

Course title	Digital Failure Diagnosis
Course code	IP 408
Module coordinator	Miriam Heinrich
Lecturer	Dr. Alexei Konnov
Level of course	Bachelor
Recommended prerequisites	Participation in IP 423 Reliability Engineering – Compact is highly recommended/basic knowledge in reliability theory, probability theory, formal logic
Type of course	Lecture
Weekly lecture hours (SWS)	2
ECTS credits	2
Workload	In total 60h, 30h course attendance, 30h self-study
Assessment (grading; pass/fail)	graded
Regular cycle	Each semester
Language of instruction	English
Contents:	<p>The course introduces main principles of failure detection, localization and correction in communication channel as well as in electrical circuits. Failure in communication channel (information distortion)</p> <ul style="list-style-type: none"> • Main principles of information encoding - Self-corrective codes • Hamming distance • Hamming code • Building of coder and decoder <p>Failure in electrical circuits</p> <ul style="list-style-type: none"> • Failure types • Fault detection and fault isolation • Structure oriented tests • Function-oriented tests • Minimal and necessary tests / KV maps • Easily testable circuits / PLA
Learning outcome (competencies):	<p>After having successfully completed the course, the students should</p> <ul style="list-style-type: none"> • have general understanding about main principles of digital failure diagnosis • have general understanding about main concepts of self-corrective codes • have general understanding about main concepts of electrical circuits testing
Teaching methods	<input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Group work <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Simulation <input type="checkbox"/> Video feedback <input type="checkbox"/> Others:
Assessment methods	Written Exam
Recommended reading	
Additional information	
Recognition of credits	