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|--|---|--|-----------------------------|
| <b>Óbudai University</b>   |   | <b>Institute of Mechatronics and Vehicle Engineering</b> |                             |
| <b>Donát Bánki Faculty of Mechanical and Safety Engineering</b>  |   | <b>Engineering</b>                                       |                             |
| <b>Course name and Neptun-code: Basics of Informatics, BMXI1EHBNE, BMXIAYHBNE</b>  |   |  | <b>Credits: 3</b>           |
| <i>Full time, 1<sup>st</sup> Semester of the Academic year 2019/20.</i>  |   |  |                             |
| Faculties in which the subject is taught: <b>BSc in Mechatronics</b>   |   |  |                             |
| Supervised by: <b>Dr. Laufer Edit</b>  |   | Lecturers: <b>Nguyen Huu Phouc Dai</b>                   |                             |
| Prerequisites conditions: (Neptun Codes)   |   |  |                             |
| Lessons per week:  | Theory: <b>2</b>  | Practice (in Auditorium): <b>0</b>                       | Lab: <b>0</b> Consultation: |
| Exam type (s,v,f):   | <b>exam</b>   |  |                             |
| <b>The Syllabus</b>  |   |  |                             |
| <b>Aim:</b> Give an overview about the basic tools of Informatics, which are needed during engineering work.   |   |  |                             |
| <b>Schedule</b>  |   |  |                             |
| Weeks  | Topics  |  |                             |
| 1.   | Concept of informatics. Emergence, development trends. Basic concepts of informatics. Concept, and quantity of information. |  |                             |
| 2.   | Concept of entropy. Searching theory. Concept of redundancy.  |  |                             |
| 3.   | Information coding. Code tree. Prefix code. Variable code length.   |  |                             |
| 4.   | Statistics-based data compression.  |  |                             |
| 5.   | Heuristic information-based methods.  |  |                             |
| 6.   | Number systems. Transformation between number systems. Negative numbers. Real numbers. Operations.                          |  |                             |
| 7.   | <b>Test paper I.</b>  |  |                             |
| 8.   | Operating systems.  |  |                             |
| 9.   | Basic concepts of coputer network. Internet. WiFi and mobile communication.   |  |                             |
| 10.  | Information sharing. Web pages. Social networks. Scientific Student Conference  |  |                             |
| 11.  | Holiday   |  |                             |
| 12.  | Computer malware. Information protection.   |  |                             |
| 13.  | <b>Test paper II.</b>   |  |                             |
| 14.  | <b>Retake</b>   |  |                             |
| <b>Requirements</b>  |   |  |                             |
| Weeks  | Test papers   |  |                             |
| 7  | Test paper I.   |  |                             |
| 13   | Test paper II.  |  |                             |
| 14   | Retake  |  |                             |
| <i>The evaluation criterias</i>  |   |  |                             |
| The participation is regulated by Study Regulations III.23.§ (1)-(4).  |   |  |                             |
| All main areas of the course are evaluated by test papers. The course is to be considered successfully completed if and only if both tests are written with grade minium 2, as a prerequisite for obtaining a <b>signature</b> . |   |  |                             |
| Based on the Study Regulations III.6.(4), the student may receive an <b>offered grade</b> if they have written both tests with a grade 3 and based on the average of the results they can obtain minimum grade 4.                |   |  |                             |
| All matters which are not covered in this document, the Study and Examination Rules and the provisions of the Study Regulations, valid at Óbuda University, prevails.  |   |  |                             |
| The semester closing method (method of examination: written, oral, testing, etc.).   |   |  |                             |
| Written exam   |   |  |                             |
| <b>Literature:</b> Moodle  |   |  |                             |
| <b>Quality Assurance:</b>  |   |  |                             |