UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Repetitorij iz fizike
Course title:	Repetitory of Phyisic

Študijski program in stopnja **Study programme and level**	**Študijska smer** **Study field**	**Letnik** **Academic year**	**Semester** **Semester**
Tehnologije in sistemi – prva stopnja	/	prvi	prvi
Technologies and Systems – 1st cycle	/	first	first

Vrsta predmeta / Course type obvezni/obligatory

Univerzitetna koda predmeta / University course code: TS 1 UN 5

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
30		30			80	5

Nosilec predmeta / Lecturer: izr. prof. dr. Franci Merzel

Jeziki / Languages:		
slovenski/ slovenian	**Predavanja / Lectures:**	slovenski/Slovenian
	Vaje / Tutorial:	slovenski/Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
• vpis v prvi letnik študija, • študent mora pred izpitom pravočasno oddati portfolio z opravljenimi vajami in biti ustrezno prisoten na vajah in predavanjih.	• enrollment in the first year of study, • before the exam, the student must submit a portfolio with completed exercises and be properly present at tutorials and lectures.

Vsebina:

- Opis gibanja;
- dinamika;
- ravnovesje in elastičnost;
- tekočine;
- nihanje;
- valovanje;
- temperatura;
- toplota;
- prvi in drugi zakon termodinamike;
- elektrostatika, električno polje in
- električni potencial;
- električni tok in upor;
- magnetno polje in indukcija;
- elektromagnetno nihanje in
- izmenični tok;
- elektromagnetni valovi;
- optika;
- interferenca in uklon;
- svetloba, fotoni in elektroni;
- atomi;
- trdna snov;
- atomsko jedro;
- energija iz atomskih jeder.

Content (Syllabus outline):

- Description of the movement;
- dynamics;
- balance and elasticity;
- fluids;
- fluctuation;
- wave;
- temperature;
- heat;
- the first and second laws of thermodynamics;
- electrostatics, electric field and
- electric potential;
- electric current and resistance;
- magnetic field and induction;
- electromagnetic oscillation and
- alternating current;
- electromagnetic waves;
- optics;
- interference and deflection;
- light, photons and electrons;
- atoms;
- solid matter;
- atomic nucleus;
- energy of atomic nuclei.

Temeljni literatura in viri / Readings:

Priporočena:

Halliday, D., Resnick, R., Walker, J. (2014) *Fundamentals of Physics, 10th edition*. Wiley

Cilji in kompetence:

Učna enota prispeva predvsem k razvoju naslednjih splošnih in specifičnih kompetenc:

- poznavanje osnovnih pojmov fizike in njihove uporabe,
- sposobnost fizikalnega razumevanja tehniških problemov in uporaba matematičnih metod pri reševanju le-teh – sposobnost prenosa in uporabe pridobljenega teoretičnega znanja v prakso,
- sposobnost razumevanja in uporabe sodobnih teorij s področja fizikalnih, tehniških, tehnoloških in naravoslovnih ved,

Objectives and competences:

The learning unit mainly contributes to the development of the following general and specific competences:

- knowledge of the basic concepts of physics and their application,
- the ability to physically understand technical problems and use mathematical methods in solving them - the ability to transfer and use the acquired theoretical knowledge in practice,
- the ability to understand and apply modern theories in the field of physical, technical, technological and natural sciences,

• sposobnost evidentiranja problema, analize ter predvidevanja rešitev, • avtonomnost v strokovnem delu s področja tehnologij in sistemov, • sposobnost interdisciplinarnega povezovanja znanja, • sposobnost stalne uporabe informacijske in komunikacijske tehnologije na svojem strokovnem področju, • usposobljenost za svetovalno delo (prenos znanja).	• the ability to identify a problem, analyze and anticipate solutions, • autonomy in professional work in the field of technologies and systems, • the ability to integrate knowledge in an interdisciplinary manner, • the ability to continuously use information and communication technology in one's professional field, • qualification for consulting work (transfer of knowledge).

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: *Študent/študentka:* • razume osnovne naravne zakonitosti, • zna podati in razviti matematično analitičen opis osnovnih fizikalnih pojavov, • osvoji standardne metodološke prijeme reševanja fizikalnih problemov, • pridobi splošno razgledanost po naravoslovno- tehniških vsebinah, • razume umeščenost svojega strokovnega področja v matematično-naravoslovnih vedah, • reflektira vsebine z drugih strokovnih disciplin in jih poveže s pridobljenim znanjem.	Knowledge and understanding: *Student:* • understands the basic laws of nature, • can give and develop a mathematical-analytical description of basic physical phenomena, • masters the common methodological approaches to solving physical problems, • acquires a general knowledge of scientific and technical content, • understands the location of his subject in the mathematical-scientific disciplines, • reflects contents from other disciplines and links them to the acquired knowledge.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov), • *vaje,* kjer bodo študentje na konkretnih problemih ponovili, utrdili in dodatno osvetlili pojme in metode, spoznane na predavanjih, • *raziskovalni seminarji,* • *individualni študij ob uporabi CD–roma*.	• *lectures with* active student participation (explanation, discussion, questions, examples, problem solving), • *tutorials*, where students will repeat, consolidate and additionally shed light on concepts and methods learned in lectures on specific problems, • *research seminars,* • *individual study using CD-ROM.*

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
• pisni izpit • ustni izpit • sprotno delo Ocenjevalna lestvica: ECTS.	70% ocene 20% ocene 10% ocene	• written exam • verbal exam • ongoing work Grading scale: ECTS.