

Questions for the state final exam

**Master study programme N0715A270009 – Industrial Engineering,
academic year 2022/2023**

QUALITY MANAGEMENT AND METROLOGY

1. Measurement errors, measurement uncertainties and their expression.
2. Length gauges (division, essence, use in metrology, spiral vernier).
3. Collimation gauges – their use in metrology. Measuring microscopes, projectors – their use in metrology.
4. Coordinate measuring machines – contacting (division, measuring principle, measuring methods and their use in metrology).
5. Coordinate measuring machines – contactless (division, measuring principle, measuring methods and their use in metrology).
6. Thread inspection and measurement (methods, gauges).
7. Inspection and measurement of gears wheels (methods, gauges).
8. Deviations of shape (straightness, flatness, roundness, cylindricity – definition, control methods, gauges).
9. Deviations of positions (parallelism, symmetry, concentricity, perpendicularity, runout – definitions, control methods, gauges).
10. Quality management (Basic terms in quality, quality features, quality spiral, quality costs and concept of management quality).
11. Statistical methods in quality management (control tables, histograms, Pareto analysis – essence, analysis, use).
12. Statistical methods in quality management (flow chart, cause and effect chart, scatter charts – essence, analysis, use).
13. Statistical regulation of measurement and comparison (control diagrams, their analysis and use).

14. Fundamentals of statistical analysis (methods of production process capability analysis, production equipment, gauges – capability indices).
15. Statistical acceptance by comparison and measurement.
16. Eligibility of measuring systems – MSA, VD5.
17. Customer Quality - FMEA, 8D Report.
18. Customer Quality - APQP, PPAP.
19. Quality handbook (essence, purpose).
20. Company Metrology Regulations (essence, purpose).