STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Modern production systems	**1011102311011115164**

Field of study	Profile of study (general academic, practical)	Year /Semester
Engineering Management - Full-time studies -	**general academic**	**1 / 1**
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	**full-time**

No. of hours					No. of credits
Lecture: **15**	Classes: **-**	Laboratory: **-**	Project/seminars: **15**		**3**

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

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	The student has news related to the management of production and traditional design methods of production units and lines the socket abd downstream for pipes
2	**Skills**	The student understands and can apply the tools and techniques of traditional design of the first production units of the complexity
3	**Social competencies**	Students are prepared to design the organization of modern manufacturing systems

Assumptions and objectives of the course:

To familiarize students with contemporary concepts of the organization of production systems such as structured by the concept of JIT production system lean, agile manufacturing systems, flexible production system, the Toyota System.

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

Knowledge:

1. He has knowledge of modern concepts of production systems organization, conditions, mechanisms of change and the use of the design - [K2A_W03, K2A_W05]
2. He knows the methods and tools for modeling decision making processes and information in the design of structures - [K2A_W08, K2A_W09]
3. He has deepened knowledge of the processes of changes in the structure of production systems and the management of these changes - [K2A_W14, K2A_W15]

Skills:

1. He can be used to describe the theoretical knowledge and analysis of manufacturing processes and production systems - [K2A_U06]
2. He can make critical analyze existing organization processes and systems of manufacturing and propose right solutions - [K2A_U07]
3. He can to design the structure of production, including the organization of production units higher degrees of sophistication - [K2A_07]
4. He uses the knowledge gained to resolve dilemmas arising in their work - [K2A_U02, K2A_U03, K2A_U05]

Social competencies:

1. He has sense of responsibility for their own work and the readiness to comply with the principles of teamwork and shared responsibility for the tasks performed - [K2A_K01]
2. He is ready for a conscious and responsible development of production systems - [K2A_K02]
3. He is aware interdisciplinary knowledge and skills needed to solve complex problems of organization of production systems and the need to create interdisciplinary teams - [K2A_K03]
4. He understands the need and knows the possibility of lifelong learning - [K2A_K06]

Assessment methods of study outcomes

Rating forming:

a) for the projects, based on the current progress of the project task, b) in respect of lectures: on the basis of answers to questions concerning the material discussed in the previous lectures.

Rating summary:

a) for the project on the basis of presentation of the task design and answer questions concerning the implementation of the project tasks and solutions used in a specific project, b) in respect of lectures: written in the major lecture

Course description

Typical methods and techniques for the design of production systems used in conventional production systems. Classification of production units according to the American model - a European. Methods for designing production systems by the concept of JIT (Justin Time), lean production systems, and agile manufacturing systems. TPS Toyota Production System. Being flexible manufacturing system. Design and implementation of flexible manufacturing systems. In class, students design project, according to the guidelines operator, selected production system.

Teaching methods

Information lecture (conventional) (information transfer in a systematic way) monographic (specialist).

- Project method (individual or team implementation of large, multi-stage

cognitive or practical task resulting in the creation of a work).

Basic bibliography:

1. . Organizacja i sterowanie produkcją, Brzeziński M, AW Placet, Warszawa, 2002

2. Domknięte i przepływowe jednostki produkcyjne. Koncepcje zarządzania systemami wytwórczymi. Fertsch M., Trzcieliński S., (red.), , Politechnika Poznańska, Poznań, 2005

3. Organizacja elastycznych systemów produkcyjnych, Lis St., Santarek K, WNT, Warszawa, 1995

4. Podstawy teorii organizacji i projektowania systemów produkcyjnych, Gackowski Z, WPW, Warszawa, 1997

5. Projektowanie struktur systemów produkcyjnych, Mazurczak J., WPP, Poznań, 2001

6. Podstawy projektowania struktur przedsiębiorstw przemysłowych, Jackowicz R., Lis S, WPW, Warszawa, 1987

7. Mazurczak, J., Gania, I., 2008. Kryteria klasyfikacji warunków organizowania systemów produkcyjnych, [red.] Fertsch Marek, Grzybowska Katarzyna, Stachowiak Agnieszka, Poznań, Politechnika Poznańska, Instytut Inżynierii Zarządzania, str. 175 ? 186

Additional bibliography:

1. Podstawy teorii organizacji i projektowania systemów produkcyjnych, Gackowski Z, WPW, Warszawa, 1997

2. Inżynieria zarządzania, Durlik I., AMP WN, Katowice, 1993

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures.	15
2. Participation in the project activities	15
3. Literature studies	10
4. Consultation	17
5. Preparation of the project	15
6. Presentation of the project	2
7. Final test	1

Student's workload

Source of workload	hours	ECTS
Total workload	75	3
Contact hours	40	2
Practical activities	35	1