

Revised course memorandum
November 1, 2010

TMS026/MSG700 Reliability Theory 7.5 hp

Textbook: *System Reliability Theory: Models, Statistical methods, and Applications*, 2nd edition by Marvin Rausand & Arnljot Høyland. Wiley, 2004. Rausand has supplementary web pages starting at <http://www.ntnu.no/ross/srt/>.

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Project work: Projects will be specified and randomly assigned to two groups. The groups are required to work through and hand in a short report on its project. The project hand out is estimated to be in week 46 (Markov lecture). Dead line for the first project hand in is Thursday, December 2 at 16:30. The preferred format is a pdf-file mailed to tommy@chalmers.se. The reports will be classified as either passed or failed. There will be one opportunity to up-grade a failed report.

Home page: <http://www.math.chalmers.se/Stat/Grundutb/CTH/tms026/1011/>

Requirements: To pass this course you should pass the written exam and the project work. The grade of the exam, will also be the course grade.

Course contents

Passage	Chapter	Sections	Exp hours in class	
			Lectures	Tutorials
Course introduction			1	0
Introduction	1	all	0	0
Failure models	2	1-7, 9, 10, 12, 19	3	0
Life data analysis	11	all	2	0
Bayesian reliability analysis	13	1-5, (6), 7, 8	2	0
Qualitative system analysis	3	?, 6, 8-11	1	0
Systems of independent components	4	1-6	1	0
Markov processes	8	1-6	2	0
Project hand out			0	0
Component importance	5	1-3, 6, 8	0	0
Dependent failures	6	(1-2), 3-5	0	0
Counting processes	7	1-3	2	0
Reliability of maintained systems	9	1-7	0	0
Reliability of safety systems	10	1-8	0	0
Accelerated life testing	12	1-3	0	0
Reliability data sources	14	all	0	0
Final discussion, course evaluation and a look at old exams			0	2
Sums:			14	2

Suggested exercises

Chapter	Focus on	Try (or see) also
2	2, 9, 15, 23, 31, 33, 37, 42	1,3, 7, 8, 10, 12, 17, 18, 21, 22, 26, 27, 28, 29
11	1, 7, 8, 9, 11, 13	
3	6, 7, 10, 12b, 17	8, 9, 11, 13, 14, 16
13	3, 4, 7	8?
4	1, 4, 6, 11	2, 3, 5, 7, 8, 10?, 12?
8	1, 2, 6	3, 4, 7
5	1, 5, 7	3, 8(a, b), 9
6	1, ex 6.8	
7	1, 3, 4, 6, 12	2, 7, 8
9	3, 4, 6	2
10	1, 5	2, 3
12		