

SYLLABUS

1. Course title:

Internal combustion engine

2. Code:

(max. 20 characters)

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course: Mandatory Elective**6. Prerequisites:**

No

7. Class restrictions:

No

8. Duration / semester:

1

6

9. Weekly contact hours:

9.1. Lectures:

2

9.2. Seminars:

1

9.3. Laboratory/Practice classes:

1

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Power Mechanical Engineering

12. Lecturer:

Fikret Alić, Associate Professor

13. Lecturer's e-mail:

fikret.alic@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

Acquiring knowledge in the field of IC engines that relates to: the theory Running cycle, indicators of economy and efficiency of the cycle, Scrapbook budget cycle, the theory of combustion in IC engines, the indicator and the effective indicators as well as on the thermal balance of the engine.

Knowledge in fields relating to: kinematics and dynamics of the motor mechanism, power balance, the uniformity of rotation, driving, useful and dynamic characteristics.

Provide technical understanding complex requirements to be met by equipment for motor vehicles and internal combustion engine with aspects of the environment and performance.

16. Learning outcomes:

Qualification for calculation cycle, the analysis parameters of economy and efficiency engines, knowledge of basic structural concept of the engine and its auxiliary equipment, knowledge and skills needed for the preparatory phase of design or choice of engines as a drive unit.

Qualification for calculation kinematic and dynamic characteristics of piston mechanisms IC engine, the determination and use of the drive, useful and dynamic characteristics.

Identifies modern systems on vehicles (power supply islands and diesel engine fuel ignition systems, etc.) And analyzes the principles of their functioning.

17. Course content:

Information about the subject. Distribution of thermal machines. Four-stroke and two-stroke engines. The force of the crank mechanism, the torque, the order of ignition, the impact speed and load. Flywheel. Fundamentals of balancing the engine. The processes in engines of ideal and real processes in the four-stroke engine. The degree of filling degrees of usefulness, medium pressure, forces. Changing the working fluid at the four-stroke engine. Two-stroke engines. Motor fuel. Calorific value of fuel mixture. Combustion in Otto engine. Basic concepts about preparing fuel mixture and ignition at the Otto engine. Combustion in Diesel engine. Basic terms of fuel injection in diesel engines. Basics of process modeling in engines. The pounding of the engine. The boundaries of fuel efficiency in transport. Harmful emissions of internal combustion engines. Cooling and lubrication of IC engines.

18. Learning methods:

For the purpose of effective teaching and to achieve the objectives of the course and competence of students during the course will be used the following methods:

- lectures using multimedia resources with active participation and discussion of students,
- preparation and presentation of individual and team / group seminar papers,
- presentation in the real environment.

19. Assessment methods:

After half of the semester, students take the writing test, which includes previously treated topics with lectures. test It consists of a group of multiple-choice questions, the group questions for the simple recall and group essay type questions. Student total in the first test can achieve 20 points. The test is taken by all students in the course at the same time thereby achieving uniformity of the level of knowledge that is being tested, as well as the conditions in which the student takes the exam.

Also after the second half semestrea students take the written test for the second part of the topics covered in lectures Skop. The test is scored as the first test with 20 points.

As part of the pre-exam students are required to make individual or group seminar that will cover specific topics from the contents of the subject. Seminar in writing teaches the subject teacher for review and evaluation, and then the same is presented orally with possible use multimedia aids. In the preparation and presentation of group seminar work are involved all students groups, whose participation is valorized individually. For done and presented seminars student can achieve from 0 to 10 points.

The final exam is oral. The right exit on the final exam is given to students who have achieved at each of the previous ways of testing a minimum of 50% points of the total number that can be achieved.

At the oral exam students answer three questions drawn from the program of the subject treated in class. Oral exam can be taken if a student answers to all three questions. The maximum number of points a student can achieve at the oral exam is 45 points.

Checks on all forms of knowledge are recognized as a cumulative exam if the achieved result is positive after each individual test and at least 50% of the total scheduled or required knowledge and skills.

In order for the student to pass the subject must achieve a minimum of 54 cumulative points of which a minimum of 25 points on the final exam.

20. Assessment components:

Rating exam is based on the total number of credits a student gained fulfilling exam prerequisites and passing exams and contains a maximum of 100 points, according to the following scale

Students' obligations Points

Presence in classes 5

25 Test I

Test II 25

Total prerequisites given 55

Final Exam 25-45

21. Required reading list:

1. Mahalec I., Lulić Z., Kozarac D. (2011) Motori sa unutrašnjim izgaranjem, Zagreb, FSB

2. Filipović i. (2006) Motori i motorna vozila, Tuzla, MF

3. Vibe I. I.(1970) Brennverlauf und Kreisprozeß von Verbrennungsmotoren, Berlin,VEB Verlag Technik

22. Web sources:

<http://www.motorna-vozila.com>

<http://www.mvm.fink.rs>

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

01.06.2015