UNIVERSITY OF APPLIED SCIENCES, ESSLINGEN

WINTER BLOCK SEMINAR 2020
AT THE FACULTY OF MANAGEMENT

TECHNICAL BASICS

A 2 WEEK CREDIT BEARING PROGRAM

FEBRUARY 2020
WINTER BLOCK SEMINAR IN

TECHNICAL BASICS

ALL COURSES ARE AT BACHELOR’S LEVEL, FULL-TIME AND WORTH 6 ECTS

Winter School Technical Basics 2020

<table>
<thead>
<tr>
<th>Monday, 17 Feb 20</th>
<th>Tuesday, 18 Feb 20</th>
<th>Wednesday, 19 Feb 20</th>
<th>Thursday, 20 Feb 20</th>
<th>Friday, 21 Feb 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00-10.30</td>
<td>Materials Science</td>
<td>9.00-10.30</td>
<td>Materials Science</td>
<td>9.00-10.30</td>
</tr>
<tr>
<td>10.45-12.15</td>
<td>Materials Science</td>
<td>10.45-12.15</td>
<td>Materials Science</td>
<td>10.45-12.15</td>
</tr>
<tr>
<td>15.00-16.30</td>
<td>Materials Processing</td>
<td>15.00-16.30</td>
<td>Materials Processing</td>
<td>15.00-16.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monday, 24 Feb 20</th>
<th>Tuesday, 25 Feb 20</th>
<th>Wednesday, 26 Feb 20</th>
<th>Thursday, 27 Feb 20</th>
<th>Friday, 28 Feb 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00-10.30</td>
<td>Statics &amp; Strengths</td>
<td>9.00-10.30</td>
<td>Statics &amp; Strengths</td>
<td>9.00-10.30</td>
</tr>
<tr>
<td>10.45-12.15</td>
<td>Statics &amp; Strengths</td>
<td>10.45-12.15</td>
<td>Statics &amp; Strengths</td>
<td>10.45-12.15</td>
</tr>
<tr>
<td>15.00-16.30</td>
<td>Exercises</td>
<td>15.00-16.30</td>
<td>Exercises</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monday, 24 Feb 20</th>
<th>Tuesday, 25 Feb 20</th>
<th>Wednesday, 26 Feb 20</th>
<th>Thursday, 27 Feb 20</th>
<th>Friday, 28 Feb 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00-10.30</td>
<td>40 Minutes Exam Materials Science</td>
<td>9.00-10.30</td>
<td>40 Minutes Exam Materials Science</td>
<td></td>
</tr>
<tr>
<td>10.45-12.15</td>
<td>40 Minutes Exam Materials Processing</td>
<td>10.45-12.15</td>
<td>40 Minutes Exam Materials Processing</td>
<td></td>
</tr>
<tr>
<td>11.00-11.40</td>
<td>40 Minutes Exam Statics &amp; Strengths</td>
<td>11.00-11.40</td>
<td>40 Minutes Exam Statics &amp; Strengths</td>
<td></td>
</tr>
</tbody>
</table>

Lecturer:
Materials Science Dr. R. Bot-Schulz
Materials Processing Dr. R. Bot-Schulz
Statics&Strengths Thomas Hoover(B.Eng.)

Content:
- Fundamentals of Statics and Strength Theory and their application in Vehicle and Mechanical engineering.
COURSE DESCRIPTION

MATERIAL SCIENCE

LEARNING TARGETS:

1. Students will understand important materials and their construction, properties, meaning and applicability
2. Students will understand the relationship between internal structure and functional properties of materials
3. Students can assess opportunities to further process materials
4. Students will understand the possibilities and limitations of different material groups
5. Students will have in-depth knowledge of ferrous metals
COURSE DESCRIPTION

MATERIALS PROCESSING

LEARNING TARGETS:

- Students will learn the six main groups of manufacturing processes (casting, forming, separating, joining, coating and modifying material properties)
- Students will get to know the subcategories of the first three main groups of manufacturing processes
- Students will learn both traditional and innovative processes and their respective characteristics
- Students will identify boundary conditions for the technical and economical use of processes
- Students will assemble several manufacturing processes to process chains for typical automotive components
- Students will understand the relationship of Manufacturing Technology to Material Science and Statics and Strength
COURSE DESCRIPTION

STATICS AND STRENGTH OF MATERIALS:

LEARNING TARGETS:

- Students will analyze systems of forces (decomposition and assembly of forces)
- Students will recognize and calculate the resulting effect of multiple forces and torques
- Students will mathematically and graphically determine unknown forces in even central force systems
- Students will determine unknown forces in even general force systems
- Students will calculate internal stresses in components for the base load cases
- Students will understand and assess component’s failure mechanisms
APPLICATION

UNTIL 12TH OF FEBRUARY

SEND AN E-MAIL TO:

CHRISTIANE.HOEGER-RIEDEL@HS-ESSLINGEN.DE