

Study program		Level of studies	Third cycle			
		Title of the study program		Science and mathematics education		
<b>COURSE</b>						
Course title		<b>Advanced Course in Electrodynamics</b>				
Course ID	Semester	Course status		ECTS credits	Contact hours	
PTH602	I	Elective		10	60	
Lecturers	Lecturer in charge	Prof. dr. Senad Odžak				
	Other lecturers					
Course aims	Developing the ability to use the techniques of classical electrodynamics at a higher mathematical and theoretical level.					
<b>CONTENT</b>						
#	Teaching units			Contact hours		
				L	E/S	C
	Electrostatics. Boundary-value problems in electrostatics. Electrostatics of macroscopic media. Dielectrics. Magnetostatics. Non-stationary fields. Maxwell's equations. Conservation laws. Plane electromagnetic waves. Simple radiating systems. Diffraction. Magnetohydrodynamics. Plasma physics. Collisions of charged particles. Energy losses. Scattering. Radiation by moving charges. Bremsstrahlung. Method of virtual quanta. Radiative beta processes. Multipole fields. Radiation damping. Scattering and absorption of radiation by bound charges.			30	30	
<b>LITERATURE</b>			<b>ASSESSMENT OF LEARNING</b>			
1. J. D. Jackson, <i>Classical electrodynamics</i> , 2nd Edition, John Wiley & Sons, New York, 1975. 2. L. D. Landau and E. M. Lifšic, <i>The Classical Theory of Fields</i> , Volume 2, Butterworth Heinemann, 1996. 3. J. Vanderlinde, <i>Classical Electromagnetic Theory</i> , John Wiley & Sons, New York, 1993.			Assessment method	Points	Threshold	
			1.	Homework	20	11
			2.	Seminar paper	40	22
			3.	Final exam	40	22
			4.			
			Total	100	55	