

## Quality Management and Metrology (MEC-E1090)

Examination on Tuesday the 13rd of December 13...16 o'clock, K215

1. What is the role of the **quality manual** in ISO 9001 –quality standard. What are the requirements for quality manual in the latest standard 2015 edition.
2. Contents and evaluation criteria of **European Quality Award (EFQM Excellence Award)**
3. The key issues of the **calibration system** of the measurement devices and machines
4. What is  **$\bar{x}R$  –control card** and how do you utilize the card in quality system
5. **Roundness Measuring Machine**; different machine structures, probes, control software and industrial applications
6. Answer very briefly:
  - a) Measurement uncertainty
  - b) Caliper
  - c) CMM
  - d) Laserinterferometer
  - e) Definition of the meter
  - f) MIKES

(Grades: 0...6 points/question, accepted examination 40% of the maximum points eq. 14 points)

**Merry Christmas and joyful winter!**



Kalevi Aaltonen