NAME OF THE COURSE	Elementary Particle Physics I					
Code	PMP20E	Year of study	GU-1			
Course teacher	Marko Kovač, PhD, Assistant Professor	Credits (ECTS)	5,0			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30		15	
Status of the course	Obligatory	Percentage of application of e-learning	20			

COURSE DESCRIPTION

Course objectives	Acquisition of basic knowledge and competences in Elementary particle physics. Introduction to main ideas and theoretical frameworks used in the description of elementary particles and their interactions.
Course enrolment requirements and entry competences required for the course	Acquired learning outcomes of the following courses: Classical Electrodynamics, Quantum Physics, and Special Theory of Relativity.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Describe the basic ingredients of the Standard Model of particle physics. Retell the historical development of elementary particle physics Explain the interaction of particles with matter. Explain how modern particle detectors work Classify elementary particles and their reactions in terms of quantum numbers and draw simple reaction diagrams. Master relativistic kinematics for computations of the outcome of various reactions and decay processes. Describe the technological requirements of particle physics and discuss technology transfer to society.
Course content broken down in detail by weekly class schedule (syllabus)	Introduction to elementary particle physics. Historical development of elementary particle physics. Interactions of particles with matter. Basics of special relativity. Non-relativistic quantum mechanic. Decay rates. Cross sections. The Dirac equation. Solution to the Dirac equation.
Format of instruction	☒ lectures ☐ seminars and workshops ☒ exercises ☐ on line in entirety ☐ partial e-learning ☐ field work ☐ independent assignments ☒ multimedia ☐ laboratory ☐ work with mentor ☒ homework assignments
Student responsibilities	Attend at least 70% of lectures and 70% of exercises. Solve homework assignments.

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Name	Ects	Name	Ects	Name	Ects
	Class attendance		Research		Experimental work	
	Oral exam	2	Report		Homework assignments	1
	Seminar essay		Essay			
	Tests		Practical training			
	Written exam	2	Project			

<table>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="3">Pass two midterm exams with a minimum score of 50% at each midterm or pass the final exam with a minimum score of 50%. Midterm exams and final exam consist of both oral and written parts.</td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td>Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td>THOMSON, M. (2013). Modern particle physics. Cambridge: Cambridge University Press, 2013. -:</td><td>5</td><td></td></tr>
<tr><td>GRIFFITHS, D. J. (cop.). Introduction to elementary particles. Weinheim: Wiley-VCH.</td><td>2</td><td></td></tr>
<tr><td>Optional literature (at the time of submission of study programme proposal)</td><td colspan="3">MARTIN, B. R. (West). Particle Physics. Chichester, West Sussex, United Kingdom: John Wiley & Sons.
AITCHISON, I. J. (FL :). Gauge theories in particle physics : a practical introduction. Boca Raton, FL: CRC Press.</td></tr>
<tr><td>Quality assurance methods that ensure the acquisition of exit competences</td><td colspan="3">Exam results statistics and student evaluation through an anonymous survey at the end of the course. The survey is conducted according to the regulations of the University of Split.</td></tr>
<tr><td>Other (as the proposer wishes to add)</td><td colspan="3"></td></tr>
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