Study program	Level of the study program		First cycle	
	Name of the study program		Educational Physics	
Course name	APPLICATIONS OF PHYSICS IN EVERYDAY LIFE AND TECHNOLOGY			
Course ID	Semester	Course status	ECTS credits	L+E
PHY7311	VII	ELECTIVE	3	3+0
Lecturer	Prof. dr. Vanes Mešić			
Aims and intended learning outcomes	The aim of this course is to further develop students' understanding of physics within the context of everyday life and technology. Intended learning outcomes: 1. Explain selected phenomena from everyday life by using laws of physics. 2. Use physics knowledge in order to analyse the working principles of selected technical devices. 3. Discuss the complex relationship between physics, technology and society.			

Course content
Laws of motion – Part I (skating, projectile motion, ramps). Laws of motion – Part II (seesaws, wheels, bumper cars). Mechanical objects – Part I (spring scales, ball sports, carousels and roller coasters). Mechanical objects – Part II (bicycles, rockets and space travel). Fluids (balloons, water distribution, aerodynamics and ball sports, planes). Heat and phase transitions (wood stoves, light bulb, clothing, insulation and climate). Thermodynamics (air conditioners, automobiles). Mechanical waves and resonance (clocks, musical instruments). Electricity (xerographic copiers, flashlights). Magnetism and electrodynamics (magnets, electric power distribution, electric generators and motors). Electromagnetic waves (radio, microwave oven). Light (discharge lamps, lasers and LEDs). Optics and electronics (cameras, optical recording and communication, audio player). Modern physics (nuclear weapons, nuclear reactors, medical imaging and radiation).

Student workload (hours)		Grading	
Lectures and Exercises	45	Assessment method	Points
Exam preparation	15	Partial exam	30
Assignments	10	Seminar paper	20
Other	5	Homework	10
Total	75	Final exam	40
		Total	100

Literature

1. University physics textbooks.
2. Bloomfield, L. A. (2013). *How Things Work: The Physics of Everyday Life*. John Wiley & Sons.
3. Bloomfield, L. A. (2007). *How Everything Works: Making Physics Out of the Ordinary*. John Wiley & Sons.
4. Knight, J., Schlager, N. (2001). *Science of Everyday Things: Volume 2. Real-Life Physics*. Gale Group Staff.
5. Selected articles from physics education journals.

Remarks