

PH P 35 21 16

код на спец.

## Speciality FUSION AND PLASMA TECHNOLOGY

for the classes starting at the 2016/2017 academic year

№	Code of the course	Name of the course	Type* – З, И, Ф	Semester	ECTS credits	Hours - total number				Weekly hours	Form of assessment** - И, ТО, ки, прод
						All	Lectures	Exercises	Practical exercises		
1	2	3	4	5	6	7	8	9	10	11	12

\* З = compulsory; И = optional; Ф = facultative

\*\* И = final exam; ТО = ongoing assesment

**Compulsory courses**

1	M	6	1	9	Plasma Physics I	3	1	4,5	135	45	15	0	3 1 0	И
2	M	6	1	1	Atoms and Molecules Structure	3	1	4,5	135	45	15	0	3 1 0	И
3	M	6	1	8	Plasma Electrodynamics	3	1	4,5	135	45	15	0	3 1 0	И
4	M	6	1	4	Fluid Mechanics	3	1	3,5	105	30	15	0	2 1 0	И
5	M	6	1	2	Experimental methods in Plasma Physics I	3	1	3	90	45	0	0	3 0 0	И
6	M	6	2	1	Practicum on Plasma Diagnostics I	3	1	4,5	135	0	0	45	0 0 3	ТО
7	M	6	2	0	Plasma Physics II	3	2	4,5	135	45	15	0	3 1 0	И
8	M	6	1	5	Fusion and fusion power facilities	3	2	3,5	105	30	15	0	2 1 0	И
9	M	6	1	7	Numerical methods in Plasma Physics	3	2	5	150	30	0	30	2 0 2	ТО
10	M	6	1	3	Experimental methods in Plasma Physics II	3	2	3	90	45	0	0	3 0 0	И
11	M	6	2	2	Practicum on Plasma Diagnostics II	3	2	4,5	135	0	0	45	0 0 3	ТО

форма на оценяване:

и-изпит, то-текуща оценка,  
ки-комбинирано изпитване,

прод.- продължава в сл. семестър

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12	M	6	2	3	Statistical Physics	3	3	3,5	105	30	15	0	2 1 0	И
13	M	6	1	6	Nuclear Electronics	3	3	3,5	105	30	0	15	2 0 1	И
14	M	6	2	4	Students seminar: Current topics in fusion and plasma	3	3	3	90	0	30	0	0 2 0	ТО

**Optional courses - the courses chosen have to add up at least 35 ECTS to the curriculum\***

First semester - minimum 5,5 ESTC; second semester - minimum 9,5 ESTC; third semester - minimum 20 ESTC

I					<b>GROUP 1: Numerical methods and Programing</b>									
1	M	6	4	2	Introduction to UNIX	И	1	5	150	30	0	30	2 0 2	ТО
2	M	6	4	8	Numerical methods for many-particle systems	И	1	6	180	45	0	30	3 0 2	ТО
3	M	6	4	6	Modeling and simulations of finite systems	И	1	6	180	45	0	30	3 0 2	И
4	M	6	3	2	C++	И	2	4	120	15	0	30	1 0 2	И
5	M	6	4	1	Introduction to Parallel programming	И	2	6	180	30	0	45	2 0 3	И
6	M	6	5	6	The UNIX programming environment	И	2	2	60	30	0	0	2 0 0	И
7	M	6	5	4	Practicum on UNIX programming	И	2	4,5	135	0	0	45	0 0 3	ТО
8	M	6	3	0	Plasma Physics via Computer Simulation	И	2	4	120	15	0	30	1 0 2	ТО
9	M	6	5	0	Plasma modelling and numerical simulation	И	3	6	180	30	0	45	2 0 3	ТО
10	M	6	2	6	Finite Elements Methods	И	3	5	150	30	0	30	2 0 2	ТО
II					<b>GROUP 2: Theoretical Courses</b>									
11	M	6	3	4	Astrophysical Plasmas	И	1	4,5	135	30	15	0	2 1 0	И

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12	M	6	4	4	Material Science (for Fusion)	И	2	4,5	135	45	15	0	3 1 0	И
13	M	6	4	3	Magneto Hydrodynamics	И	2	4,5	135	45	15	0	3 1 0	И
14	M	6	2	9	Magnetic Confinement Fusion	И	2	2	60	30	0	0	2 0 0	ТО
15	M	6	2	8	Inertial Confinement Fusion	И	2	2	60	30	0	0	2 0 0	ТО
16	M	6	5	2	Plasma Turbulence, Transport and Heating	И	3	4,5	135	45	15	0	3 1 0	И
17	M	6	4	7	Models for the description of Nuclear Fusion Plasma	И	3	4,5	135	45	15	0	3 1 0	ТО
18	M	6	3	1	Plasma-wall Interaction in Fusion	И	3	4,5	135	45	15	0	3 1 0	И
19	M	6	3	3	Advanced Materials for Fusion	И	3	4,5	135	45	0	0	3 0 0	ТО
III					<b>GROUP 3:Experimental courses</b>									
20	M	6	5	1	Plasma Technology	И	1	4,5	135	45	0	15	3 0 1	ТО
21	M	6	4	0	Introduction to Fusion Technology	И	2	4,5	135	45	15	0	3 1 0	ТО
22	M	6	5	5	Sheaths and Potential Formation in Front of Negative and Positive Electrodes in a Plasma	И	2	2	60	30	0	0	2 0 0	И
23	M	6	2	5	Experimental methods in Nuclear Physics and Materials (for Fusion)	И	3	6	180	45	0	30	3 0 2	И
24	M	6	2	7	Fusion Devices: Design, Safety and Fuelling	И	3	6	180	45	15	15	3 1 1	И

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IV					<b>GROUP 4: Courses from other programs at the Faculty of Physics (if available in English)</b>										
25	M	6	3	5	Atomic and molecular spectroscopy	И	1	5,5	165	60	15	0	4 1 0	И	
26	M	6	5	2	Practicum on Atomic and molecular spectroscopy	И	1	4,5	135	0	0	45	0 0 3	ТО	
27	M	6	4	9	Oscilations and Waves	И	1	6	180	60	15	15	4 1 1	И	
28	M	6	5	7	Vacuum technology	И	2	6	180	45	0	30	3 0 2	И	
29	M	6	3	8	Gas discharges and their applications	И	2	5	150	30	15	15	2 1 1	И	
30	M	6	3	7	Gas discharge lighting	И	2	4,5	135	45	15	0	3 1 0	И	
31	M	6	3	6	Expermental optical spectroscopy	И	2	4,5	135	45	0	15	3 0 1	ТО	
32	M	6	5	3	Practicum on Experimental optical spectroscopy	И	2	4,5	135	0	0	45	0 0 3	ТО	
33	M	6	3	9	High resolution Atomic and molecular spectroscopy	И	2	4,5	135	45	15	0	3 1 0	И	
34	M	6	4	5	Measuring equipment	И	2	6	180	45	0	30	3 0 2	И	

\* Besides recommended courses, the students can choose from the full list of optional courses offered in the Faculty of Physics

#### Facultative courses (Their ECTS do not sum up to the compulsory 120 credits to get the degree.)

1	A	0	2	9	Bulgarian language**	Ф	1	3	90			90	0 3 0	ТО
2	A	0	3	0	Foreign language (other than Bulgarian)	Ф	1	3	90			90	0 3 0	ТО

\*\* For international students

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**Internships and coursework**

№	код	Name of the intership	Type – 3, И, Ф	Semester	ECTS - credits	Weeks	Hours	Form of assessment - И, ТО
1	M 6 5 8	Internship	3	4	15	15	150	

**Graduation**

Mode of graduation	ECTS - credits	First State Session	Second State Session
Defence of Master thesis	15	July	September

The curriculum is approved by the Faculty Council with protocol № 1 от 15.01.2013 г.

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