The existing sets of questions/issues are valid for students recruiting until 2020 inc.

(in case of a break in study, e.g. a dean's / health leave, a semester without registration ... the applicable study plan should be individually checked)

Zestaw pytań na egzamin dyplomowy – MANAGEMENT AND MANUFACTURING ENGINEERING/PM – II stopień

The diploma examination commission may ask questions not included in the given sets of issues, which are included in the canon of knowledge of a given degree of study and field of study.

GROUP A

1. Discuss the concept and classical functions of management.
2. Characterize briefly the fundamentals and the role of using CE marking in European Union.
3. Characterize the FMEA method.
4. Give the objectives and characterize shortly the SWOT analysis.
5. The Fillars of TPM
6. What are the key indicators of effective implementation of the production orders?
7. What is the difference between request order and production order? (zamówienie, a zlecenie)
8. What is the method of QFD.
9. What is marketing mix 5P.
10. What is the biomechanics of work and what research methods are used?
11. What are objectives and structure of a marketing plan?
12. Discuss a product lifecycle curve using the chosen example.
13. Characterize some of main principles of a present approach to the quality management.
14. What are objectives and tasks for the intellectual property management in enterprises?
15. List basic functional units of cutting machines.
16. What is the difference between conventional and NC machines?
17. List operational attributes of cutting machines.
18. Name basic technological possibilities of cutting machines (what kind of surfaces are possible to be machined on particular cutting machines?)
19. Hierarchical wastes management rules.
20. List and briefly characterize conventional and renewable energy sources.
21. What is the moment of the force F with respect to the point O?
22. What is the main vector and main moment?
23. What is the mass centre and what are the static moments?
24. Explain the distinction between ductile and brittle structural materials.
25. Discuss the conditions that must be met in order to occurrence of the crystallization. Comment on them.
26. What is safety factor/indicator
27. What is losses of stability? Example on strut.
28. Diagram Fe-Fe3. What is a distribution of steel, cast iron and cast steel
29. What are metals? What are properties of metals are called strength and plastic?
30. Grinding
31. Oscillatory superfinish. Boring.
32. Milling the gear wheels.
33. Electric pressure welding.
34. Coordinate measuring technique and traditional technique.

35. How to determine tolerance dimensions in the drawing?
36. Name and symbols of geometrical tolerance. How to mark geometrical tolerance on the drawing?
37. Name and symbols of positional tolerance . How to mark positional tolerance on the drawing?
38. The design and construction process (Proces projektowo-konstrukcyjny.) 39. The basic concept of the finite element method (FEM) - the types of elements.
40. Definition and examples of applications of link mechanism

Group B

1. Characterize briefly chosen technology of Rapid Prototyping.
2. Characterize briefly chosen technology of Rapid Manufacturing.
3. Characterize the typical process run of Rapid Tooling.
4. Characterize the typical process run of Rapid Prototyping.
5. What is "Integrated Management System"?
6. What is a difference between an information & informatics system?
7. Describe the usage of simulation models in material resources management.
8. Describe factors responsible for changes and necessary actions by projects.
9. Show basic features characteristic for projects.
10. Show the Henry Gantt's diagram.
11. What is the purpuse of cost in project plan in area of communication.
12. Characterise definition of risk for project and give main areas where it might appears.
13. Explain definition of originality technical system and give an exaple (object, process) and its levels.
14. Characterise definition and aims of of innovative and innovativity.
15. Explain minimum 2 measurements of technical strategy in company.
16. List non-economic ways of motivating employees
17. List sources of resistance to changes
18. What are the sources of recruitment employees.
19. Describe wrong approach in evaluation of employees performance
20. List sources of conflicts in companies
21. Name the basic negotiation styles and characterize them.
22. Name all known to you methods of employee motivating
23. Name the necessary skills of a negotiator
24. Traditional and modern view on conflict in the company
25. Characterize the creative type of a meeting
26. Discuss briefly phases of the company's strategy creation and strategy's structure.
27. Characterize briefly macro environment of a company and its segmentation.
28. Discuss factors forming a competitive situation in a market sector - M. Poter's five forces.
29. Explain definition of the enterprise's mission, its function and role. What is the mission of Faculty of Mechanical Engineering of Wroclaw University of Technology?
30. What internal and external ways of a company's development do you know?
31. What is the model L. Greiner - five steps (evolutionary and revolutionary) development of the organization.
32. What is the strategy of vertical integration?

Group C

1. What problems and under what conditions can be solved with the aid of Linear Programming?
2. Explain and characterize the concept of risk factors in a production system.
3. What is the NC program and how it arises?
4. What is a hybrid modeling in CAD systems?
5. What types of data exchange between CAD systems do you know?
6. Describe what parametrisation of 3D CAD models consists of.
7. Name kinds of inspection strategy in flexible manufacturing systems you are familiar with. Describe market tendencies that stimulate the development of flexible production.
8. Depict main functional subsystem of flexible manufacturing systems and characterize them
9. Characteristics (focusing on differences) of: NC machine tools, machining center and autonomous manufacturing station.
10. Name types of circuit of tools in flexible manufacturing system and characterize them.
11. What is role of cluster analysis and group technology in FMS
12. Methods of part fixing and changing in FMS
13. The main types of storage systems in FMS and exemplary structures
14. Typical chip disposal installations and chip initial processing in FMS
15. Give means of transport used in FMS
16. What methods of shortening the time of executing production order are used during detailed scheduling?
17. List the advantages and disadvantages of forward and backward scheduling.
18. What problems and under what conditions can be solved with the use of Linear programming?
19. What is the difference between an information system and a computer system? What role does it have in the enterprise?
20. Clarify and characterize the concept of risk factors in the production system.
21. What is the difference in evaluation of the risk according to German and American approach?
22. Which approach (American or German) can be implemented to evaluate the risk of production system and why?
23. Characterize the method of modeling function of the system, named IDEF0.
24. Characterize the method of modeling systems, named UML.
25. Characterize the method of modeling business processes, named BPMN.
26. Characterize the place and functions of PDM systems in a manufacturing system.
27. What is PLM and how it differs from PDM?
28. What is the Mechanism and Control of cube ICOM (IDEF0 model) - give examples?
29. Present in what way simulation models can be used in the planning of workstations disposition.
30. Present the use of simulation models in the management of material resources.
31. Name the 9 areas of skills (competencies)of project management and discuss 3 of them
32. Describe the measures of success of the project -Management triangle
33. Characterize the risks to the project and main areas in which it may occur. What is the alternative plan for the project?
34. The originality of the technical system (object, process) and its levels - define and give examples.
35. Analysis of the strategic potential of company. Illustrate one of the chosen method: the strategic balance of the company or the analysis of keysuccess factors or value chain analysis or analysis of resource

36. Assessment of strategic position of the company. Present with one selected METHODS: SWOT analysis matrix or BCG matrix or McKinsey matrix or ADL matrix
37. What is the horizontal diversification strategy, and the vertical diversification strategy.