEN



Agricultural Management
Business Administration
Finance Management and Insurance Management
Wood and Wooden Mateoral Technology
Information Technology
Controlling, Consulting
Business Information Systems



Health and Social Management
Engineering Management
Physician Assistant
Trade and International Management



Social Work
Tourist Industry
Industry

Facts:
founded in 1991 in Dresden
7 self-governing locations
approx. 4200 (2016) students in about 40 programs of study: economics, engineering, informatics and social sciences

# Transfer of knowledge by the dual study system

**Cooperating company**:

Application-oriented knowledge transfer and acquisition of professional know-how/experience











**State academy:**

Teaching and knowledge transfer of academic and theoretical as well as practical courses

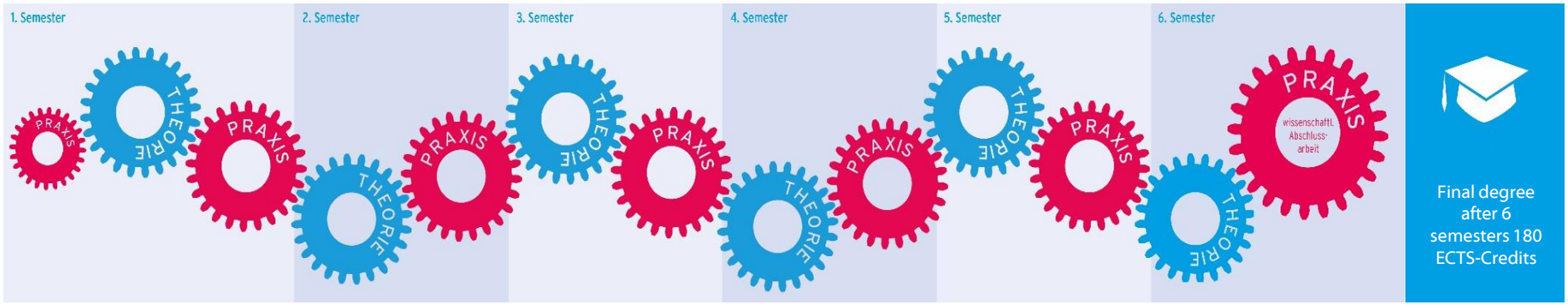
Coordination: organisation and in regard to contents

of organisation, management, control



Fotos: links: C. Jacquemin, Dresden, rechts: goodluz – Fotolia; BA-Sachsen

# Process of study: key to success within 6 semesters






**Modular concept; 180 ECTS-Credits**

**Small groups; Individual mentoring**





**Diverse, active teaching methods**

**Financial security: Compensation by company (+ student loan); social insurance**





**Compulsory attendance; holidays instead of semester breaks**



Bilder (v.l.n.r.): Saklakova – Fotolia, C. Jacquemin- Dresden; Stefan Floss – Dresden; Franziska Wels – Dresden; Wrangler – Fotolia; BA-Sachsen

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# Examples

## University of Cooperative Education Riesa

*Bachelor Degree courses*

- **Mechanical Engineering**
- Laboratory Technologies and Process Engineering (Biotechnology, Environmental Technology, Medical Technology)
- Business Administration and Service Management (Event and Sports Management, Commercial Management)
- Energy and Environmental Engineering (Facilities Technology, Energy Engineering)

# Bachelor of Mechanical Engineering

## Basic knowledge of mechanical engineering

Engineering, CAD, CAE, Technical Mechanics, Technical Thermodynamics, flow mechanics, materials,
Engineering, Mathematics, Computer Science, Electrical Engineering,
Methods of product development

## Management qualifications

Management, business management, marketing,
Law and labor protection, English

## Special knowledge

Quality management, production measurement technology, gearboxes, machine dynamics, hydraulics, control and regulation technology, plastic technology

# Courses construction

## Theoretical part of study in sight of construction

1st semester: design theory / CAD, technical mechanics, mathematics, materials and manufacturing technology,

3rd semester FEM (Finite-Element Method)

4th semester: Fluid Mechanics / CFD (Computational Fluid Dynamics),

6th semester: Methods of product development

# Practical content

## 1st year of study

- Learning of manual and mechanical basic skills in metal processing and testing and assembly technology
- Learn about industry and company specific special procedures
- Information on work process, standardisation, legal regulations and documentation of the production process
- Processing of tasks in the field of production,
- Work organisation, experiment and construction

## 2nd year of study

- Apply basic skills in the assembly process
- Introduction into engineering work, e.g. in the order and production planning, work preparation, customer service, design, test, quality assurance, product acceptance and distribution

# Practical content

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## 3rd year of study

- Independent processing of partial tasks in technical problems and their solution professional support in the respective field of application the training company
- Introduction to the future tasks of the graduates
- Bachelor thesis

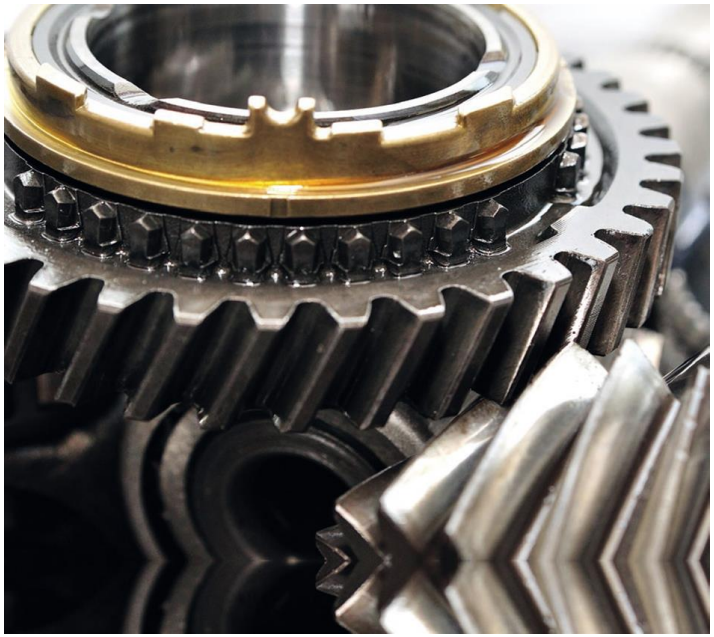




Foto: BA-Riesa

# Mechanical Engineering - Credit Points

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| | Sum / Semester | | | | | | Total | % |
|---|---|---|---|---|---|---|---|---|
| Sum credits theory modules | 24 | 24 | 24 | 21 | 22 | 25 | 140 | 77,778 |
| Sum credits practice modules | 6 | 5 | 4 | 7 | 6 | | 28 | 15,556 |
| Sum credits thesis | | | | | | 12 | 12 | 6,6667 |
| **Total** | **30** | **29** | **28** | **28** | **28** | **37** | **180** | **100** |

# Thank You for Your Attention!

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