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|---|---|-------------------|--------------|------------|
| Study program   | Level of the study program  |                   | First cycle  |            |
|   | Name of the study program   |                   | Physics      |            |
| Course name   | LABORATORY IN PHYSICS EDUCATION I   |                   |              |            |
| Course ID   | Semester  | Course status     | ECTS credits | L+E        |
| <b>PED5411</b>  | <b>VII</b>  | <b>ELECTIVE</b>   | <b>4</b>     | <b>0+3</b> |
| Lecturer  | Prof. dr. Vanes Mešić   |                   |              |            |
| Aims and intended learning outcomes   | <p>The aim of this course is to develop students' knowledge, skills and habits that are important for effective implementation of the experimental method in physics classrooms.</p> <p>Intended learning outcomes:</p> <ol style="list-style-type: none"> <li>1. Systematically prepare physics experiments, including a written plan for implementation of the experimental method.</li> <li>2. Conduct physics experiments and thereby take into account the potential safety risks.</li> <li>3. Analyse experimental data, identify sources of error and suggest potential ways of improving the experimental setup.</li> <li>4. Present and discuss the experimental results by using multiple representations and taking into account basic principles of cognitive psychology.</li> <li>5. Identify, evaluate and design hands-on experiments in physics.</li> </ol> |                   |              |            |
| Course content  |   |                   |              |            |
| <p>Introducing the students with the syllabus.<br/> Basic measurements in mechanics.<br/> Kinematics.<br/> Dynamics.<br/> Gravitational field. Free fall.<br/> Stability. Static equilibrium. Decomposition and superposition forces.<br/> Pressure.<br/> Statics of fluids.<br/> Energy, work and power. Friction.<br/> Simple machines.<br/> Particulate nature of matter. Heat phenomena – part I.<br/> Heat phenomena – part II.</p>                          |   |                   |              |            |
| Student workload (hours)  |   |                   | Grading      |            |
| Lectures and Exercises  | 45  | Assessment method | Points       |            |
| Exam preparation  | 25  | Partial exam      | 40           |            |
| Assignments   | 25  | Project           | 10           |            |
| Other   | 5   | Final exam        | 50           |            |
| Total   | 100   |                   |              |            |
|   |   | Total             | 100          |            |
| Literature  |   |                   |              |            |
| <ol style="list-style-type: none"> <li>1. Vrcelj, A. (n.d.). <i>Metodički praktikum – mehanika i termodinamika</i> (interna skripta). Sarajevo: Prirodno-matematički fakultet.</li> <li>2. Physics textbooks for the primary and secondary school level.</li> <li>3. Cunningham, J., &amp; Herr, N. (1994). <i>Hands-on physics activities with real-life applications: easy-to-use labs and demonstrations for grades 8-12</i> (Vol. 3). Jossey-Bass.</li> </ol> |   |                   |              |            |
| Remarks   |   |                   |              |            |
| A passing grade on individual laboratory reports is a prerequisite for getting access to the final exam.  |   |                   |              |            |