VSB TECHNICAL UNIVERSITY OF OSTRAVA | FACULTY OF MECHANICAL ENGINEERING

Questions for the state final exam

Master study programme N0715A270022 – Engineering Technology,

academic year 2022/2023

ASSEMBLY, TOOLS AND FIXTURES, PROCESS CONTROL AND DESIGN

1. Design of form turning tools and their cutting edge geometry.
2. Design of form milling cutters with relieved teeth and their cutting edge geometry.
3. Involute gearing - definition and tools for its machining, design of disk-type and end-type gear milling cutters and their cutting edge geometry.
4. Design of cutting tools for gear generating (rack-shaped cutters, hobs, pinion-shaped cutters) and their cutting edge geometry.
5. Measuring machines (length meters, microscopes, projectors, collimation) and coordinate measuring machines (mobile and stacionare)
6. Deviations of shape and positions (definitions, control methods, gauges).
7. Basic tools and quality management systems.
8. Methods used in quality planning and for process monitoring and improvement (FMEA, 8D report, APQP, PPAP, SPC-diagrams...).
9. The stages of technological design, the flow chart of systematic design.
10. The issue of the economical use of production system elements – capacity calculations.
11. The procedures and methods of the placement of objects, machines, and workplaces.
12. Fire protection principles in design, workplace lighting, noise.

13. The definition of the concept of production and production management, production management goals, production management hierarchy, the position of production in the company management system.
14. Fixtures – definition, classification, application, jig and fixture construction, permanent jigs and fixtures, modular fixtures and general-purpose workholders.
15. Basic principles of locating – locational accuracy, locators and supports.
16. Clamping devices – strap-, screw-, edge-, C-, swing C -, shark-, cam- and toggle clamps.
17. Jig construction – template-, plate-, table- and indexing jigs, drill bushings.
18. Assembly Elements and Systems.
19. Assembly Methods.
20. Assembly Organization, Lines and Rationalization.