COURSE DESCRIPTION CARD - SYLLABUS

Course name
Technology of construction and operation of internal combustion engines

Course

Field of study
Construction and Exploitation of Means of Transport

Year/Semester
4/7

Area of study (specialization)
Internal Combustion Engines

Profile of study
general academic

Level of study
First-cycle studies

Course offered in
polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
45	15	0
Tutorials	**Projects/seminars**	
0	0	

Number of credit points

3

Lecturers

Responsible for the course/lecturer:
prof. Marek Idzior

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Faculty of Civil and Transport Engineering

Piotrowo 3 Street, 60-965 Poznań

Responsible for the course/lecturer:
DSc., DEng. Jarosław Kałużny

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Prerequisites

KNOWLEDGE: Has a basic knowledge of the construction and principles of operation of internal combustion engines as well as basic knowledge of machine building technology

SKILLS: Has the ability to read diagrams, sketches and technical drawings related to the construction of vehicles

SOCIAL COMPETENCES: Understands the relationship between the design, technologies of vehicle construction and operation

Course objective

Provision of basic information on production processes, production methods and construction materials of parts and assemblies of internal combustion engines

Course-related learning outcomes

Knowledge

Has a basic knowledge of ecological methods of producing and operating vehicles.

He knows ecological construction materials and techniques for producing parts and assemblies of motor vehicles.

Has knowledge of development trends in the methods of manufacturing and servicing motor vehicles and their relationship with ecology.

Skills

He knows the essence of the problem of developing ecological processes of manufacturing motor vehicles in connection with their construction.

He can obtain information from specialist literature and assess the degree of environmental friendliness and technological modernity of a motor vehicle.

Has basic preparation for work in the production and service of motor vehicles.

Social competences

Understands the need to supplement knowledge throughout his professional life

Is aware and understands the importance of the effects of the specificity of the processes of manufacturing and servicing motor vehicles for the natural environment

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Discussion with the use of illustrative materials related to the technologies of manufacturing and servicing motor vehicles in the aspect of their relationship with ecology. Written exam.

Programme content

Basic concepts in the field of technology, technological documentation, labor consumption, material consumption, process optimization, typing. Hulls - design solutions, materials, manufacturing and control. Cylinder liners, pistons, piston rings, connecting rods, bearings - semi-finished products, manufacturing, inspection, surface finishing. Cylinder heads - construction, materials, casting, machining, leak test. Valves, valve springs, cams and camshafts - materials, semi-finished products, fabrication, inspection. Other elements - atypical technologies. Assembly - methods, essential processes, organization of workstations. Tests - test stands, running-in, control. Painting, maintenance - methods, organization of processes.

Teaching methods

Lecture with multimedia presentation

Bibliography

Basic

1.Stolarski B. (red.) – Technologia budowy samochodów, część I – Technologia silników spalinowych. Wydawnictwo Politechniki Krakowskiej, Kraków 1977.

2. Idzior M. - Technologia budowy silników spalinowych - Materiały dydaktyczne

2.Cypko J., Cypko E. – Podstawy technologii i organizacji napraw pojazdów mechanicznych. WKiŁ, Warszawa 1982.

3.Jezierski J. – Technologia tłokowych silników wysokoprężnych. WNT, Warszawa 1999.

a środowiska w transporcie lądowym. Wyd. Instytutu Technologii i Eksploatacji, Poznań-Radom 2003.

4.Merkisz J., Ekologiczne problemy silników spalinowych, Tom I i II. Wyd. Politechniki Poznańskiej, Poznań 2000.

Additional

1. Press and specialist magazines

2. Information materials of companies producing internal combustion engines

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	3,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate