

CURRICULUM starting form Academic year 2015-2016

BABEȘ-BOLYAI UNIVERSITY

FACULTY OF PHYSICS

Field of study: PHYSICS

Programme of study: SOLID STATE PHYSICS

Language of instruction: ENGLISH

Name of qualification: MASTER'S DEGREE

Duration of studies: 4 SEMESTERS

Type of study: FULL TIME

I. DEGREE STRUCTURE

120 credits, whereof:

110 credits for compulsory courses;

10 credits for optional course;

and

10 credits for dissertation exam

II. STRUCTURE OF PROGRAMME (in weeks)

	Courses given		Examination period			Merged traineeship	Traineeship stages	Holiday		
	Sem I	Sem II	I	V	R			Winter	Spring	Summer
Year I	14	14	3	3	2	0	4	3	1	12
Year II	14	12	3	2	2	0	16	3	1	13

REMARKS:

Traineeship in Semester 2 and 4 is organized during the semester.

Semester 3 is entirely devoted to traineeship.

The examination period at the end of Semester 4 is followed by 2 weeks consacrated to preparing the Disserta

III. WEEKLY STRUCTURE OF TEH PROGRAMME (in hours)

	Semester I	Semester II
Year I	23	23
Year II	25	23

IV. DISSERTATION EXAM

Between 25 June - 6 July

Dissertation = 10 credits

V. SELECTION OF OPTIONAL COURSES

Sem. 1: Choosing 1 course from package: N/A

Sem. 2: Choosing 1 course from package: FMX1404

Sem. 3: Choosing 1 course from package: N/A

Sem. 4: Choosing 1 course from package: FMX1205

For a maximum of 3 optional courses, it is allowed for every student to select any course held at any other Faculty of the Babeș-Bolyai University.

VI. SIMILAR PROGRAMMES

Universite Joseph Fourier Grenoble, France

Eidgenössische Technische Hochschule Zurich, Schweiz

Technische Universität Dresden, Germany

Universidad de Zaragoza, Espagna

VII. COURSES

Year I, Semester 1												
CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
FME1101	Advanced Solid State Physics	5	2	1	0	3	6	9	E			Fundamental
FME2102	Advanced Atomic and Molecular Physics	5	2	1	0	3	6	9	E			Fundamental
FME3103	Advanced Theoretical Physics	5	2	1	0	3	6	9	E			Fundamental
FME1104	Experimental Methods I	5	0	0	4	4	5	9		C		Speciality
FME0105	Research Methodology and Drawing Up Scientific Papers	3	2	1	0	3	2	5		C		Fundamental
FME3106	Computational Methods in Physics	5	2	0	1	3	6	9	E			Fundamental
FMR2406	Traineeship I	2	0	0	4	4	0	4		C		Speciality
TOTAL		30	10	4	9	23	31	54	4	3	0	

Year I, Semester 2												
CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
FME1401	Physics of Thin Films	5	2	1	0	3	6	9	E			Speciality
FME1402	Physics of Metals and Alloys	5	2	1	0	3	6	9	E			Speciality
FME1403	Transport Phenomena in Solids	5	2	1	0	3	6	9	E			Speciality
FMX1404	Optional Course 1	5	2	0	1	3	6	9		C		Complementary
FME1405	Magnetic and Superconducting Materials	5	2	1	0	3	6	9	E			Speciality
FME1406	Experimental Methods III	3	0	0	4	4	1	5		C		Speciality
FME1207	Traineeship II	2	0	0	4	4	0	4		C		Speciality
TOTAL		30	10	4	9	23	31	54	4	3	0	

Year II, Semester 3												
CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
FME1301	Research Traineeship	30	0	0	25	25	38	63		C		Speciality
TOTAL		30	0	0	25	25	38	63	0	1	0	

Year II, Semester 4												
CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
FME1201	Magnetic Phenomena Physics	5	2	1	0	3	7	10	E			Speciality
FME1202	Solid State Electronics	5	2	1	0	3	7	10	E			Speciality
FME1203	Nanostructures and applications	5	2	1	0	3	7	10	E			Speciality
FMX1205	Optional Course 2	5	2	1	0	3	7	10		C		Complementary
FME1204	Materiale oxidice feroelectrice	5	2	1	0	3	7	10	E			Speciality
FME1206	Experimental Methods II	3	0	0	4	4	2	6		C		Speciality
FME1407	Dissertation Writing	2	0	0	4	4	0	4		C		Speciality
TOTAL		30	10	5	8	23	37	60	4	3	0	

OPTIONAL COURSES

CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
OPTIONAL COURSE 1 (Year I, Semester 1)												
		0	0	0	0	0	0	0				
OPTIONAL COURSE 2 (Year I, Semester 2)												
FME3206	Digital Signal Processing	5	2	0	1	3	6	9	E			Complementary
FME3204	Spectra Simulation	5	2	1	0	3	6	9	E			Complementary
FME3203	Ab initio Computation Methods in Solid State Physics	5	2	0	1	3	6	9	E			Complementary
OPTIONAL COURSE 3 (Year II, Semester 3)												
		0	0	0	0	0	0	0				
OPTIONAL COURSE 4 (Year II, Semester 4)												
FME1408	Nanotechnologies for Energy	5	2	1	0	3	6	9	E			Complementary
FME3401	Computation of Molecular Properties	5	2	0	1	3	6	9	E			Complementary
Credits / Hours / Week / Assesment / % from total number of courses		10	4	1	1	6	12	18	2	0	0	8.33%
Hours / week - Hours for study / week			52	12	14	78	156	234				
			78			234						

Appendix to the Curriculum for Programme of Study: FIZICA CORPULUI SOLID

FUNDAMENTAL COURSES (Fundamental)												
CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
Semesters 1 - 3 (14 weeks)												
FME1101	Advanced Solid State Physics	5	2	1	0	3	6	9	E			Fundamental
FME2102	Advanced Atomic and Molecular Physics	5	2	1	0	3	6	9	E			Fundamental
FME3103	Advanced Theoretical Physics	5	2	1	0	3	6	9	E			Fundamental
FME0105	Research Methodology and Drawing Up Scientific Papers	3	2	1	0	3	2	5		C		Fundamental
FME3106	Computational Methods in Physics	5	2	0	1	3	6	9	E			Fundamental
TOTAL		23	10	4	1	15	26	41	4	1	0	
Semester 4 (12 weeks)												
												Fundamental
TOTAL		0	0	0	0	0	0	0	0	0	0	
Credits / Hours / Week / Assesment / % from total number of courses		23	10	4	1	15	26	41	4	1	0	20.83%
Hours / week - Hours for study / week			140	56	14	210	364	574				
			210			574						

SPECIALITY COURSES (Speciality)												
CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
Semesters 1 - 3 (14 weeks)												
FME1104	Experimental Methods I	5	0	0	4	4	5	9		C		Speciality
FMR2406	Traineeship I	2	0	0	4	4	0	4		C		Speciality
FME1401	Physics of Thin Films	5	2	1	0	3	6	9	E			Speciality
FME1402	Physics of Metals and Alloys	5	2	1	0	3	6	9	E			Speciality
FME1403	Transport Phenomena in Solids	5	2	1	0	3	6	9	E			Speciality
FME1405	Magnetic and Superconducting Materials	5	2	1	0	3	6	9	E			Speciality
FME1406	Experimental Methods III	3	0	0	4	4	1	5		C		Speciality
FME1207	Traineeship II	2	0	0	4	4	0	4		C		Speciality
FME1301	Research Traineeship	30	0	0	25	25	38	63		C		Speciality
TOTAL		62	8	4	41	53	68	121	4	5	0	
Semester 4 (12 weeks)												
FME1201	Magnetic Phenomena Physics	5	2	1	0	3	7	10	E			Speciality
FME1202	Solid State Electronics	5	2	1	0	3	7	10	E			Speciality
FME1203	Nanostructures and applications	5	2	1	0	3	7	10	E			Speciality
FME1204	Material oxidice feroelectrice	5	2	1	0	3	7	10	E			Speciality
FME1206	Experimental Methods II	3	0	0	4	4	2	6		C		Speciality
FME1407	Dissertation Writing	2	0	0	4	4	0	4		C		Speciality
TOTAL		25	8	4	8	20	30	50	4	2	0	
Credits / Hours / Week / Assesment / % from total number of courses		87	16	8	49	73	98	171	8	7	0	62.50%
Hours / week - Hours for study / week			208	104	670	982	1312	2294				
			982			2294						

COMPLEMENTARY COURSES (Complementary)

CODE	COURSES	ECTS Credits	Hours / week			Hours for study / week			Assesment			Course type
			C	S	LP	F	I	T	E	C	VP	
Semesters 1 - 3 (14 weeks)												
FMX1404	Optional Course 1	5	2	0	1	3	6	9		C		Complementary
TOTAL		5	2	0	1	3	6	9	0	1	0	
Semester 4 (12 weeks)												
FMX1205	Optional Course 2	5	2	1	0	3	7	10		C		Complementary
TOTAL		5	2	1	0	3	7	10	0	1	0	
Credits / Hours / Week / Assesment / % from total number of courses		10	4	1	1	6	13	19	0	2	0	8.33%
Hours / week - Hours for study / week			52	12	14	78	168	246				
			78			246						

OVERALL BALANCE

CODE	COURSES	HOURS	Hours for study / week			%	NR. OF CREDITS	
			F	I	T		YEAR I	YEAR II
1	COMPULSORY	88	88	125	213	94%	55	55
2	OPTIONAL	6	6	12	18	6%	5	5
TOTAL		94	94	137	231	100%	60	60