Tárgytematika / Course Description

Internal Combustion Engines 1.

AJNB_BMTA003

Tárgyfelelős neve / Teacher's name: dr. Hanula Barna
Félév / Semester: 2020/21/1
Beszámolási forma / Assesment: Vizsga
Tárgy heti óraszáma / Teaching hours(week): 2/0/2
Tárgy féléves óraszáma / Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Aim of the course

This course aims to introduce the main components of an internal combustion engines with a strong emphasis on their function, materials technology, and production technology.

TANTÁRGY TARTALMA / DESCRIPTION

Description

Week 1 – Introduction to the aim, content, and structure of the lectures during the semester

Week 2 – Introduction to the internal combustion engine

Week 3 – Students presentations on potential ways of increasing power output

Week 4 – Virtual Experimentation on internal combustion engines

Week 5 – Definition and handout of the semester project

Week 6 – Crank case design

Week 7 – Students presentations on design aspects, materials, and production technology of crank cases

Week 8 – Cylinder head design

Week 9 – Students presentations on design aspects, materials, and production technology of cylinder heads

Week 10 – The crank mechanism and its components

Week 11 – Students presentations on design aspects, materials, and production technology of pistons, crankshafts and connecting rods.

Week 12 – Bearings in internal combustion engines

Week 13 – Students presentations on bearing design and choosing bearings for a certain application

Week 14 – Semester project presentation

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Assessment's method

The semester can be completed with a proposed grade based on the quality (both scientific / professional and rhetorical) of the presentation tasks and the semester project. Otherwise an exam must be taken during the exam period.

Laboratory workshop

In addition to classroom lectures, students will have to take part in laboratory workshop corresponding to the four main topics (crank case, cylinder head, crank mechanism, and bearings) during the semester. Presence on these workshops is mandatory and is a prerequisite to passing the course.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Literature

- Richard Stone, Introduction to Internal Combustion Engines, 2.ed., Palgrave Macmillan, 1992, ISBN 978-0-333-55084-7, DOI 10.1007/978-1-349-22147-9
- Richard Van Basshuysen, Fred Schaefer, Internal Combustion Engine Handbook, 2.ed., SAE International, 2016, ISBN 978-0-7680-8024-7