Methods is Physics Teaching: Waves and Mechanics
(214302)

Lecturer: Assoc. Prof. Miriam Reiner

Credits: 3.0

Course Topic and Learning Outcomes: Students learn methods in physics teaching Waves and Mechanics teaching through participation in interactive classroom sessions, group work and short sessions presented by experienced high-school and university teachers. Students present short teaching-learning sessions, which are subject to self and peer analysis and review, and read brief research articles on pupils difficulties in conceptualization in physics. Students analyze the cognitive difficulties in physics reasoning, and work individually or in groups to develop teaching-learning strategies in high-school both in classrooms and physics labs.

Learning Outcome:
Student will be able to analyze, plan, teach test, and self-evaluate theoretical and practical (laboratory and project) lessons in physics. In particular, students:

1. become familiar with methods developing logics and fluency of teaching sessions in Waves and Mechanics
2. know and experience strategies for: motivating classroom introduction in Waves and Mechanics; laboratory experiments integrated with classroom teaching in Waves and Mechanics; and testing- especially the FIC standard test
3. become familiar, explore, and analyze students difficulties in conceptualization in Waves and Mechanics
4. become familiar with guiding principles and develop strategies of coping with students difficulties.
5. Become familiar with web-tools for teaching: applets, simulations, web-based collaborative projects and similar, in Waves and Mechanics.
Assessment

1. Active participation in classroom activities – 15%
2. Plan, develop and teach a comprehensive series of teaching sessions in mechanics and waves including tests, lab work, demos, group work, and individual and group problem solving – 40%
3. An analysis of students difficulties in conceptualization in physics – 30%
4. Examination of student written summary project – 15%

Bibliography


