

Subject-name:	Workshop	Code:	M130
Level of studies:	I		
Type of studies:	Stationary		
Direction of studies:	MiBM/MTR/IPEH		
Subject – type:	Obligatory		
Specialty:	All specialties		
Type of classes:	15 Lab.		

Lecturer	Adam Leśniewicz, mgr inż.;
----------	-----------------------------------

The brief synopsis of classes:	
Laboratory:	<p>Agenda of the lab classes:</p> <ol style="list-style-type: none"> 1. Roughing and finishing - review possibilities to execute designed elements projects; show working lathes, milling machines and grinders to students. 2. Computer-aided machining methods - presentation of simulation and machining on a lathe and CNC milling machine, 3. Forming parts of vehicle body - cutting, pressing and bending parts of vehicle body – process and measurement machines and equipment. 4. Construction of internal combustion engines and propulsion systems - discussion based on models. 5. Construction of chassis systems (braking, steering, etc.) and construction of vehicle body - discussion based on examples. 6. Discussion about construction, operation, application of excavators and loaders; show excavators and loaders working in real conditions. 7. Discussion about construction, operation, application of forklift trucks and mobile cranes; show forklift trucks and mobile cranes in real conditions.

Intentional learning outcomes: Student who has completed subject ...	Form of classes / Type	Method for checking (evaluation) *	Reference to the EK direction
Understands the full complexity of the manufacturing process, i.e. understands whole process: from the selection and preparation of pig iron, by machining or plastic methods to the measurement and installation of machines into unit.	Report, treatment presentation on machines in the workshop hall	Discussion, test	K_W04+++ K_U03+++
Has basic knowledge about: terminology, definitions, different treatment methods, machine tools, machines parameters and quality estimation.	Report, treatment presentation on machines in the workshop hall	Discussion, test	K_W18 K_U03+++ K_K02+
Distinguishes difference between vehicles types, has basic knowledge about vehicles body construction, construction and operation of the chassis systems (braking, steering).	Report and presentation in the laboratory	Discussion, test	K_K02+
Has basic knowledge about nomenclature (naming), the general structure and principles of operation of internal combustion engines and propulsion systems.	Report and presentation in the laboratory	Discussion, test	K_U01+++ K_U03+++
Has basic knowledge about construction, operation and use of excavators and loaders.	Report and show in real conditions	Discussion, test	K_U01+++ K_U10++
Has basic knowledge about construction, operation and use of forklift trucks and mobile cranes.	Report and show in real conditions	Discussion, test	K_U03+++ K_U08++
Student can work individually and in a team.	Work in the laboratory	Report from the laboratory	K_U20+++ K_K04++ K_K02++

* mentioned ways of checking (assessment) relate to summative assessment; for the formative assessment are used colloquial tasks and laboratory reports

Calculation of ECTS points:	Lecture	Excercises	Laboratory	Project
Contact hours (classes):			15	
Work at home:	Literature studies			
	Preparation for the classes		5	
	Reports			
	Project			
	Preparation for the exam / test			5
Total hours	0	0	25	0
Total ECTS	0	0	1	0