Study program: Ecological Engineering

Course title: Ecofriendly Vehicle Engines

Professor/assistant: Dušan B. Nestorović

Type of course: Elective

ECTS credits: 7

Prerequisites: none

Aims of the course:
Students acquire theoretical and practical knowledge in the field of development and application of modern engines of vehicles and their equipment.

Learning outcomes:
Students are trained to independently manage and solve practical problems related to exploitation and maintenance of motor vehicles.

Syllabus:
Theoretical part:

1. Introductory considerations
2. Development of vehicle's engines and their equipment
3. An overview of the global development of transport means, engines and equipment
4. Engines of the future
5. Global trends in development of internal combustion engines and equipment
6. Systems for direct gasoline injection into cylinders
7. New ignition systems for fuel and air mixtures of the internal combustion engine
8. Global trends in diesel engines and equipment
9. New injection techniques and a higher quality of mixture in diesel engines
10. Global trends in development of engines
11. Hybrid engines
12. Electric engines

Practical part:
Work in laboratories, training in service centers of appropriate institutions. Term papers.

Literature:

1. D. Nestorović: MOTORI SUS 1, Skripta VTŠSS Kragujevac, 2010
2. D. Nestorović: MOTORI SUS 2, Skripta VTŠSS Kragujevac, 2010
3. Veinović S., Budućnost vozila u svetu energije i ekologije, Naučna knjiga 1990.
4. Pešić R., Petković S., Motorna vozila i motori oprema, Mašinski fakultet Banja Luka –Kragujevac, 2000.
5. S. Veinović, R.Pešić, S.Petković: Pogonski materjali motornih vozila, Banja Luka-Kragujevac, 2000.
6. Tomić M. Motori sa unutrašnim sagorevanjem, Mašinski fakultet, Beograd, 2004

Total number of active classes: 6	**Lectures:** 3	**Practical classes:** 3

Teaching methods:
Theoretical lectures: interactive approach.
Practical lectures: term papers, experimental work, professional practice, consultations.

Grading system (maximum 100 points)
grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51- 60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91- 100 points.

Pre-exam obligations:	**Points:**	**Final exam:**	**Points:**
Activity during lectures	5	Oral exam	50
Practical training	5		
Written tests	20		
Term paper	20		
Minimum requirement for the final exam	30		