

MVE145/MSG600 Statistical Quality Control

Reading instructions

Lecture 1: Acceptance sampling by attributes

The lecture is based on Chapter 15 in Montgomery. Focus your attention to Sections 15.1, 15.2 and 15.3, except subsection 15.3.3.

Try to solve Exercises 1–7, 10 and 13, of which 1, 5, 10 and 13 are highly recommended.

Lecture 2: Acceptance sampling by variables

The lecture is based on Chapter 16 in Montgomery. Focus your attention to Sections 16.1, 16.2 and 16.4.

Not many exercises seem relevant. Try to solve 1 and 2. Disregard the requirement to use Procedure 1 in Exercise 1 and solve Exercise 2 assuming the standard deviation known.

The guest lecture by Thomas Svensson is based on material in Chapters 1 and 2 of Montgomery. It is a good idea to read these two chapters at least once during the time of the course.

Lecture 3: Statistical inference

The lecture is based on Chapter 4 in Montgomery. You may find that Chapter 3 contains stuff that are needed for a good understanding of Chapter 4.

Relevant exercises are 1–18, 20, 22–30, 32, 34–47, that is almost all. It could be a good idea to first try on some of 2, 3, 7–9, 13–16, 18, 20, 23, 27, 30, 35, 37–39. The exercises 41–47 are concerned with how to interpret Minitab outputs. It is of course very important to be able to correctly interpret output from statistical software.

Lecture 4: Statistical process control

The lecture is based on Chapters 5–7 in Montgomery.

Most exercises are relevant. I'm inclined to think that there are too many. All exercises for Chapter 5 seem relevant except, perhaps, 12 and 29. The exercises 1–8 are questions you should ask yourself when studying the chapter. The exercises 11 and 13–22, too. They are very central. The exercises 24–27 are concerned with the rest of the magnificent seven and, thus not very central in this (mathematical) course.

So to Chapter 6. Relevant exercises are 1–33, 35–44 and 46–49. These are too many, so you may want to restrict attention to 3, 9, 12, 16, 40 and 46.

The relevant exercises at the end of Chapter 7 are 2–8, 10–15, 17, 19–20, 23, 25–27 and 29–31. You may restrict attention to those with answers.

Lecture 5: CUSUM and EWMA charts

The lecture is based on Chapter 9 in Montgomery. The sections 9.1.5, 9.1.6, 9.1.9, 9.1.10, and 9.2.3 and 9.2.4 are left for self-studies. You may omit Section 9.1.11.

Focus attention to the exercises with answers.

Lecture 6: Multivariate SPC

The lecture is based on Montgomery, Chapter 11. Focus on Sections 11.1, 11.2, 11.3 and 11.6. You may omit Subsection 11.3.2.

Relevant exercises are 11.1–11.11.

Lecture 7: Multivariate SPC

The lecture is based on Montgomery, Chapter 8. Focus attention to Sections 8.1–8.4. Read through Sections 8.5 and 8.6. The remaining sections, although interesting, are omitted. At the exam, you will not be required to calculate confidence intervals for the PCR's C_{pk} and C_{pc} .

Relevant exercises are 8.1–8.16.