Course Title: Technical Mechanics 3

Abbreviation: TME3

Study Program: Mechanical Engineering – Bachelor

Semester: 3

Language of Instruction: German

Responsible Professor: Professor Dr. Eng. Andreas Nauerz

Lecturers: Professor Dr. Eng. Gerhard Hiltscher, Professor Dr. Eng. Andreas Nauerz, Professor Dr. Eng. Stefan Halfmeier, Professor Dr. Eng. Stefan Steiger

Classification in Curriculum: Required

Contact Hours per Week: 4

Credits: 5

Prerequisites: TM1 (Statics of Rigid Bodies), Mathematics 3

Competency Goals: The qualification objectives of this course are in the areas of scientific and professional competencies. The goal is that the students can describe movement processes (path, velocity, and acceleration) of points and of rigid bodies in different coordinate systems. The students will understand the relationship between movement and the causative forces. The students can perform methods with help from movement equations to solve translative and rotational movements and mechanical oscillations.

Work Load

<table>
<thead>
<tr>
<th></th>
<th>Contact Hours per Week</th>
<th>Total hours in Semester</th>
<th>Individual Work [hours]</th>
<th>Credits: 5</th>
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</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>3</td>
<td>34</td>
<td>15</td>
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<tr>
<td>Exercises</td>
<td>1</td>
<td>11</td>
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<tr>
<td>Test Preparation</td>
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<tr>
<td>Total</td>
<td>4</td>
<td>45</td>
<td>105</td>
<td>Total Hours: 150</td>
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Course Contents

1. Basics of Kinematics
   1.1. Kinematics of a point
   1.2. Spatial movement in cartesian coordinates
   1.3. Spatial movement in cylindrical coordinates
   1.4. Spatial movement in natural coordinates
   1.5. Graphical representation of movement
### Teaching Methods

Lectures, practice exercises, tutorials, lecture notes, learning platform “Moodle” (very similar to ISU Canvas)

### Evaluation Test

120 minute test

### Literature

- Holzmann, G.; Meyer, H.; Schumpich, G.:
| Status, this document created on | March 2017 |