



**OPIS PREDMETA / SUBJECT SPECIFICATION**

<b>Predmet:</b>	Izbrana poglavja iz fizike
<b>Subject Title:</b>	Selected topics in physics

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
FIZIKA PHYSICS		1 ali 2	1 ali 2

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. Vaje Lab. Work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30	20				250	10

Nosilec predmeta / Lecturer: Marko Robnik

**Jeziki / Languages:** **Predavanja / Lecture:** slovenski/Slovenian in/and angleški s slovenskim prevodom/English with translation in Slovenian

**Vaje / Tutorial:**

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Ni posebnih zahtev.

**Prerequisites:**

No special prerequisites.

**Vsebina:**

Študenti se udeležijo seminarских predavanj gostujočih znanstvenikov raziskovalcev, kolokvijev, poletnih šol, delavnic ter drugih simpozijev, ki jih organizirata CAMTP in FNM. Študenti se aktivno udeležijo ene izmed navedenih konferenc oz. šol.

CAMTP organizira:

- Mednarodne poletne šole in konference »Let's Face Chaos through Nonlinear Dynamics« (vsaka tri leta)
- European Advanced Studies Conferences (vsako leto)
- Japan-Slovenia Seminars on Nonlinear Science (vsako leto)
- Božične simpozije fizikov (vsako leto)
- SOCRATES Workshops (v sodelovanju z Univerzo v Marburgu, Nemčija)
- Redne raziskovalne seminarje na vseh področjih fizike

Izbiro druge konference, simpozija ali poletne šole potrdi Oddelek za fiziko FNM UM.

**Contents (Syllabus outline):**

Students attend seminar lectures of visiting scientists researchers, colloquia, summer schools, workshops, and other simposia, organized by CAMTP and FNM. Students actively attend one of the proposed summer schools or conferences.

CAMTP organizies:

- International Summer Schools and Conferences »Let's Face Chaos through Nonlinear Dynamics« (every three years)
- European Advanced Studies Conferences (every year)
- Japan-Slovenia Seminars on Nonlinear Science (every year)
- Christmas Symposia of Physicists (every year)
- SOCRATES Workshops (in collaboration with University of Marburg)
- Regular research seminars in all fields of physics

The selection of other conference, simposium or summerschool should be confirmed by the Department of Physics FNM UM.

**Temeljni študijski viri / Textbooks:**

- 1) L.D. Landau, E. M. Lifshitz, *Mechanics*, Butterworth-Heinemann, 1982.
- 2) L.D. Landau, E. M. Lifshitz, *The Classical Theory of Fields*, Butterworth-Heinemann, 1980.
- 3) L.D. Landau, E. M. Lifshitz, *Quantum Mechanics: Non-Relativistic Theory*, Butterworth-Heinemann, 1981.
- 4) V.B. Berestetskii, L.P. Pitaevskii, E.M. Lifshitz, *Quantum Electrodynamics*, Butterworth-Heinemann, 1982.
- 5) L.D. Landau, *Statistical Physics*, Butterworth-Heinemann, 1984.
- 6) L.D. Landau, E. M. Lifshitz, *Fluid Mechanics*, Butterworth-Heinemann, 1987.
- 7) L.D. Landau, L.P. Pitaevskii, E.M. Lifshitz, A.M. Kosevich, *Theory of Elasticity*, Butterworth-Heinemann, 1986.
- 8) L.D. Landau, L.P. Pitaevskii, E.M. Lifshitz, *Electrodynamics of Continuous Media*, Butterworth-Heinemann, 1986.
- 9) Članki v revijah Evropskega (EPS) in Ameriškega (APS) fizikalnega združenja, *Science*, *Nature*, *Scientific American*. / Papers in the journals of European (EPS) and American Physical Society (APS) as well as *Science*, *Nature*, *Scientific American*...

**Cilji:**

- Razumeti osnovne ideje na širokem področju moderne fizike ter povezave z drugimi področji
- Pridobiti dobro razgledanost nad aktualnimi tematikami sodobne fizike

**Objectives:**

- Understanding the basic ideas in the broad domain of modern physics and the links to other fields
- Gain good overview on the topical themes of modern physics

**Predvideni študijski rezultati:**

Znanje in razumevanje:

- Poglobljeno razumevanje idej, metod in rezultatov sodobne fizike

Prenesljive/ključne spretnosti in drugi atributi:

- sposobnost predstavitve pridobljenih raziskovalnih izsledkov s področja fizike v obliki javnih predstavitev na znanstvenih srečanjih
- poglobljeno razumevanje teoretskih in metodoloških konceptov z različnih področij moderne fizike
- mednarodna komunikativnost v vrhunskem znanstvenem in strokovnem okolju

**Intended learning outcomes:**

Knowledge and Understanding:

- Deeper understanding of ideas, methods and results of modern physics

Transferable/Key Skills and other attributes:

- Capability of public presentation of research results from the field of physics to scientific community at the meetings
- Deeper understanding of theoretical and methodological concepts from different areas of modern physics
- Capability of communication in the top-level scientific community

**Metode poučevanja in učenja:**

Predavanja, seminar

**Learning and teaching methods:**

Lectures, seminar

**Načini ocenjevanja:**

Delež (v %) /  
Weight (in %)

**Assessment:**

- |                             |    |   |
|-----------------------------|----|---|
| • Seminarska naloga         | 50 | • Seminar work                          |
| • Ustna predstavitev naloge | 50 | • Oral presentation of the seminar work |

**Obveznosti študentov:**

(pisni, ustni izpit, naloge, projekti)

- Udeležba na predavanjih
- Izdelava seminarske naloge in njena predstavitev na seminarju, konferenci, simpoziju, delavnici ali poletni šoli.

**Students' commitments:**

(written, oral examination, coursework, projects):

- To attend the lectures
- To write the coursework and present it at the seminar, conference, symposium, workshop or summer school.