

University POLITEHNICA of Bucharest
PHYSICS Department

CURRICULUM
Master Program / duration: 4 semesters

Name of the Program:

Engineering and Applications of Lasers and Accelerators (IALA)

Sem - Semester

L / T / L / P – weekly number of hours for Lectures/Tutorials/Labs/Project

ECST – points in the European Credit Transfer and Accumulation System

E / P - students evaluation form: final-Exam /Project

Cod UPB	Course	Sem	C	T	L	P	ECST	Eval. (E/V/P)
UPB.13.M1.O.xy-01	Fields of Lasers and Accelerators - news and career prospects	I	1				2	E
UPB.13.M1.O.xy-02	Electromagnetism and Plasma Physics for Engineering	I	2	1			4	E
UPB.13.M1.O.xy-03	Quantum Mechanics for Applications	I	2	2			4	E
UPB.13.M1.O.xy-04	Atomic and Nuclear Physics for Engineering	I	2		1	1	5	E
UPB.13.M1.A.xy-05	Optics and Lasers for Applications	I	2			2	5	E
	Weakly Teaching time: 16 hours	I					20	
UPB.13.M1.O.xy-06	Weakly Research time¹: 12 hours	I					10	P
	TOTAL	I					30	
UPB.13.M2.O.xy-07								
UPB.13.M2.O.xy-07	Engineering and Applications of Particle Accelerators	II	2			2	5	E
UPB.13.M2.O.xy-08	Engineering and Applications of High Power Lasers	II	2		1	1	5	E
UPB.13.M2.O.xy-09	Measurement and Dosimetry of the Ionizing Radiations	II	2		1	1	5	E
UPB.13.M2.O.xy-10	Using Photon and Particle Beams in Materials Science and Medicine	II	2		1	1	5	E
	Weakly Teaching time: 16 hours	II					20	
UPB.13.M2.O.xy-11	Weakly Research time: 12 hours	II					10	P
	TOTAL	II					30	
UPB.13.M3.O.xy-12								
UPB.13.M3.O.xy-12	High Precision Mechanical Systems and Vacuum Technology	III	2			2	5	E
UPB.13.M3.O.xy-13	Electronics for Experimental Sciences	III	2		1	1	5	E
UPB.13.M3.A.xy-14	Methods and Programming Techniques for High Performance Computing	III	2		1	1	5	E
UPB.13.M4.O.xy-15	Optional Subject Course ²	III	2			2	5	E
	Weakly Teaching time: 16 hours	III					20	
UPB.13.M3.O.xy-16	Weakly Research time: 12 hours	III					10	P
	TOTAL	III					30	
UPB.13.M4.O.xy-17								
UPB.13.M4.O.xy-17	Weakly Research time: 16 h	IV					15	P
UPB.13.M4.O.xy-18	Weakly Dissertation Thesis : 12 h	IV					15	P
	TOTAL	IV					30	

¹ **The research activity on each semester will end with the presentation of a project (which would entail obtaining ECTS points) in a public open session.**

² **There are proposed the following two optional subjects (of which students will choose):**

- DO1: Basic and Applied Research at ELI-NP infrastructure.
- DO2: HPLS (High Power Laser System) and GBS (Gamma Beam System) Engineering at ELI-NP.

RECTOR,
Mihnea Cosmin COSTOIU

DEAN,
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