

Curriculum for the Engineering Physics major

Major	Engineering physics
Degree	Bachelor of Science
Number of credits required	240
Areas of concentration	- Physics and technology of advanced materials - Physics and technology of nuclear reactors

First year

No.	Code	Course	Semester I (14 weeks)					Semester II (14 + 2 weeks)				
			C	S	L	V	Cr	C	S	L	V	Cr
1.	FT1101	Mathematical analysis/Calculus	2	2	-	E	5	-	-	-	-	-
2.	FT1102	Algebra & Geometry	2	2	-	E	5	-	-	-	-	-
3.	FT1103	Informatics	2	-	2	C	6	-	-	-	-	-
4.	FT1104	Classical Mechanics I	2	-	2	E	6	-	-	-	-	-
5.	FT1105	Molecular Physics & Heat I	2	-	2	E	6	-	-	-	-	-
6.	FT1106	Foreign Language (English) I	-	1	-	C	1					
7.	FT1107	Physical Education & Sports I	-	1	-	C	1					
8.	FT1201	Mathematical Methods for Physicists and Engineers	-	-	-	-	-	2	2	-	C	5
9.	FT1202	Classical Mechanics II	-	-	-	-	-	2	-	2	E	5
10.	FT1203	Molecular Physics & Heat II	-	-	-	-	-	2	-	2	E	5
11.	FT1204	Electricity & Magnetism I	-	-	-	-	-	2	-	2	E	5
12.	FT1205	Optics I	-	-	-	-	-	2	-	2	E	5
13.	FT1206	Foreign Language (English) II	-	-	-	-	-	-	1	-	C	1
14.	FT1207	Physical Education & Sports II	-	-	-	-	-	-	1	-	C	1
15.	FT1208	Practical Training						2 weeks x 30 h*			C	3
Total hours / week			10	6	6	-	30	10	4	8	-	30
			22			4E, 3C	30	22			4E, 4C	30

Second year

No.	Code	Course	Semester I (14 weeks)					Semester II (14 + 2 weeks*)				
			C	S	L	V	Cr	C	S	L	V	Cr
1	FT2101	Electricity & Magnetism II	2	-	2	E	6	-	-	-	-	-
2	FT2102	Optics II	2	-	2	E	6	-	-	-	-	-
3	FT2103	Classical/Analytical Mechanics	2	2	-	C	6	-	-	-	-	-
4	FT2104	Introduction to Quantum Mechanics	2	2	-	C	5	-	-	-	-	-
5	FT2105	Physics of Atoms and Molecules	2	-	2	E	5	-	-	-	-	-
6.	FT2106	Foreign Language (English) I	-	1	-	C	1	-	-	-	-	-
7.	FT2107	Physical Education & Sports I	-	1	-	C	1	-	-	-	-	-
8.	FT2201	Nuclear Physics	-	-	-	-	-	2	-	2	E	6
9.	FT2202	Electrodynamics	-	-	-	-	-	2	2	-	E	6
10.	FT2203	Chemistry	-	-	-	-	-	2	-	2	E	5
11.	FT2204	Spectroscopy, Lasers and applications	-	-	-	-	-	2	-	2	E	6
12.	FT2205	Numerical Physics	-	-	-	-	-	2	2	-	C	2
13.	FT2206	Foreign Language (English) II	-	-	-	-	-	-	1	-	C	1
14.	FT2207	Physical Education & Sports II	-	-	-	-	-	-	1	-	C	1
15.	FT2208	Practical Training	-	-	-	-	-	2 weeks x 30 h*			C	3
Total hours / week			10	6	6	-	30	10	6	6	-	30
			22			3E, 4C	30	22			4E, 4C	30

*end of July

C =lecture; S = seminary; L = laboratory; V = Examination form; E = exam; C = colocoivium; Cr = No. of credits;

Third year

No.	Code	Course	Semester I (14 weeks)					Semester II (12 + 2 weeks**)				
			C	S	L	V	Cr	C	S	L	V	Cr
1.	FT3101	Solid state physics	2	-	2	E	5	-	-	-	-	-
2.	FT3102	Thermodynamics and statistical physics	2	1	-	E	5	-	-	-	-	-
3.	FT3103	Plasma physics and applications	2	-	2	E	4	-	-	-	-	-
4.	FT3104	Nondestructive testing	2	-	2	C	4	-	-	-	-	-
5.	FT3105	Physics and technology of materials	2	-	1	C	4	-	-	-	-	-
6.	FT3106	Electronic devices	2	-	2	C	4	-	-	-	-	-
7.	FT3107	Sensors and transducers	2	-	2	C	4					
8.	FT3201	Fundamental electronic circuits	-	-	-	-	-	2	-	2	C	4
9.	FT3202	Digital integrated circuits	-	-	-	-	-	2	-	2	C	4
10.	FT3203	Automation and control systems	-	-	-	-	-	2	-	2	C	4
11.	FT3204	Elective 1	-	-	-	-	-	2	-	2	E	4
12.	FT3205	Elective 2	-	-	-	-	-	2	-	2	E	4
13.	FT3206	Elective 3	-	-	-	-	-	2	-	2	E	4
14.	FT3207	Elective 4	-	-	-	-	-	2	-	2	C	4
15.	FT3208	Practical training	-	-	-	-	-	2weeks * 30 h			C	2
Total hours / week			14	2	12	-	30	14	-	14	-	30
			22 3E, 4C 30					28+4 4E,4C 30				

Forth year

No.	Code	Course	Semester I (14 weeks)					Semester II (12 + 2 weeks**)				
			C	S	L	V	Cr	C	S	L	V	Cr
1.	FT4101	Metrology	2	-	2	E	5	-	-	-	-	-
2.	FT4102	Physics of photovoltaic devices	2	-	2	E	5	-	-	-	-	-
3.	FT4103	Microprocessors and microcontrollers	2	-	2	E	5	-	-	-	-	-
4.	FT4104	Electronic measurement instrumentation	2	-	2	C	5	-	-	-	-	-
5.	FT4105	Fundamentals of management	2	1	1	C	4	-	-	-	-	-
6.	FT4106	Sensors and transducers	2	-	2	C	4	-	-	-	-	-
7.	FT4107	Technical drawing	-	-	2	C	2					
8.	FT4201	Elective 5	-	-	-	-	-	2	-	2	E	5
9.	FT4202	Elective 6	-	-	-	-	-	2	-	2	E	5
10.	FT4203	Elective 7	-	-	-	-	-	2	-	2	E	5
11.	FT4204	Elective 8	-	-	-	-	-	2	-	2	C	5
12.	FT4206	Research for bachelor thesis	-	-	-	-	-	-	-	4	C	5
13.	FT4207	Preparation of bachelor thesis	-	-	-	-	-	2 weeks x 28 h**			C	5
Total ore pe săptămână			12	-	14	-	30	8	-	12	-	30
			26 3E, 4C 30					20+4 3E,3C 30				

**end of June

RECTOR

Prof. univ. dr. Victor CIUPINĂ

DEAN,

Prof. univ. dr. ing. Dan MANDALOPOL

No.	Code	Course
Physics & Technology of Advanced Materials		
1	FT3202a	Transport phenomena in semiconductors
2	FT3203a	Modern technologies with plasmas
3	FT3204a	Optoelectronics
4	FT3205a	Conventional methods of material investigation
5	FT3206a	Biomedical equipoment
6	FT4202a	Electron Microscopy
7	FT4203a	Plasma generated nanostructures
8	FT4204a	Biosensors and medical imaging
Physics & Technology of Nuclear reactors		
1	FT3202b	Nuclear radiation measurements and radioprotection
2	FT3203b	Computational systems for nuclear reactors
3	FT3204b	Introduction to the Physics of nuclear reactors
4	FT3205b	Nuclear security & Environmental radioprotection
5	FT3206b	Physics & Technology of nuclear materials
6	FT4202b	Nuclear reactions in the nuclear reactor
7	FT4203b	Physics of nuclear reactors for power industry
8	FT4204b	Medical applications of nuclear radiations

Discipline facultative

Nr. Crt.	Cod	Discipline facultative	Semestrul I					Semestrul II				
			C	S	L	V	Cr	C	S	L	V	Cr
1	FT3107	Environmental Legislation	2	2	-	C	4	-	-	-	-	-
2	FT3108	Quality standards and quality management	-	-	-	-	-	2	2	-	C	3
3	FT3207	Intelectual property legislation	-	-	-	-	-	2	2	-	C	3

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DEAN,

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