

Course title	Reliability Engineering - Compact
Course code	IP 425
Module coordinator	Cordelia Makartsev
Lecturer	Dr. Alexei Konnov
Level of course	Bachelor
Recommended prerequisites	None
Type of course	Lecture
Weekly lecture hours (SWS)	4
ECTS credits	4
Workload	In total 120h, 60h course attendance, 60h self-study
Assessment (grading; pass/fail)	graded
Regular cycle	Each semester
Language of instruction	English
Contents:	<p>This module provides an introduction to the theoretical and practical aspects of reliability engineering using the example of availability and safety analysis of power plant digital control systems (DCS).</p> <ul style="list-style-type: none"> <li>• The module contains the necessary basics of the probability and dependability theory as well as a general introduction to the digital control systems (DCS).</li> <li>• This module provides the extended mathematical models for quantitative reliability and safety analysis.</li> <li>• Stochastic processes and the appropriate dynamic mathematical models (e.g. Markov Model) will be introduced.</li> </ul>
Learning outcome (competencies):	<p>After having successfully completed the course, the students should</p> <ul style="list-style-type: none"> <li>• have a general understanding of the structure and operating principle of digital control systems;</li> <li>• have an understanding of availability and safety importance in modern technical systems (e.g. DCS);</li> <li>• understand and be able to use the fundamental concepts of availability and safety analysis;</li> <li>• have an understanding of stochastic processes and the appropriate dynamic mathematical models (Markov Model)</li> </ul>
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	Lesson script
Additional information	
Recognition of credits	