



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Fundamentals of industrial design [S1AiR2P>PO3-PPP]

Course

Field of study

Automatic Control and Robotics

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

practical

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

30

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

3,00

Coordinators

Lecturers

Prerequisites

A student starting this course should have knowledge of the basics of the functioning of enterprises, project management, preparation of project documentation, and the basics of automation and robotics. He should also have the ability to obtain information from the indicated sources.

Course objective

The aim of the course is to learning the rules for preparing design documentation and implementing internal projects applicable in enterprises, including legal aspects and defining the needs of the production process. Getting to know the specifics of the work of the planning department and how to implement tasks. Getting to know the planning process - from accepting the application to completing the project.

Course-related learning outcomes

Knowledge:

1. Has knowledge of basic concepts and methods of organizing production.
2. Has basic knowledge of standards and technical norms applicable to automation systems and robotic stations.
3. Has knowledge of selected methods of designing production systems.

Skills:

1. Has the ability and experience in using norms and standards applicable to industrial design.
2. Has experience in solving practical engineering tasks gained while working in an industrial plant.

Social competences:

1. Has competences in presenting solutions and the ability to work in a team.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: written exam (testing theoretical knowledge) in the field of lectured issues.

Laboratory: checking practical skills in the implementation of selected methods introduced during the lecture, assessment of reports.

Programme content

Lecture: Machinery Directive 2006/42/EC - standards in machine design, safety.

Analysis of the production process. Determining the needs that the process is to meet (technologies used in production, process control, quality control of product parameters).

Project documentation: documentation of project stages (agreements, tasks), project schedule; electrical documentation (electrical diagrams, documentation of devices used); what is the declaration of conformity and the CE mark.

Laboratory: Selection of production process control elements: actuators; process control system; media supply system for the control system and actuators; machine safety circuits related to the safe operation of the machine by the operator; operator-machine communication; machine self-diagnosis; electrical documentation (electrical diagrams, documentation of devices used); what is the declaration of conformity and the CE mark;

Course topics

none

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples
2. Laboratory exercises: developing concepts and creating designs for installation fragments

Bibliography

Basic:

Normy

1. EN 954-1:1996. Maszyny - Bezpieczeństwo - Elementy systemów sterowania związane z bezpieczeństwem - Część 1: Ogólne zasady projektowania.
2. EN ISO 13849-1:2008. Bezpieczeństwo maszyn - Elementy systemów sterowania związane z bezpieczeństwem - Część 1: Ogólne zasady projektowania
3. Normy koncernowe odnośnie prowadzenia projektów.

Additional:

1. Normy zakładowe odnośnie pracy planisty.
2. EN 1050:1996. Maszyny - Bezpieczeństwo - Zasady oceny ryzyka.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00