Course title: An Experiment in Teaching Physics

Lecturer: Maja Stojanović

Required Course: elective

Number of ECTS: 15

Prerequisites: none

Course Objective:

The aim of course is an interdisciplinary approach of teaching physics and introduction of scientific method in teaching. Selected topics will be discussed based on the classic experiments combined with simple experiments related to the contents of which are delivered with the aim of better understanding the physical phenomena and processes.

Course Outcome:

Upon completion of the course and after successfully passing the examination a student should have developed:

General skills: the use of literature, scientific terminology and experiments related to the physical facilities in interdisciplinary science teaching.

Subject specific skills: knowing how to demonstrate the physical phenomena and laws related to the properties of water and air, motion, fluid, heat, optics, sound, electricity and current, magnetism. Understand the role of the experiments, proof and creative thought in the development of scientific ideas

Course Content:

Theoretical instruction

Interdisciplinary approach to teaching physics. The role of experiment in physics. Implementation of experiments in physics. Importance of experiments in the frame of active teaching methods of physics. School experiments and modern teaching methods.

Students research

Demonstration (simple) experiments suitable for processing threads to be processed from mechanics, statics and fluid dynamics, heat waves and oscillations, sound, optics, electricity, and electricity and magnetism

Reading List:

Literature is based on articles from Internacional and domestic journals, the relevant chapters from books, specially prepared texts for this purpose, and materials from international and domestic conferences.

1. Agneš Kapor, Sonja Skuban and Ljiljana Stanivuk, "Demonstracioni eksperimenti u nastavi fizike I (Mehanika i termodinamika)", Univerzitet u Novom Sadu Prirodno-matematički fakultet, Departman za fiziku, Novi Sad 2012.
2. Душанка Ж. Обадовић, Маја Стојановић, Милица Павков Хрвојевић, Једноставни огледи у физици 6. разред основне школе, Завод за уџбенике Београд, ISBN: 978-86-17-14230-6
3. Душанка Ж. Обадовић, Маја Стојановић, Милица Павков Хрвојевић, Једноставни огледи у физици 7. разред основне школе, Завод за уџбенике Београд, ISBN: 978-86-17-14231-3
4. Душанка Ж. Обадовић, Маја Стојановић, Милица Павков Хрвојевић, Једноставни огледи у физици 8. разред основне школе Завод за уџбенике Београд, ISBN: 978-86-17-14232-0
5. *Physics Experiments That You Can Do at Home*, The Wonders of Physics, University of Wisconsin-Madison
6. Morris H. Shamos, Great Experiments in Physics: Firsthand Accounts from Galileo to Einstein, Published by Dover Publications, 1987, ISBN 0486253465 (ISBN13: 9780486253466)
7. http://www.nuffieldfoundation.org/practical-physics
8. http://www.girep2005.fmf.uni-lj.si/dwreport/dwb.pdf
9. http://sprott.physics.wisc.edu/demobook/intro.htm

Total hours:			10	
Lectures: 5	Practicals:	Other:	Student research work:5	

Methods of instruction:

Scientific, monologue-dialogue and experimental methods
Assessment (maximum number of points 100)
Requirements Active participation in lectures Active participation in practicals 25pts Seminar work 15pts Oral exam 60pts