

Topics for diploma examination for degree of Bachelor of Science Engineer

First cycle studies, field of study: management

Technical questions:

1. History of technological inventions and achievements crucial for development of technological civilisation (stone tool making, fire making, hunting tools, wheel, paper, clocks, steam engines, combustion and electric engines, reactor, computer)
2. Phenomenon of friction in technology
3. Principle of energy conservation
4. Efficiency of processes and machines
5. Energy accumulation in technology
6. Normalization and systems of compliance assessment in technology
7. General principles of calculating strength of materials at various loads
8. Metalworking (its essence, technologies, tools, products, effect on the environment and on humans)
9. Metal casting (essence, technologies, tools, products, effect on the environment and on humans)
10. Machining (essence, technologies, tools, products, effect on the environment and on humans)
11. Abrasive machining (essence, technologies, tools, products, effect on the environment and on humans)
12. Erosive machining (essence, technologies, tools, products, effect on the environment and on humans)
13. Surface treatment (essence, technologies, tools, products, effect on the environment and on humans)
14. Thermal and thermo-chemical treatment (essence, technologies, tools, products, effect on the environment and on humans)
15. Permanent fastening in mechanical engineering
16. Non-permanent fastening in mechanical engineering
17. Use and construction of clutches and brakes in machines
18. Use and construction of gears in machines
19. Causes and effects of automation of manufacturing processes
20. Machines in aid of intellectual processes in humans

Topics in the field of study:

1. Basic market models (perfect competition, monopolistic competition, oligopoly, pure monopoly)
2. Consumer behaviour in market economy
3. Company and its function in economy
4. Financial systems in the state and the economy
5. Organizational and legal forms of business activity and types of business ownership
6. Legal system, sources of law, branches of law
7. Notion and functions of management
8. Organizational structure, its essence, classification, determinants
9. Management levels in businesses
10. Management styles
11. Motivation theories in management
12. Determinants of behaviour of individuals as well as of social groups in a company (organizational behaviour)
13. Human resources management in an organization (theories, models and elements of the system)
14. Project management (essence and types of projects, project life cycle, project structure, project planning and budgeting, organization of project team)
15. Specificity and organization of marketing management
16. Marketing mix
17. Origins, essence and development stages of marketing
18. Basic structures and varieties of marketing including marketing specificity of manufacturing companies
19. Product conceptualization and product creation in marketing and analysis and formation of product range of a manufacturing company
20. Financial reports and their analysis
21. Cost accounting in a company
22. Methods of economic assessment of investments
23. Basic concepts in production organization (product range, production planning, rate of production, takt time, production cycle)
24. Computational model of balancing design load with production capacity
25. Types (forms) of production units of complexity level I
26. Designing manufacturing cells and direct line production
27. Inventory management
28. Cybernetic system man-machine as illustration to the scope of contemporary ergonomics