

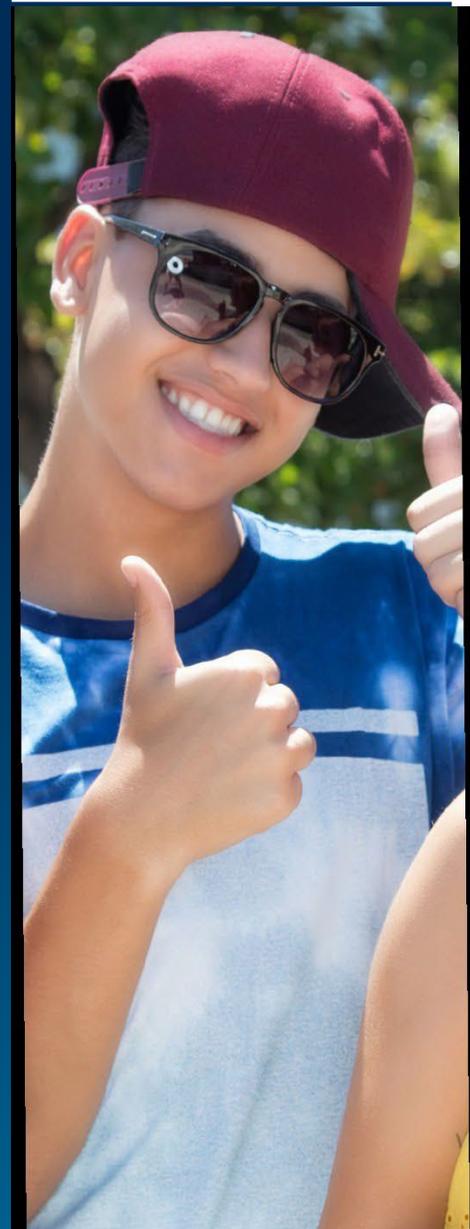
# INTENSIVE TECHNICAL KNOWLEDGE FOR INTERNATIONAL MANAGEMENT STUDENTS

## SUMMER BLOCK SEMINAR 2024

15TH OF JULY – 2nd OF AUGUST 2024

AT THE FACULTY OF MANAGEMENT AND  
TECHNOLOGY

UNIVERSITY OF APPLIED SCIENCES, ESSLINGEN,  
GERMANY



# SUMMER BLOCK SEMINAR

## INTENSIVE TECHNICAL KNOWLEDGE FOR INTERNATIONAL MANAGEMENT STUDENTS

### Three courses:

- Fundamentals of Material Science and their application in industry with a focus on steel on Vehicle Engineering
- Manufacturing Technology and its application in Vehicle and Mechanical Engineering
- Fundamentals of Statics and Strength Theory and their application in Vehicle and Mechanical Engineering

**All courses are at Bachelor's level, full-time and worth 6 ECTS**

# TIMETABLE

**THEORETICAL LESSONS WILL BE AVAILABLE THROUGH VIDEO DOWNLOADS. THE VIDEOS WILL BE PROVIDED ONLINE 2 WEEKS BEFORE THE SEMINAR STARTS**

**VIDEOS HAVE TO BE WATCHED BEFORE AN EXERCISE.**

Schedule Summer Block Seminar in Intensive Technical Knowledge 2024

| Week 1  | Monday, 15th of July              | Tuesday, 16th of July             | Wednesday, 17th of July           | Thursday, 18th of July            | Friday, 19th of July          |
|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------|
| 08:00 - 11:00 (US-time),<br>14:00 - 17:00 (European time) | Material Science Exercise         | Material Science Exercise         | Material Science Exercise         | Material Science Exercise         | Material Science Exam         |
|   | Bot-Schulz                        | Bot-Schulz                        | Bot-Schulz                        | Bot-Schulz                        | Bot-Schulz                    |
| Week 2  | Monday, 22th of July              | Tuesday, 23 th of July            | Wednesday, 24th of July           | Thursday, 25th of July            | Friday, 26th of July          |
| 08:00 - 11:00 (US-time),<br>14:00 - 17:00 (European time) | Manufacturing Technology Exercise | Manufacturing Technology Exercise | Manufacturing Technology Exercise | Manufacturing Technology Exercise | Manufacturing Technology Exam |
|   | Bot-Schulz                        | Bot-Schulz                        | Bot-Schulz                        | Bot-Schulz                        | Bot-Schulz                    |
| Week 3  | Monday, 29th of July              | Tuesday, 30th of July             | Wednesday, 31st of July           | Thursday, 1st of August           | Friday, 2nd of August         |
| 08:00 - 11:00 (US-time),<br>14:00 - 17:00 (European time) | Static & Strengths Exercise       | Static & Strengths Exam       |
|   | Hoover                            | Hoover                            | Hoover                            | Hoover                            | Hoover                        |

# COURSE DESCRIPTION

## MATERIAL SCIENCE

### LEARNING TARGETS:

- Understand the structure of atoms and how the major crystal structures are built.
- Introduction to important materials and their construction, properties, meaning and applicability with a focus on ferrous metals.
- Understand the relationship between internal structure and their effect on functional properties of materials.
- Learn to assess opportunities to further process materials.
- Understand the possibilities and limitations of different material groups.

# COURSE DESCRIPTION

## MANUFACTURING TECHNOLOGY

### LEARNING TARGETS:

- Learn the six main groups of Manufacturing Processes (casting, forming, separating, joining, coating and modifying material properties).
- Get to know the subcategories of the first three main groups of Manufacturing Processes (casting, forming, separating).
- Learn both traditional and innovative processes and their respective characteristics.
- Identify boundary conditions for the technical and economical use of processes.
- Assemble several Manufacturing Processes to process chains for typical automotive components in tasks.
- Understand the relationship of Manufacturing Technology to Material Science and Statics and Strength.

# COURSE DESCRIPTION

## STATICS AND STRENGTH OF MATERIALS

### LEARNING TARGETS:

- Analyze systems of forces (decomposition and assembly of forces)
- Recognize and calculate the resulting effect of multiple forces and torques
- Mathematically and graphically determine unknown forces in even central force systems
- Determine unknown forces in even general force systems
- Calculate internal stresses in components for the base load cases
- Understand and assess component's failure mechanisms

# FAQs

## HOW ARE THE COURSES TAUGHT?

All courses have a self-learning part with the videos and additionally a live part for the exercises which is taught online via Webex Meetings. We use Moodle as Learning Management System.

1. Introduction session : 27<sup>th</sup> of June (via webex)
2. Self learning time: starting 1<sup>st</sup> of July
3. Live online exercises: starting 15<sup>th</sup> of July
4. Online exam: 19<sup>th</sup> of July, 26<sup>th</sup> of July and 2<sup>nd</sup> of August

## I AM AN INTERNATIONAL STUDENT – HOW DOES THE EXAM TAKE PLACE?

The exam takes place in an online format. You need a printer and a webex camera. Written exams are uploaded in Moodle and sent to the correcting lecturers.

## WHAT ARE THE PREREQUISITES?

Videos have to be watched before an exercise. The videos are available 2 weeks before the course starts. Good English language knowledge and mathematical knowledge are requested.

## DO I HAVE TO FINISH THE WHOLE SEMINAR INCLUDING ALL THREE COURSES?

**You can achieve maximum of 6 ECTS by passing all 3 exams – it is also possible to do partial exams in one or two subjects.**

Certificates will be given after the courses have been successfully passed (2, 4 or 6 ECTS and mark).

# REGISTRATION

OPEN FROM MAY 1<sup>ST</sup> UNTIL MAY 31<sup>ST</sup> 2024

REGISTER ONLINE (currently in process of being updated):

[WWW.HS-ESSLINGEN.DE/EN/MANAGEMENT-AND-TECHNOLOGY/  
DEGREE-PROGRAMMES/ORIENTATION-OPPORTUNITIES/BLOCK-SEMINARS/](http://WWW.HS-ESSLINGEN.DE/EN/MANAGEMENT-AND-TECHNOLOGY/DEGREE-PROGRAMMES/ORIENTATION-OPPORTUNITIES/BLOCK-SEMINARS/)

FOR QUESTIONS YOU CAN CONTACT:

[CHRISTIANE.HOEGER-RIEDEL@HS-ESSLINGEN.DE](mailto:CHRISTIANE.HOEGER-RIEDEL@HS-ESSLINGEN.DE)

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INTERNATIONAL COORDINATION OUTGOINGS AND INCOMINGS

FACULTY OF MANAGEMENT AND TECHNOLOGY

UNIVERSITY OF APPLIED SCIENCES

[HS-ESSLINGEN.WEBEX.COM/MEET/CHRISTIANE.HOEGER-RIEDEL](https://HS-ESSLINGEN.WEBEX.COM/MEET/CHRISTIANE.HOEGER-RIEDEL)