## **SYLLABUS**

## Technical preparation of production (ZIPAOZ>SM2TPoP20S)

Name	in	Polish:
Name	in	Enalish:

**Course for department:** 

## **Technical preparation of production**

### Information on course:

Faculty of Organization and Management Course offered by department: Silesian University of Technology

### Default type of course examination report:

#### 7AI

#### Language:

Name:

#### English

### Short description:

The program content is related to the concepts, methods and instruments of technical preparation of production. The program covers the essential elements taken into account in the technical preparation of production, from market research to the production system improvement, through construction, technological and organizational preparation of production.During this subject you will learn about company R&D activity, research project life cycle, industrial property rights and about other activity taking account into technical production preparation. The course consists of a lecture, laboratories and classes. The final grade is based on the grades obtained from the individual forms of teaching.

#### Description:

Course objectives: to acquire theoretical and practical knowledge in the technical preparation of new products and production processes and to master the ability to analyse the problems in the field of technical production preparation.

Lectures - detailed program content:

- 1. Introduction to the subjecy
- 2. R&D
- 3. Patent research, licensing, industrial property protection
- 4. Constructional production preparation
- 5. Technical and organizational production preparation
- 6. Improving the production process (lean manufacturing concept)
- 7. Final test

#### Laboratories - detailed program content:

- 1. Graf Gozinto
- 2. Calculate the production program for products
- 3. Payback period for investments
- 4. Linear programming in production
- 5. Production schedule
- Shortening the production schedule using the CPMcost method

## Exercises - detailed program content:

The paperwork should be prepared in 5-person section. The paperwork is implemented based on realistically existing and functioning production companies. It is allowed to divide works within a section members according to any key, but each section member must know the content of the entire paperwork. The individual commitment of each member of the section should be estimated and listed on the title page and in the individual chapters of the work. During the class, the requirements for the chapter will be presented, and then students will work individually. At the end of the class, the result of the work should be uploaded to the Moodle platform. Attendance is obligatory, and every student has to upload his progress during every meeting.

Introduction

- 1. Characteristics of conditions in the project entity
- 2.1 Sources of inspiration for a new product
- 2.2 Product idea
- 2.3 Consumer and market requirements

2.4 Preliminary design

- 2.5 A list of licenses, patents related to the production being prepared
- 2.6 A summary of the technical equipment and tools necessary to purchase, concerning changes in technology and manufacturing process 2.7 Schedule of the project implementation
- 3.1 Budget

3.2 Payback period

Conclusions

### **Bibliography:**

Basic literature:

- 1. Musharavati Farayi, (2010), Process Planning Optimization in Reconfigurable Manufacturing Systems. Dissertation.Com.
- 2. I. C. Dima, (2013), Industrial Production Management in Flexible Manufacturing Systems. Igi-global.
- 3. Coletta A.R., (2012), The Lean 3p Advantage: A Practitioner's Guide to the Production Preparation Process.

Supplementary literature:

1. Akhtar J.: Production Planning and Control with SAP ERP. Rheinwerk Publishing, 2016

2. Sule D. R.: Production Planning and Industrial Scheduling: Examples, Case Studies and Applications, Second Editio. CRC Press, 2007 Learning outcomes:

Knowledge: a student knows and understands

- tools, techniques and methods for graphical presentation of product elements, determining a marketing strategy in a production plant, production management, project management and production organization (Lecture - ROZ ZiIP 2A W08)

steps and actions taken in the construction, technological and organizational preparation of production, as well as selected methods and

techniques for improving the production system and the importance of the model and modeling (Lecture - ROZ ZiIP 2A W10) Skills: a student can:

- solve engineering tasks using methods, tools and techniques typical for engineering issues, such as shortening the schedule, planning material requirements for production, payback period for investments and approximate calculations of machines, materials and people (Laboratory ROZ ZiIP 2A U24)

prepare basic documentation in english related to the launch of the new product production, which combines technical and non-technical aspects (financial, marketing, organizational) (Classes ROZ ZIIP 2A U25)

Social competences: a student is prepared to:

- work in a group, is able to communicate and cooperate with other team members, as well as work independently in accordance with the aroup's arrangements (Classes: ROZ ZiIP 2A K04)

## Assessment methods and assessment criteria:

• Final assessment is based on a positive evaluation of: final test from lecture, laboratory reports and paper work from classes, it is the arithmetic average of the obtained grades.

 Lecture assessment is based on final test consisting of twenty questions concerning the scope of the lecture, the questions included in the test are single choice

 Classes assessment is issued on the basis of four components: paper work, involvement, teamwork, presence mark and is the arithmetic average of the obtained marks. Positive mark for a paper work is from 27 (54%) to 50 points, that can be obtained. Negative points are awarded for each paper work submission after the deadline.

Laboratory assessment is based on solving tasks in section - laboratory raport from each classes.

• There is no possibility to improve the positive assessment. The student may take the test three times, no more. By not taking the final test or test without giving a documented reason, the student loses the term.

## Element of course arouns in various terms.

Course group description	First term	Last term			
missing group description in English (ZIPAOZ>SM2-19-S)	2020/2021-L				

# Course credits in various terms:

Management and Production Engineering, full-time master degree studies 3 sem. (ZIPAOZ-SM3)				
Type of credits	Number	First term	Last term	
European Credit Transfer System (ECTS)	2	2020/2021-L		

European Credit Transfer System (ECTS)