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Program code

Chemical engineering and advanced materials / master program "MODERN SPECTRAL AND CROMATOGRAPHIC ANALYTICAL METHODS"

academic year beginning from 2015/ 2016

№	Course code	Course Title	Type – C, E, O	Term	ECTS credits	Number of classes- total				Number of classes per week	Type of Grading* - e, ca, m, a
						Total	Lectures	Seminars	Practical classes / practice		
1	2	3	4	5	6	7	8	9	10	11	12

**Core courses**

1	C 0 1 0	Introduction to modern Instrumental analysis. Atomic spectroscopy methods - application, accreditation.	C	1	10	300	75	30	30	9	e
2	C 0 2 7	Computational methods in spectroscopy and chromatography	C	1	7	210	45		45	6	e
3	C 0 3 4	Methods of multivariate statistics in chemical analysis	C	1	4	120	30		30	4	e
4	C 0 4 5	Modern chromatographic methods	C	1	5	150	30		30	4	e
5	C 0 5 4	Modern methods of molecular spectroscopy	C	1	4	120	30		30	4	e
6	3 0 6 6	Electrochemical analytical methods	C	2	6	180	30	30	30	6	e
7	C 0 7 8	Applied analytical atomic spectrometry - food quality and safety, environmental samples analysis, pharmaceutical analysis, analysis of cosmetics.	C	2	8	240	60		60	8	e

**Elective disciplines – at least 16 ECTS**

1	E 0 1 4	X-Ray and Nuclear Methods of Analysis	E	2	4	120	30		30	4	e
2	E 0 2 4	Combined and hybrid analytical methods,. Speciation analysis	E	2	4	120	30		30	4	e
3	E 0 3 4	Electron Spectroscopy (UV/VIS, fluorescence)	E	2	4	120	30		30	4	e
4	E 0 4 4	Infrared and Raman spectroscopy	E	2	4	120	30		30	4	e

По решение на ФС часовете за самоподготовка са минимум 50% от общия брой часове

форма на оценяване:  
и-изпит, то-текуща оценка,  
ки-комбинирано изпитване,  
прод.- продължава в сл. семестър

5	E	0	5	4	NMR spectroscopy	E	2	4	120	30		30	4	e
6	E	0	6	4	Electron Paramagnetic Resonance Spectroscopy	E	2	4	120	30		30	4	e
7	E	0	7	4	Masspectrometry	E	2	4	120	30		30	4	e
8	E	1	8	4	High performance liquid chromatography	E	2	4	120	30		30	4	e
9	E	1	9	4	Gas Chromatography and Gas Chromatography-Mass Spectrometry	E	2	4	120	30		30	4	e

### Study Internships

№	code	Title	Type - C, E, O	Semester	ECTS - credits	Weeks	Number classes	Type of course completion
1	P 0 1 0	Laboratory practice	3	3	11	10	330	TO
2	P 0 2 5	Diploma thesis	И	3	4	5	120	TO

### Degree completion

Form of Degree completion	ECTS - кредити	First session	Second session
State-acknowledged Final examination on "MODERN SPECTRAL AND CROMATOGRAPFIC ANALYTICAL METHODS" or Diploma Thesis Defense of	15	February-March	June-July

The curriculum has been approved by the Faculty Council, Record of Proceedings № 5/18.11.2014

Dean:.....

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Sofia University "St. Kliment Ohridski"

**Curriculum Reference Statement**

Major: Chemical engineering and advanced materials / master program "MODERN SPECTRAL AND CROMATOGRAPHIC ANALYTICAL METHODS"

Form of study: full-time length of study: 3 semesters

In-class course load, ECTS credits and courses completed per semester																																		
Type of courses	I semester			II			III			IV			V			VI			VII			VIII			IX			X			Total			
	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades	Course Load - number of classes	ECTS – credits	number of grades				
Compulsory courses	405	30	5	210	14	2																										615	44	7
Min. of elective courses				240	16	4																										240	16	4
Study internships							225	15	2																							225	15	2
<b>Total:</b>	<b>405</b>	<b>30</b>	<b>5</b>	<b>450</b>	<b>30</b>	<b>6</b>	<b>225</b>	<b>15</b>	<b>2</b>																						<b>1080</b>	<b>75</b>	<b>13</b>	

Form of Degree completion	ECTS - credits	number of hours for preparation	First state exam/ thesis defence session	state exam/ thesis defence session
State-acknowledged Final Examination on "MODERN SPECTRAL AND CROMATOGRAPHIC ANALYTICAL METHODS" or Defense of Diploma Thesis	15		February-March	June-July

**Professional Qualification:**

Master on Chemical engineering and advanced materials - Modern Spectral and Chromatographic Analytical Methods

Record of Proceedings of the Faculty Council № 5/18.11.2014

Dean: