

Information sheet for the course
Power machines in mobile equipment

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| University: <i>Alexander Dubček University of Trenčín</i> | | | | | |
| Faculty: <i>Faculty of special technology</i> | | | | | |
| Course unit code: <i>ŠST/B/1-62/d</i> | | | Course unit title: <i>Power machines in mobile equipment</i> | | |
| Type of course unit: <i>compulsory</i> | | | | | |
| Planned types, learning activities and teaching methods: <i>1 hour of lectures per week, 1 hour of laboratory exercises per week</i> | | | | | |
| Number of credits: 2 | | | | | |
| Recommended semester: <i>5th semester in the 3rd year of study /full-time /</i> <i>7th semester in the 4th year of study /part-time /</i> | | | | | |
| Degree of study: <i>I.</i> | | | | | |
| Course prerequisites: <i>none</i> | | | | | |
| Assessment methods: <i>100% attendance and active creative work on exercises, meeting the goals of exercises, coping with technical terminology, as min. 60% attendance at lectures, a properly developed semester work. A written test twice a semester. In range of an ongoing evaluation it is needed to obtain as min 40 points. Final assessment: Credit in form of a written test with a focus on theoretical knowledge and description of operation of power machines functional parts. Of total 80 points it is needed to obtain as minimum: (E) - 55 points, (D) - 60 points (C) - 65 points (B) - 70 points (A) - 75 points.</i> | | | | | |
| Learning outcomes of the course unit: <i>The student has got cross-sectional knowledge focusing on application he/she gets a comprehensive overview of the basic structure and operation of power machines, with an emphasis on internal combustion engines in mobile equipment.</i> | | | | | |
| Course contents: <i>Definition, distribution and trends of internal combustion engines and their systems. Fixed and movable parts of piston internal combustion engines. Heat balance of engines. The forces acting on the crank mechanism and the formation of an engine torque. Power and efficiency parameters of internal combustion engines. Improving the performance of engines by supercharging. Purpose, structure, principle of operation of individual structural units and systems of internal combustion engines. Construction and operation of turbochargers. Vehicle combustion turbines, their advantages and disadvantages. Wankel engine with a rotary piston. Unconventional drive unit of vehicles, hybrid drives, electric drives.</i> | | | | | |
| Recommended of required reading: <i>ELIÁŠ, J.: Energetické stroje v mobilnej technike.-1.vyd.-Trenčín: TnUAD, 2011.-224 s. ISBN 978-80-8075-507-2</i> <i>FERENCEY, V.: Energetické stroje v konštrukcii motorových vozidiel [skriptá] - 1.vyd. - Trenčín: TnUAD, 2008. - 256 s. - ISBN 978-80-8075-366-5.</i> <i>SLOBODA, A.-FERENCEY, V.- HLAVŇA, V.- TKÁČ, Z.: Konštrukcia kolesových a pásových vozidiel. [učebnica] - 1.vyd. TU Košice., Sjf TU Košice, 2008.- 558 s. ISBN 978-80-89232-28-4</i> <i>ELIÁŠ, J.: Mobilná technika na kolesových podvozkoch [skriptá]: charakteristiky, technické údaje a popis/. - 1.vyd. - Trenčín: TnU AD, 2002. - 338 s. - ISBN 80-88914-62-0</i> <i>ELIÁŠ, J.: Špeciálna mobilná technika na pásových podvozkoch [skriptá]: Charakteristiky, technické údaje a popis/- 1.vyd. - Trenčín: TnUAD FŠT, 2002. - 266 s. - ISBN 80-88914-63-9</i> | | | | | |
| Language: <i>Slovak</i> | | | | | |
| Remarks: <i>The subject is provided in a winter term in the 3 year of a full-time study. The subject is compulsory.</i> | | | | | |
| Evaluation history <i>Total number of students being evaluated: 436</i> | | | | | |
| A | B | C | D | E | FX |

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| 6,42 | 19,50 | 30,28 | 29,82 | 13,30 | 0,68 |
| Lecturers: <i>prof. Ing. Jiří Stodola, DrSc. - lecturer</i> <i>Ing. Jozef Eliáš, PhD. - lecturer and tutor</i> | | | | | |
| Last modification: <i>15.4.2014</i> | | | | | |
| Supervisor: <i>prof. Ing. Jiří Balla, CSc., guarantee of the study program Special Mechanical Engineering Technology</i> | | | | | |