

Tárgytematika / Course Description

Standard methods of materials' characterization

NGB_AJ153_1

Tárgyfelelős neve /

Teacher's name: dr. Hargitai Hajnalka

Félév / Semester: 2017/18/1

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 2/1/0

Tárgy féléves óraszám /

Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The course is comprehensively addressing the modern quality control material testing methods of structural materials. It provides an overview of procedures for the qualification of materials and technologies (welding, heat treatment, etc) and their role in a modern industrial enterprise quality management system. The theoretical and practical implications of both traditional testing techniques and equipment used in the applications, and the latest testing techniques in modern microscopic examination and non-destructive analysis are discussed.

TANTÁRGY TARTALMA / DESCRIPTION

Aims of material testing, classification, areas.

Mechanical tests. Tensile test. Compression test, Bending test. Hardness test

Tests at low temperature. The effect of different factors on the nature of the fracture. Tough and brittle behaviour.

Charpy impact test.

Fatigue

X-ray measurement / Computed tomography

Nondestructive methods on surface (penetration)

Microscopy (sample preparation, qualification of heat treated and non-heat treated steels)

Qualification Case hardened materials (after surface heat treatment)

Qualification of welded parts

Investigations of Plastics and Plastic Composites

Cleanliness test and environmental testing (salt spray test, heat shock)

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

Oral exam

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Donald E. Askeland, Pradeep P. Fulay, Wendelin J. Wright, The Science and Engineering of Materials, Global Engineering, 2011, ISBN-10: 0-495-29602-3

Dr. Hargitai Hajnalka, ppt presentation slides