UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2014/15/1
Course:	Constructional materials and their technology (Part. II.)
Code:	VEMKGEB213A
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 stuctural materials in engineering science, properties of materials, and their application areas in engineering field.

Course content:

Iron – carbon diagram and its using. Some representative iron – carbon diagrams. Formation of crystal structure. Effects of contaminants. Static properties. Isothermal transformation of steel. Representative microstructures. Steel Alloys. Main compounds of steel and their effects on alloy diagram. Cast iron. Steel gray with lamellar graphite. Cast iron with spherical graphite. Especial cast irons. Cast steel. Non-ferrous metals. Aluminum and its alloys. Copper and its alloys. Titanium and its alloys. Other light metal alloys. Plastics. Comparison of metals and plastics. Formation of macromolecules. Influence of plastic molecule on the plastic properties. Influence of aggregate. Duroplastics and thermoplastics. Heat treatment. Global conventions of heat treatment. Heat treatment of steels. Homogenization treatments. Practice. Facilities of toughness enhancement.

Requirements, evaluation and grading:

Lecture attendance, 2 successful examinations in semester

Required and recommended readings:

Dr.Gillemot L.: Anyagszerkezettan és anyagvizsgálat TK. Bp., 1988.; Dr.Zorkóczy B.: Metallográfia és anyagvizsgálat. TK. Bp., 1988.; Verő J.-Káldor M.: Fémtan. TK Bp., 1997.; Weißbach,W.: Werkstoffkunde und Werkstoffprüfung. Vieweg Varlag, 1994.; Schmitt-Thomas, K.G.: Metalkunde für die Maschinenwesen. Springer Verlag 1990.