

COURSE GUIDE

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|---|--|
| <u>Subject name</u> | Production and service management |
| <u>Course of study</u> | Quality and Production Management |
| <u>The form of study</u> | Full-time |
| <u>Level of qualification</u> | I |
| <u>Year</u> | II |
| <u>Semester</u> | 3 |
| <u>The implementing entity</u> | Department of Production Engineering and Safety |
| <u>The person responsible for preparing</u> | dr hab. inż. Robert Ulewicz, prof. PCz |
| <u>Profile</u> | general academic |
| <u>Course type</u> | major subjects |
| <u>ECTS points</u> | 4 |

TEACHNING METHODS – NUMBER OF HOURS PER SEMESTER

| LECTURE | CLASS | LABORATORY | PROJECT | SEMINAR |
|----------------|--------------|-------------------|----------------|----------------|
| 15E | 15 | - | - | - |

DESCRIPTION OF THE SUBJECT

1. AIM OF THE SUBJECT

C1. Knowing essential problems from the scope of production management and services, as well as, acquiring the ability to explain and applying principles, methods and techniques used in management of production processes and services.

C2. Knowing contemporary methods and trends from the scope of the organization and management of production processes and services.

C 3. Capturing the ability of identifications and classifications producing systems and abilities of creating models of the production/service system in production enterprises and services.

2. ENTRY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1.Student knows the basics of management.

2.Student knows the basic production processes.

3. The student knows the basic mathematical calculations.

3. EDUCATIONAL OUTCOMES

EK 1- The student uses the terms in the field of production management and services and also knows how to explain selected principles for the use of selected methods and techniques used in management of production processes and services

EK 2- The student knows how to use Lean Manufacturing tools in the production process and quality

EK 3- The student is able to describe technical preparing of new products and preparing the new production. He also is able to characterize the process of production steering.

4. LERNING CONTENT

| Type of teaching – LECTURE | Number of hours |
|---|------------------------|
| W 1 - Place of production management and services in enterprises, traditional and trial presentation. Notion of the product and the service. Principles of production management and services. | 1h |
| W 2 - Notion and classification of production processes. Production and manufacturing process. Straight and complex production processes. Basic parameters of production processes. | 1h |
| W 3 - Planning the flow of the production by production shed of the enterprise in the time and space. | 1h |
| W 4 - Production and technological cycle. Meaning of synchronization methods for the operation in a production process. In series, parallel and in series-parallel organization of production cycle. | 2h |
| W 5 - Productivity of the production system and methods of improvement. | 1h |
| W 6 - Technical preparing of new products. | 1h |
| W 7 - Types, forms and varieties of the production organization. | 2h |
| W 8 – Preparing the production. | 2h |
| W 9 – Planning and steering the course of the production. | 2h |
| In 10 – Techniques of streamlining action of the production system. | 1h |
| In 11 - Methods of the production humanization. | 1h |
| Type of teaching – exercises | Number of hours |
| C 1 - Creating the model of the production system for chosen product, characteristics of entry vector and the vector of the exit. Analysis of the influence of surroundings on the production/service system. | 2h |
| C 2 - Methods of calculating the production capacity at using the index method, using the production capacity. | 2h |
| C 3 - Characterization of a production process in the chosen enterprise with the division on the process of research and development, the manufacturing process, the distribution process and customer services, the creature of the scheme of the manufacturing process in the technological and subject aspect. | 2h |
| C 4 - Examples of types and forms of the production organization, tasks. | 1h |
| C 5 - Productivity of the production system, calculating the total and fragmentary productivity. | 1h |
| C 6 - Methods of the rational distribution of workstations: the method of circles and triangles, laying machines and productive facilities out on the horizontal projection of the factory floor in the chosen enterprise, creating the card of the course of material with the graph of the course of material. | 2h |
| C 7 - Selection of machines to the manufacturing system in the chosen enterprise. | 1h |

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| C 8 - A production cycle, organising a production cycle according to in series method, parallel and in series-parallel method, methods of shortening a production cycle, tasks. | 2h |
| C 9 - Graphs Gantta, practical application. | 1h |
| C 10 – Balance production tasks with the production potential. | 1h |

5. TEACHING TOOLS

1. Visual media (computer, overhead projector, projector).
2. Chalk + blackboard + pen marker.
3. Manuals, scripts.

6. WAYS OF ASSESSMENT (F – FORMATIVE, P – SUMMATIVE)

- F1. Observation of the student's work on the grade.
 F2. Evaluation of the implementation of partial exercises.
 P1. Final test.
 P2. Written exam.

7. STUDENT WORKLOAD

| Form of activity | | Average number of hours for realization of the activity | | |
|--|-----------|---|----------|------|
| | | [h] | ECTS | ECTS |
| Contact hours with the teacher | Lecture | 15 | 0,6 | 2 |
| Preparation for exam | | 16 | 0,64 | |
| Presence on the exam | | 2 | 0,08 | |
| Contact hours with the teacher | Exercises | 15 | 0,6 | 1,84 |
| Contact hours with the teacher | | 16 | 0,6 | |
| Preparation for the colloquium | | 16 | 0,64 | |
| Getting Acquainted with the indicated literature | | 16 | 0,64 | |
| Presence on consultations | | 5 | 0,2 | 0,2 |
| TOTAL NUMBER OF HOURS / ECTS POINTS FOR SUBJECT | | 100 | 4 | |

8. BASIC AND SUPPLEMENTARY LITERATURE

Basic literature:

1. George J. Avlonitis, Paulina Papastahopoulou: Production and service management, SAGE publication, London 2014
2. Borkowski S., Ulewicz R.: Instruments of production processes improvement. PTM, Warszawa 2009

3. Borkowski S., Ulewicz R.: Manufacturing systems, Orgmasz, Warszawa 2009
4. Dilworth, James B.: Production and Operations Management: Manufacturing and Services, New York: McGraw-Hill, 1993.

Supplementary literature:

1. Rainer Stark, Gunther Seliger, Jeremy Bonvoisin.: Sustainable Manufacturing: Challenges, Solutions and Implementation Perspectives, Springer International Publishing, 2017.
2. Cengiz Haksever Barry Render: Service Managementan Integrated Approach To Supply Chain Management And Operations, Pearson Education LTD. USA 2013.
<http://ptgmedia.pearsoncmg.com/images/9780133088779/samplepages/0133088774.pdf>

9. TEACHERS (NAME,SURNAME, ADRES E-MAIL)

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10. MATRIX OF LEARNING OUTCOMES REALISATION

| Learning outcome | Reference of given outcome to outcomes defined for whole program | Course aims | Course content | Teaching tools | Ways of assessment |
|------------------|--|-------------|------------------|----------------|--------------------|
| EK 1 | K_W01, K_W02, K_W05, K_W08 K_U01, K_U02, K_U05, K_U10, K_K03, K_K05 | C1 | W1-W4 C1-C10 | 1,2,3,4 | F1,F2 P1,P2 |
| EK 2 | K_W01, K_W02, K_W05, K_W08 K_U01, K_U02, K_U05, | C2 | W2-W10 C1-C10 | 1,2,3,4 | F1,F2 P1,P2 |

| | | | | | |
|------|--|----|------------------|---------|----------------|
| | K_U07, K_U10, K_K02, K_K03, K_K05 | | | | |
| EK 3 | K_W01, K_W02, K_W05, K_W08, K_U01, K_U02, K_U05, K_U07, K_U10, K_K03, K_K05 | C3 | W1-W11 C1-C10 | 1,2,3,4 | F1,F2 P1,P2 |

11. FORM OF ASSESSMENT - DETAILS

| | grade 2 | grade 3 | grade 4 | grade 5 |
|------|---|---|--|---|
| EK 1 | The student does not use the terms of production management and services, | The student uses selected terms in the field of production management and services, | The student uses the terms of production management and services, | The student uses the terms in the field of production management and services, and also knows how to explain it |
| EK 2 | The student cannot work out and clarify the principles of operation model of the production/service system. | The student partly can work out and clarify the principles of operation model of the production/service system. | The student can work out and clarify the principles of operation model of the production/service system. | The student can work out and clarify the principles of operation model of the production/service system. He can to describe some attention and proposal connected with analyzed problem |
| EK 3 | The student can not describe to technical preparing new products and preparing the new production. He can not characterize steering the course of the production. | The student can partly describe to technical preparing new products and preparing the new production. | The student can describe to technical preparing new products and preparing the new production. | The student can not describe to technical preparing new products and preparing the new production. He can also characterize steering the course of the production |

12. OTHER USEFUL INFORMATION ABOUT THE SUBMISSION

1. Information where presentation of classes, instruction, subjects of seminars can be found, etc. - information presented to students in class, if required by the formula classes are sent electronically to the e-mail addresses of individual dean groups - information can be found on the website of the department.
2. Information about the place of classes - - information can be found on the website of the department.
3. Information about the timing of classes (day of the week / time) - information can be found on the website of the department.
4. Information about the consultation (time + place) - are given to students for the first class, can be found on the website of the department.

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Coordinator