BM6382

Study program / course: Mechanical engineering

Type and level of study: Bachelor academic studies

Course: Electrical and servo devices in motor vehicles and motors

Lecturers: Radonjić R. Dragoljub, Pešić B. Radivoje

Status of course: Elective for module M_8, VI semester

Number of ECTS:6

Precondition: None

The objective of course

Getting to know how electrical and servo devices are used in motor vehicles. Operating principles of some electrical and servo devices and ways to integrate them in modern vehicles.

The outcome of course

At the end of course, the students should know: to analyze the electrical installation of motor vehicles, the role of electrical and servo devices in motor vehicle, the operating principles of electrical and servo devices in motor vehicles, to define requirements that electric and servo devices in the vehicle must meet in technical and functional sense and to integrate the electrical and servo devices into the motor vehicle.

Syllabus

Theoretical study

Electrical installation of motor vehicles, the layout and the symbols. Dimensioning the wires.
Connectors, switches and relays.
Electrical energy supply. Batteries: types and characteristics. Generators of electric power. Alternators.
DC motors. Step motors. Starter systems.
Electric and pneumatic actuators.
Fuel ignition system solutions. Induction coil. Spark plugs.
Servo devices in steering and breaking systems of motor vehicles.
Road lightning systems and light and sound signalization on motor vehicles.
Windshield wipers and washers.
Instrument panel. Devices for measuring and signaling of motor vehicle parameters.
Ventilation systems and air conditioning systems for passenger space.
Systems for increase of comfort of drivers and passengers.

Recommended reading

1. Dekanj, J.: "Električni uređaji u automobile", Tehnička knjiga, Beograd, 1990.
2. Vukosavljević, V.: "Elektro oprema motora i vozila", Mašinski fakultet, Kragujevac, 1974.
3. Radonjić, D., Pešić, R., Taranović, D.: "Električni i servo uređaji MVM", Skripta (in preparation), Mašinski fakultet u Kragujevcu, 2008.

Additional reading

1. Grujović, A.: "Elektronika automobila", Mašinski fakultet, Kragujevac, 2008, (in press).

The number of hours of active teaching:				Other classes:
Theory: 2	Practical classes: 1.6	Other forms of teaching: 0.4	Research study: 0	1

Methods of teaching

The course takes place using multimedia tools with active participation of students.
During exercises and work on seminar paper, the problems in the field of the course are solved and existing electric and servo devices in motor vehicles are practically analyzed.

Evaluation of knowledge

Pre-final exam obligations	**points**	**Final exam**	**points**
Activities during the classes:	**10**	Oral exam	**30**
Practical classes:			
Colloquiums(s) :	**30**		
Seminar(s) :	**30**		