Statistical Quality Control 7.5 p

(MVE-145/MSG-600)

Course PM

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The purpose of the course is to provide the students with a set of methods for achieving quality control in manufactoring processes.
After the course the student will be able to:
- understand and be able to apply basic probabilistic and statistical techniques for modeling and analysing variability
associated with production manufacturing
- be able to use some modern tools of quality control including
ISO 9000 and 7 QC
- have a general knowledge about other modern methods of statistical quality control.
The course will consist of lectures (4h/week), projects and assignments that can give bonus to the (first) written exam.

Schedule:
Wednesdays: 13.15 -17.00 MVH12
Observe that Wednesday 28 november will be moved to antother date.

The lectures will be a combination of explanation of important aspects of the course material, exercises and time for questions. Observe that the number of lessons are half of normal. This means more work for the student.

Course litterature:

- Introduction to Statistical Quality Control, 5ed by Douglas Montgomery. (Cremona)
- Extra material handed out during lectures.

Examination:
The course evaluation is based on the results from
the computer laborations, the home assignments,
and the written final examination.

Written exam 18 december (morning) in V
Grade limits (CTH): 3: 12-17.5, 4: 18-23.5, 5: 24-30
Grade limits (GU): G:12-21.5, VG: 22-30
Aid: Accepted calculator (typgodkänd räknare), formula (Beta or simular) and a handwritten A4-page with notes.
Obligatory projects and laborations that will give bonus to the exam.

Information.
Hompage: www.math.chalmers.se/Stat/Grundutb/CTH/mve145/0708/

Week	Contents	Not prioritzed	Exercises – a suggestion	Homework – suggestion*
1 31 oct.	**Ch. 1:** Quality **Ch. 2-3:** Modelling process quality and inferences about process quality		2.3, 2.4, 2.8, 2.10, 2.16, 2.23, 2.24 2.25, 2.29 2.33, 2.35, 2.44, 2.45 3.9, 3.13, 3.15, 3.24, 3.36	2.1, 2.6, 2.7, 2.9, 2.17, 2.31, 2.32, 2.36, 2.38, 2.47, 2.51, 2.51, 2.52, 2.53 3.1, 3.3, 3.10, 3.14, 3.19,3.25, 3.33
2 7 nov.	**Ch. 3:** Sampling, statistics and ANOVA **Ch. 14 – 15:** Test of hypothesis and statistical acceptance sampling, AQL-plans and some standards.	14.3, 14.5 15.2 – 15.6	14.10, 14.16	14.1, 14.3, 14.5, 14.15, 14.16
3 14 nov.	**Ch. 4**: Statistical process control. Models of variation. The philosophy behind statistical process control. **Ch. 5:** x-, r- and s-control charts.	5.3.2-3	4.4, 4.11, 4.13, 4.28, 4.32, 4.33 5.2, 5.7, 5.13, 5.23, 5.36, 5.40, 5.41, 5.44, 5.52, 5.53	4.5, 4.10, 4.14, 4.24, 4.25, 4.29, 4.31 5.3, 5.4, 5.12, 5.30, 5.50, 5.54
4 21 nov.	**Ch. 6:** Control charts for attributes **Ch. 8:** CUMSUM och EWMA	8.1.5-8, 8.1.10, 8.2.5	6.1, 6.5, 6.7, 6.11, 6.30, 6.36, 6.46, 6.55 8.1, 8.2, 8.13, 8.21, 8.22, 8.26, 8.29, 8.30	6.2, 6.4, 6.8, 6.12, 6.28, 6.40 8.4, 8.6, 8.9, 8.23, 8.27
5 Not 28 nov.	**Ch: 7:** Measurement systems analysis **Ch. 7:** Processkapabilitet	7.6.3	7.26, 7.28, 7.32 7.5, 7.10, 7.19, 7.21,	7.25, 7.28, 7.30, 7.33 7.6, 7.9, 7.20
6 5 dec.	**Ch. 9:** Autokorrelerade data **Ch. 10:** Multivariat SPS	9.5-9.9 10.4-8	9.16, 9.18 10.2, 10.4, 10.10, 10.12	9.20, 9.21, 9.22 10.1, 10.3, 10.11, 10.13
7 12 dec.	Conclusions and repetition. Discussion about course.		An old exam?	

* = Observe that there are many excercises in Montgomerys book and this is only a suggestion to you. You decide if you want to do more or less excersises. There exists solutions to most of the exercises of varying quality. Det .

The schedule is preliminary and can be adjusted.