

Course title	<i>Sensors</i>
Course code	<i>IP 415</i>
Module coordinator	<i>Miriam Heinrich</i>
Lecturer	<i>Prof. Dr. Klemens Gintner</i>
Level of course	<i>Bachelor</i>
Recommended prerequisites	<i>basics in digital and analogue electronics</i>
Type of course	<i>Lecture</i>
Weekly lecture hours (SWS)	<i>2</i>
ECTS credits	<i>2 ECTS</i>
Workload	<i>in total 60h, 30 h course attendance, 30 h self-study</i>
Assessment (grading; pass/fail)	<i>graded</i>
Regular cycle	<i>Each semester</i>
Language of instruction	<i>English</i>
Contents:	<ul style="list-style-type: none"> • <i>Fundamentals of measurement and test engineering</i> • <i>terms as accuracy, resolution, linearity, reproducibility and error</i> • <i>Physics of different sensor effects (temperature, pressure, force, magnetic field strength, acceleration, rotational speed, light intensity)</i> • <i>Influence of electromagnetic disturbance, noise</i> • <i>Electronic signal conditioning (usually analog electronics)</i>
Learning outcome (competencies):	<p><i>After successful completion of the course, the students should</i></p> <ul style="list-style-type: none"> • <i>know the basics of measurement technology - especially terms like accuracy, resolution, repeatability, error</i> • <i>be able to discuss and evaluate the influences on measurement - effects and influences regarding electromagnetic compatibility (EMC)</i> • <i>have a well-founded overview of different sensor effects when measuring temperature, pressure, speed, magnetic fields, angle, acceleration, rotational speed</i> • <i>understand signal conditioning</i> • <i>how to deal with noise (increase SNR)</i>
Teaching methods	<input checked="" type="checkbox"/> <i>Lecture</i> <input type="checkbox"/> <i>Group work</i> <input type="checkbox"/> <i>Exercises</i> <input checked="" type="checkbox"/> <i>Simulation</i> <input type="checkbox"/> <i>Video feedback</i> <input checked="" type="checkbox"/> <i>Others: Excursion</i>
Assessment methods	<i>Written exam</i>
Recommended reading	<ul style="list-style-type: none"> • <i>documentation</i> • <i>Marek et. al.: Sensors for Automotive Sensors, Vol. 4, Wiley-VCH, 2003</i> • <i>Göpel et. al., Sensors, Volume 5, Wiley-VCH, 1989</i> • <i>Schmidt, Sensor-Schaltungstechnik, Vogel-Verlag, 1997</i> • <i>H.R. Tränkler, E. Obermeier, Sensortechnik, Springer-Verlag, 1998</i>
Additional information	<i>Klicken oder tippen Sie hier, um Text einzugeben.</i>
Recognition of credits	