

Title (Inżynieria wytwarzania I: Metalurgia i odlewnictwo)	Code 10102513110102402368
Field Mechatronika - studia I stopnia	Year / Semester 1 / 1
Specjalty -	Course core
Hours Lectures: 1 Classes: - Laboratory: 1 Projects / seminars: -	Number of credits 3
	Language polish

Lecturer:

DSc. Eng. Mieczysław Hajkowski
Institute of Material Technology
tel. +48(61) 6652253
e-mail: mieczyslaw.hajkowski@put.poznan.pl

Faculty:

Faculty of Mechanical Engineering and Management
ul. Piotrowo 3
60-965 Poznań
tel. (061) 665-2361, fax. (061) 665-2363
e-mail: office_dmef@put.poznan.pl

Status of the course in the study program:

Obligatory course at the Faculty of Mechanical Engineering and Management - bachelor study.

Assumptions and objectives of the course:

Introduction to metallurgical and foundry processes, castings design and microstructure formation.

Contents of the course (course description):

Metallurgical processes classification. Ores and its? processing. Methods of ores enrichment. Concentrate, agglomerate, charge. Initial metallurgical process. Raw metal characteristics. Impurities in metals and alloys: origin, form and properties. Metallurgical processes and off-furnace processing of grey cast iron, ductile cast iron and silumin.

Characteristic of castings methods. Castings alloys and its? properties. Mould material, mould and core structure. Producibility of casting. Mould pouring (gating system), solidification process of casting (crystallization, porosity, shrinkage). Feeding of grey cast iron, ductile cast iron, silumin and steel castings. Controlling of mechanical properties according to change the grain size and shape (chemical, mechanical and thermal processes).

Laboratory encloses: moulding sand preparation, testing of moulding sand properties, sand mould preparing, die casting, Croning process and investment casting method, computer-aided process of mould pouring and castings feeding (NovaFlow&Solid system).

Introductory courses and the required pre-knowledge:

Basic knowledge from the area of physics and chemistry.

Courses form and teaching methods:

Lectures with the use of audiovisual equipment. Laboratory.

Form and terms of complete the course - requirements and assessment methods:

Written and oral examination tests and reports.

Basic Bibliography:

Additional Bibliography:

