

## Course Syllabus

Academic year: 2018-2019

Institution	University of Petroșani
Faculty	Mechanical and Electrical Engineering
Field of study	Industrial engineering
Level	Bachelor
Program of study	Machine Building Technology

Course	<b>Materials technology</b>
Code	2BB2OF11
Year of study (semester)	I (II)
Number of hours	56
Number of credits	5
Professor	Assoc. Prof., Ph.D. Dumitrescu Iosif

No.	Topic
1.	<b>Structure of Technological Processes</b> Technology Process; Principles of Technology Process; Types of Production and Technologies.
2.	<b>Processes of metal production</b> Metal ore production; Methods of extraction of metals from ores; Materials auxiliary to metallurgy; Cast iron metallurgy; Steel metallurgy; Aluminum metallurgy; Copper metallurgy.
3.	<b>Metalworking by Casting</b> General; Execution of Core Patterns and Patterns; Preparation of Formation Mixtures; Realization of Temporary Forms of Common and Special Formation Mixture; Coating; Drying and Assembly Forms; Casting Networks; Debating and Cleaning of Molded Pieces; Casting in permanent molds; Defects of molded parts and their repair.

4.	<p><b>Metalworking by plastic deformation</b></p> <p>General; Laminating; Extrusion; Pulling; Forging; Molding; Forging and die-cutting equipment; Sheet processing by cutting; Machining of plates by plastic deformation; Pipe manufacturing technology.</p>
5.	<p><b>Metalworking by Welding and Related Operations</b></p> <p>General; Welding with Electricity; Gas Welding; Radiation Welding; Pressure Welding; Adhesive; Thermal Cutting.</p>
6.	<p><b>Powder Metallurgy</b></p> <p>Powder Metal Formation; Powder Properties; Formation of Powder Parts; Sintering; Powder Metallurgy Products.</p>
7.	<p><b>Materials processing by nonconventional technologies</b></p> <p>Electro-erosion processing; Electrochemical erosion processing; Chemical erosion treatment; Abrasive-cavitation erosion treatment in ultrasonic field.</p>