# STUDY MODULE DESCRIPTION FORM

| Name of the module/subject | Code |
|---|---|
| **Classical and modern manufacturing systems** | **1011105231011105176** |

| Field of study | Profile of study (general academic, practical) | Year /Semester |
|---|---|---|
| **Engineering Management - Part-time studies -** | **(brak)** | **2 / 3** |
| Elective path/specialty | Subject offered in: | Course (compulsory, elective) |
| **Production and Operations Management** | **Polish** | **elective** |

| Cycle of study: | Form of study (full-time,part-time) |
|---|---|
| **Second-cycle studies** | **part-time** |

| No. of hours | No. of credits |
|---|---|
| Lecture: **12** Classes: **12** Laboratory: **10** Project/seminars: **-** | **4** |

| Status of the course in the study program (Basic, major, other) | (university-wide, from another field) |
|---|---|
| **(brak)** | **(brak)** |

| Education areas and fields of science and art | ECTS distribution (number and %) |
|---|---|
| | |

**Responsible for subject / lecturer:**

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## Prerequisites in terms of knowledge, skills and social competencies:

| | | |
|---|---|---|
| 1 | **Knowledge** | The student knows the basic concepts related to the construction, design, implementation, operation of the conventional manufacturing systems in enterprises machine-building industry. |
| 2 | **Skills** | The student has the ability to perceive, association, interpretation of the phenomena occurring in the sphere of production and organization, both classical and modern manufacturing systems |
| 3 | **Social competencies** | The student understands and is ready to bear the social responsibility for decisions related to the design and implementation of traditional production systems in Polish enterprises of mechanical engineering |

## Assumptions and objectives of the course:

To acquaint students with the essence and principles of functioning of modern manufacturing systems and features of these solutions. Mastering the students basic skills in using these solutions.

## Study outcomes and reference to the educational results for a field of study

### Knowledge:

1. It has an extended knowledge of organizational relationships occurring in production systems - [K2A_W04]
2. It has an extended knowledge of the internal connections of the production systems in various types of complex organizations - [K2A_W05]
3. He knows the methods and tools for process modeling information and decision-making in production systems - [K2A_W08, K2A_W09]

### Skills:

1. Can use theoretical knowledge to describe and analyze the causes and processes and social phenomena and is able to formulate their own opinions and choose critical data and methods of analysis in relation to manufacturing systems - [K2A_U02]
2. Can correctly analyze the causes and processes in the areas of manufacturing systems - [K2A_U03]
3. Has the ability to understand and analyze social phenomena, enhanced by the ability to in-depth theoretical evaluation of these phenomena in selected areas - [K2A_U06]

### Social competencies:

1. It has a sense of responsibility for own work and a willingness to comply with the principles of teamwork and responsibility for jointly implemented tasks - [K2A_K02]
2. He can see the cause and effect in the implementation of its goals and rangować importance of alternative or competitive tasks - [K2A_K03]
3. Is aware of interdisciplinary knowledge and skills needed to solve complex problems of organization and the need to create interdisciplinary teams - [K2A_K06]

## Assessment methods of study outcomes

Quality Forming:

a) with regard to laboratories on the basis of discussions on the knowledge of the issues necessary for the proper implementation of the current exercise, b) for classes on the basis of an assessment of the current progress of the project, c) in the range of lectures based on answers to pytaniadotyczące material discussed in previous lectures.

-quality Summary:

a) for laboratories n apodstawie final report, b) for classes on the basis of a presentation of the task of the project and answer questions about relizacji design and solutions used in the project, c) in the range of lectures (1) written exam, each question is scored in a scale of 0 to 1; exam is passed after obtaining at least 55% of points, the examination can begin after completion of laboratories and classes (2) discuss the results of the exam

## Course description

The lecture begins by explaining the difference between the concepts of "production system" and "production system" (production). Then discussed are the modern trends in manufacturing systems - vertical integration MRP- JiT, virtual integration of MRP-JiT, the integration of MRP-JiT through the structure of the product, virtual manufacturing. For each of the cases discussed are: structure of the production system and the corresponding variants of the structure of the control system.

At the classes, students design the project, according to the guidelines leading selected production system.

At the laboratory classes students learn the basics of computer aided production planning and control its course in the lecture discussed solutions.

Teaching methods: conventional specialist lecture, laboratory workshop, team project of a selected production unit, work with literature

## Basic bibliography:

1. Domknięte i przepływowe jednostki produkcyjne, [w:] Fertsch M., Trzcieliński S., (red.), Koncepcje zarządzania systemami wytwórczymi, Fertsch M., , Politechnika Poznańska, Poznań, 2005

2. Logistyka produkcji. Miejsce logistyki we współczesnym zarządzaniu produkcją, [w:] Fertsch M., (red.), Logistyka produkcji, Fertsch M., Wydawnictwo ILiM, Poznań, 2003

3. Zarządzanie produkcją, Głowacka - Fertsch D., Fertsch M., Wyższa Szkoła Logistyki, Poznań, 2004

## Additional bibliography:

1. Podstawy zarządzania produkcją. Ćwiczenia, Kosieradzka A., (red.), Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2008

2. Projektowanie struktur systemów produkcyjnych, Mazurczak J., Wydawnictwo Politechniki Poznańskiej, Poznań, 2002

## Result of average student's workload

| Activity | Time (working hours) |
|---|---|
| 1. Lecture | 12 |
| 2. Classes | 12 |
| 3. Laboratory | 10 |
| 4. Consultations | 36 |
| 5. Exam | 3 |
| 6. Preparation of projects | 15 |
| 7. Preparation of Laboratory | 12 |

## Student's workload

| Source of workload | hours | ECTS |
|---|---|---|
| Total workload | 100 | 4 |
| Contact hours | 66 | 2 |
| Practical activities | 69 | 2 |