Study program	Level of studies	Third cycle
	Title of the study program	Science and mathematics education

COURSE

Course title	**Selected Chapters in General and Modern Physics II**

Course ID	Semester	Course status	ECTS credits	Contact hours
PTH672	I	Elective	10	60

Lecturers	Lecturer in charge	Prof. dr. Azra Gazibegović-Busuladžić
	Other lecturers	Prof. dr. Senad Odžak
Course aims	Deepening knowledge about selected topics in general and modern physics.	

CONTENT

#	Teaching units	Contact hours		
		L	E/S	C
	Introduction. Concept of field. Understanding physics. Differential and vector integral calculus. **Electrostatics.** Coulomb's law. Gauss' law. Electric field. Electrostatic energy. Dielectrics. **Magnetic field.** Ampere's law. Law of Biot and Savart. The vector potential. Induction. **Maxwell's equations.** Solutions for free space and for space with charges and currents. AC circuits. Lorentz transformations. The motion of charges in electric and magnetic fields. Maxwell's equations in a dielectric. Refraction and reflection of electromagnetic waves. **Magnetism.** Diamagnetism and paramagnetism. Magnetic materials. **Fluids.** Hydrostatics. Bernoulli's theorem. Viscosity. **Curved space.** Gravitation.	30	30	

LITERATURE

1. R. P. Feynman, R. B. Leighton, M. Sand, *The Feynman Lectures on Physics*, Vol. 2, 2. ed. Addison-Wesley (2005).
2. P.A. Tipler and G. Mosca, Physics for scientists and engineers, 5. ed. W.H. Freeman and Company (2004).
3. F.W. Sears, Elektricitet i magnetizam, Naučna knjiga (1963)
4. P. A. Tipler, R. Llewellyn, *Modern Physics*, 6th ed., (2012).
5. R. A. Serway, C.J. Moses, and C.A. Moyer, Modern physics, 3. ed. Thomson (2005).

ASSESSMENT OF LEARNING

	Assessment method	Points	Threshold
1.	Tests	30	16
2.	Seminar papers	30	17
3	Final exam	40	22
4.			
	Total	100	55