COURSE DESCRIPTION CARD - SYLLABUS

Course name
Managing the automotive product development process [N2MiBP1-PS>ZPK]

Course

Field of study
Mechanical and Automotive Engineering

Year/Semester
1/1

Area of study (specialization)
Motor Vehicles

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
9

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

Knowledge:The student knows the basics of motor vehicles design and structure. He knows the basics of machine design. He knows the basics of materials science. He knows the basics of machine building technology. Skills:The student can use native and international languages and is able to understand technical texts. He can acquire information from literature, the Internet, databases and other sources. The student can integrate the obtained information and interpret it, make conclusions, he can formulate and justify opinions. Social competencies: The student understands the need and knows the possibilities of lifelong learning.

Course objective

To familiarize students with the development process of automotive products, the phase of product development and the methods and tools of its serial production development. Familiarizing with the design approach to the process of creating a new car and areas and tools for project management.

Course-related learning outcomes

Knowledge:
Has a basic knowledge of quality management systems.

Has a general knowledge of the principles and methods of constructing working machines, in particular the methods of functional and strength calculations, mathematical optimization of mechanical structures and modeling of machine structures in 3D systems.
Has a general knowledge of the types of research and methods of testing working machines with the use of modern measurement techniques and data acquisition.

Skills:
Can plan and carry out experimental research of specific processes taking place in machines and routine tests of a working machine or a vehicle from a selected group of machines.
He can advise on the selection of machines for the technological line as part of the specialization.
Can interact with other people as part of teamwork and take a leading role in teams.

Social competences:
He is ready to critically assess his knowledge and received content.
Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.
Is willing to think and act in an entrepreneurial manner.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Written test, which is based on answers related to the selection of given answers and open questions. Credits will be given after achieving at least 50% of points. Answers are scores from 0 to 1 point.

Programme content

Introductory information, scale and diversification of automotive production, division of car into subassemblies (modules), components and parts, structure of sub-suppliers. An example of the car production process.
Product development process (car), the main stages of car development process, product design and design of serial production methods/tools, main professional departments, chronology of individual stages, milestones. Examples of general structure of automotive product development processes.
A detailed discussion of the individual phases: initial phase and product definition, concept development and product verification, preparation of a serial product, preparation of serial production launch.
Detailed analysis of an exemplary product development process
Project management: definition, basic concepts, basic parameters of the project, context and shareholders of the project, project life cycle, decision levels in the project, organizational structure of the project, issues of creating a project team.
Discussing the individual phases of the project: initiating, planning, implementing and closing the project. Project planning and control techniques. Schedule planning and control (Gantt charts, network methods and PERT), resource planning and budgeting. Project monitoring techniques.
Management of the project team. Methods for assessing the profitability of projects, methods of risk management and quality of projects.

Course topics

none

Teaching methods

1. Lecture with a multimedia presentation - a combination of an information and problem lecture;

Bibliography

Basic
1. Vivek D. Bhise, Automotive Product Development: A Systems Engineering Implementation 1st Edition, Publisher: CRC Press; 1 edition (March 22, 2017)
2. Jędrych P., Pietras P., Szczepańczyk M. (2012), Zarządzanie projektami, Wydanie I, Politechnika Łódzka, Łódź
Additional

1. Weber, Julian: Automotive Development Processes, Processes for Successful Customer Oriented Vehicle Development, Springer 2009,
2. Julian Happian-Smith: Introduction to Modern Vehicle Design, Butterworth-Heinemann, 2001
3. uczak M., Małys, Ł. K.: Współczesne koncepcje i trendy w branży motoryzacyjnej, Advertiva, Poznań 2016

Breakdown of average student's workload

	Hours	ECTS
Total workload	15	1,00
Classes requiring direct contact with the teacher	9	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	6	0,50