



COURSE DATASHEET

Semester:	2014/15/1
Course:	Constructional Materials and their Technology (Part. III.)
Code:	VEMKGEB112A
Responsible department:	Institute of Mechanical Engineering
Department code:	MKGEI
Responsible instructor:	dr. Pál Horváth

Course objectives:

To introduce students in the state of the art of structural materials in engineering science, their elaboration and to present their widespread application areas in engineering field.

Course content:

Fabrication of iron and steel. Completion of ore and iron. Concept of steel fabrication. Development of steel fabrication. Secondary metallurgy. Chill, resp. continuous casting. Plastic deformation, hot rollings.. Rollings and drawings. Forging and pressing. Casting of iron and steel. Basic knowledge. Casting of grey iron. Casting of steel. Powdermetallurgy. Elaboration of metallic powders, production methods and technology, typical structural materials. Elaboration technologies of non-ferrous metals. Elaboration, melting, casting and extrusion of aluminum. Elaboration and casting of copper. Joining and cutting deformations. Welding. Extrusion by welding: ultrasonical and electrical weldings. Welding by friction, by forging, by diffusion in vacuum. Welding by smelting: electrical welding (AWI, AFI, plasma-, CO₂ protective gas welding arc welding with covered electrodes, welding with covered arc, slag welding). Flame welding, thermite welding, cast welding, electrical arc welding, laser welding. Joining and cutting deformations. Cutting. Soldering. Adhering, sticking.

Requirements, evaluation and grading:

Lecture attendance, 2 successful examinations in semester

Required and recommended readings:

Dr.Gillemot L.: Szerkezeti anyagok technológiája ETK, 1965.; Komocsin M.: Gépipari anyagismeret. Cokom Kft., Miskolc, 1997.; Pattantyús Á.G.: Gépész- és villamosmérnökök kézikönyve. 5. Anyagalakítás. MK.; Laska, R.-Felsch, Ch.: Werkstoffkunde für Ingenieuren Vieweg Verlag