BM5431

Study program / course: Mechanical engineering

Type and level of study: Bachelor academics studies

Course: IC Engines 1

Lecturers: Dragoljub R. Radonjić, Radivoje B. Pešić

Status of course: Obligatory for module M_3, V semester

Number of ECTS: 6

Precondition: None

The objective of course

Acquisition of knowledge from the field of IC engines that is related to: the theory of working cycle, indicators of economy and efficiency of the cycle, analysis of the calculated cycle, IC engines combustion theory, indicative and effective indices and engine heat balance.

The outcome of course

Qualification for cycle calculation, analysis of the parameters of economy and effectiveness of the engine, knowing of the basic design concept of engine and its auxiliary devices, knowledge necessary for preparation design phases or selection of an engine as a drive unit.

Syllabus

Theoretical study :

Definition of the IC engine's working cycle. Subdivision of cycles: comparative, calculation, real. Analysis and calculation of the working cycle's phases: intake, compression, combustion, expansion, exhaust. Parameters for estimation of economy and effectiveness of the cycle: engine efficiency and specific indicated work. Comparison of cycles by criteria of economy and effectiveness. Indicated and effective engine indices. IC engine's combustion theory: process phenomenon, analysis of the influencing factors, normal and abnormal combustion. Engine heat balance.

Practical classes:

Getting to know constructive designs, roles and ways of operation of vital parts and auxiliary devices (systems) of Otto and diesel engines.

Recommended reading

1. D. Radonjić i R. Pešić: Thermal calculation of IC engines, (in serbian), Faculty of Mechanical Engineering in Kragujevac, 1996.,
2. Petrović, M. Tomić: IC Engines, (in Serbian), Faculty of Mechanical Engineering Belrad. 1994.
3. D Radonjić, R. Pešić: IC Engines, (in Serbian), Script in preparation 2009.

The number of hours of active teaching:				Other classes:
Theory: 3	Practical classes: 1.6	Other forms of teaching: 0.4	Research study: 0	1

Methods of teaching

Lectures, auditory exercises, laboratory exercises

Evaluation of knowledge

Pre-final exam obligations	points	Final exam	points
Activities during the classes:	**5**	Oral exam (presentation and oral defend of final assignment)	**30**
Practical classes:	**10**		
Colloquiums(s) :	**40**		
Seminar(s) :	**15**		