

Course Description – Summer 2025

Title	Electrical Engineering I
Faculty	Electrical Engineering
Professor	Martin Schreivogel
ECTS	5
Level	Bachelor
Requirements	Basic knowledge in mathematics and physics
Add. Information	-
Content	<p>The lecture starts from fundamental aspects of electric phenomena and explains their technical utilization in different kinds of application areas. Target is to be able to understand and explain basic working principles of e.g. sensors and electrical machines like electric engines and transformers.</p> <p>The gained knowledge enables the students to perform electrotechnical considerations qualitatively and quantitatively as basis for different subsequent courses.</p> <p>Besides the lecture itself there is a strong focus on practicing and internalization of the principles during the seminar.</p> <p>The first part of the two courses starts from electrical and current density fields and leads to the calculation of DC networks.</p> <ul style="list-style-type: none"> - Electric charge and electric fields - Charge transport and current density - Basic electric components and their characteristics - Active and passive two terminal networks - DC networks - Current, voltage and power measurement - Different calculations methods, e.g. Kirchhoff's laws