Univerza v Novi Gorici
Fakulteta za naravoslovje

University of Nova Gorica
School of Science

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet	Fizikalni laboratorij I
Course name	Physics laboratory I

Študijski program in stopnja **Study program and level**	**Študijska smer** **Study field**	**Letnik** **Academic year**	**Semester** **Semester**
Fizika in Astrofizika I. stopnja	/	1	2
Physics and Astrophysics I. level	/	1	2

Vrsta predmeta / Course type	obvezni / mandatory
Univerzitetna koda predmeta / University course code	1FAF08

Predavanja **Lectures**	**Seminar** **Seminar**	**Sem. vaje** **Tutorial**	**Lab. vaje** **Lab. work**	**Teren. vaje** **Field work**	**Samost. delo** **Indiv. work**	**ECTS**
10	/	/	50	/	120	6

Nosilec predmeta / Lecturer	Izr. prof. dr. Egon Pavlica	
Jeziki / Languages	**Predavanja / Lectures**	slovenščina / english
	Vaje / Tutorial	slovenščina / english

Pogoji za opravljanje študijskih obveznosti	**Prerequisites**
Fizika I (1FAF03) Ekperimentalne metode (1FAF04)	Physics I (1FAF03) Experimental methods (1FAF04)

Vsebina	**Syllabus outline**
UVOD: Analiza in predstavitev rezultatov pridobljenih v poskusih POSKUS: Foucaltovo nihalo POSKUS: Torzijsko nihalo POSKUS: Trk vozičkov (pospešeno gibanje in ohranitveni zakoni) POSKUS: Meritev viskoznosti POSKUS: Michelsonov interferometer	INTRODUCTION: Analysis and presentation of results, which are obtained during experiments EXPERIMENT: Foucalt pendulum EXPERIMENT: Torsional pendulum EXPERIMENT: Carts collisions (accelerated motion and conservation laws) EXPERIMENT: Measurement of viscosity EXPERIMENT: Michelson interferometry

Temeljni literatura in viri / Basic readings
Vsak poskus ima podana navodila v pisni obliki z seznamom literature. / Each experiment contains a written instructions with the list of relevant readings.

Cilji in kompetence	**Objectives and competences**
Študentje izvajajo praktične vaje iz področja mehanike in valovanj. Samostojno izvedejo več	Students perform practical work from the field of mechanical physics, waves and interference.

poskusov, ki so vnaprej pripravljeni. Nato obdelajo rezultate in jih tudi ustrezno predstavijo v pisnem poročilu.	They independently execute several experiment, which are already setup. Next, they analyse and present the results in an appropriate way in a written report.

Predvideni študijski rezultati	**Intended learning outcomes**
Do konca tega predmeta bo študent sposoben samostojno izvesti lažji poskus, ki zajema naslednje korake: priprava na poskus, pregled literature meritev in beleženje podatkov statistična obdelava podatkov, linearizacija modelov, iskanje koeficientov premice in njihovih napak pisanje poročila meritve in predstavitev rezultatov obdelave podatkov zagovor rezultatov	By the end of this course student will be able to perform a simple experiment including these steps: preparation for the experiment, literature check measurement and data collection statistical analysis of data, model linearization, calculation of linear coefficients and their error writting a report of measurement and results of analysis defense of results

Metode poučevanja in učenja	**Learning and teaching methods**
- predavanja - samostojne meritve v laboratoriju - možni obiski zunanjih laboratorijev za podrobnejši v pogled in praktične izkušnje	- lectures - individual measurements in the laboratory - possible visits to external laboratories for practical experience

Načini ocenjevanja	**Utež / Weight (%)**	**Assessment**
- Ocena dnevnika meritev - Oddana poročila - Ustni zagovor poročil	20 60 20	- Examination of lab. notes - Delivered reports - Oral defense of reports

Reference nosilca / references of the course principal
Dr. Egon Pavlica je izredni profesor za področje fizike na Univerzi v Novi Gorici. Egon Pavlica is an associate professor of physics at the University of Nova Gorica. 1. Saim Emin, **Egon Pavlica**, H. Okuyucu, Matjaž Valant, Gvido Bratina, "Charge carrier transport in polycrystalline $CH_3NH_3PbI_3CH_3NH_3PbI_3$ perovskite thin films in a lateral direction characterized by time-of-flight photoconductivity", *Mater. Chem. Phys.* 2018. 2. **Egon Pavlica**, Raveendra Babu Penumala, Gvido Bratina, "The role of local potential minima on charge transport in thin organic semiconductor layers", *Organic electronics* 2017.

3. Andrey Kadashchuk, Fei Tong, **Egon Pavlica**, Gvido Bratina, et al., "Role of transport band edge variation on delocalized charge transport in high-mobility crystalline organic semiconductors", *Physical review. B* 2017.

4. Tim Leydecker, Martin Herder, **Egon Pavlica**, Gvido Bratina, Stefan Hecht, Emanuele Orgiu, Paolo Samorì, "Flexible non-volatile optical memory thin-film transistor device with over 256 distinct levels based on an organic bicomponent blend", *Nature Nanotechnology* 2016.

5. Lei Zhang, Xiaolan Zhong, **Egon Pavlica**, Songlin Li, Alexander Klekachev, Gvido Bratina, Thomas W. Ebbesen, Emanuele Orgiu, Paolo Samorì, "A nanomesh scaffold for supramolecular nanowire optoelectronic devices", *Nature Nanotechnology* 2016.