International University of Sarajevo, Faculty of Engineering and Natural Sciences (FENS)

First Cycle Curriculum - Electrical and Electronics Engineering Program: AY 2023-2024

Click on the course code or title to see its syllabus.

Semester I

Code	Title	Prerequisites	T	P	ECTS
ELIT100	Academic English and Effective Communication		2	1	6
MATH101	Calculus I		3	2	6
NS102	Physics		3	2	6
CS103/ENS21	Introduction to Programming/Programming for Engineers		3	2	6
ENS101	Introduction to Engineering		2	2	3
xxx	Foreign Language Elective I See Table 2		0	2	3
		Semester Total =			**30**

Semester II

Code	Title	Prerequisites	T	P	ECTS
MATH102	Calculus II	MATH101	3	2	6
NS122	Physics II	NS102	3	2	6
MATH201	Linear Algebra	MATH101	3	2	6
ENS203	Electrical Circuits I	MATH101	3	2	6
NS112	Understanding Science and Technology		2	0	3
xxx	Foreign Language Elective II See Table 2		0	2	3
		Semester Total =			**30**

Semester III

Code	Title	Prerequisites	T	P	ECTS
CS105/EE221	Advanced Programming/Object Oriented Programming	ENS213 or CS103	3	2	6
EE201	Analog Electronics I	ENS203	3	2	6
EE202	Electrical Circuits II	ENS203	3	2	6
MATH202	Differential Equations	MATH102	3	2	6
MATH203	Introduction to Probability and Statistics	MATH101	3	2	6
		Semester Total =			**30**

Semester IV

Code	Title	Prerequisites	T	P	ECTS
EE305	Instrumentation and Measurements	ENS203	3	2	6
ELIT200	Critical Reading and Writing	ELIT100	2	1	6
ENS201	Electromagnetism I	MATH102	3	0	6
ENS206	System Modeling and Control	MATH202	3	2	6
MATH205	Numerical Analysis	MATH202 MATH201	3	2	6
		Semester Total =			**30**

Semester V

Code	Title	Prerequisites	T	P	ECTS
CS303	Digital Design		3	2	6
EE311	Control System Design	ENS206	3	2	6
EE322	Power Systems	EE202	3	2	6
xxx	Faculty Elective I See Table 4				6
xxx	Programme Elective I See Table 3				6
		Semester Total =			**30**

Semester VI

Code	Title	Prerequisites	T	P	ECTS
EE321	Electrical Machines	EE202	3	2	6
EE325	Embedded Systems	ENS213 or CS103	3	2	6
ENS207-6	Engineering Graphics		1	2	6
ENS309	Ethics in Engineering and Natural Sciences	Junior Standing	3	0	6
xxx	Programme Elective II See Table 3				6
		Semester Total =			**30**

Semester VII

Code	Title	Prerequisites	T	P	ECTS
EE370	Work placement/Internship	Senior Standing	0	14	6
IE408	Project Management	Junior Standing	2	2	6
xxx	Programme Elective IV See Table 3				6
xxx	Programme Elective V See Table 3				6
xxx	Faculty Elective II See Table 4				6
		Semester Total =			**30**

Semester VIII

Code	Title	Prerequisites	T	P	ECTS
xxx	Programme Elective V See Table 3				6
xxx	Programme Elective VI See Table 3				6
xxx	Programme Elective VII See Table 3				6
xxx	Free Elective I				6
ENS490	Graduation Project	Last Semester	0	4	6
		Semester Total =			**30**

Abbreviations: T (Theory), P (Practice), ECTS credit	
Total Credits Required for Graduation	**240**
Total Credits of Electives	**66**
No. of Courses	**42**
Min. ECTS Credits for Applied/Practical Component of the Curriculum	**78**
Elective Ratio	**28%**

7 Program Electives are taken from Table 3. At most 2 graduate level courses in EEE can be taken as program elective with academic advisor's approval.

2 Faculty Elective courses are taken from Table 2. Other junior or senior level courses in FENS can be taken with academic advisor's approval.

3 University Electives for a total of 12 ECTS credits can be taken from Table 1: University Elective Courses List.

2 Language Elective courses are taken from the list of language courses provided (can not be the student's mother language).

1 Free Elective courses are taken from any faculty or program.

This new curriculum is being implemented for the new freshman students who entered the freshman class in the year 2020 or after.

For the existing sophomore, junior and senior students, the Faculty Board will make plans for proper adaptation to the new curriculum.

In exceptional cases only, Faculty Council may make a decision for a student bypass a prerequisite for any course.

Work placement/Internship is typically practiced in summer for a period of at least 25 work days, totalling at least 150 hours.

Table 1: IUS Pool of 3 ECTS University Courses					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
ARCH107	Understanding Art and Architecture		2	0	3
BIO100	Introduction to Bioengineering		3	0	3
CS100	Computer Skills		0	2	3
CULT101	Understanding Cultural Encounters		2	0	3
ECON105	Understanding Business		2	0	3
ECON107	Python		1	1	3
ECON108	Matlab		1	1	3
HUM100	Social Responsibility and Sustainable Development		2	0	3
IBF105	Financial Literacy		2	0	3
IR100	Understanding the Contemporary World through Current Events		2	0	3
MAN105	Corporate Social Responsibility		2	0	3
NS111	Understanding Nature and Knowledge		3	0	3
NS112	Understanding Science and Technology		2	0	3
SPS140	Understanding Religion		2	0	3
TURK111	Spoken Turkish I *		0	2	3
BOS111	Spoken Bosnian I *		0	2	3
TURK112	Spoken Turkish II *	TURK111	0	2	3
BOS112	Spoken Bosnian II *	BOS111	0	2	3

* International students are highly encouraged to take Bosnian language courses, while students from Bosnia and Herzegovina and Türkiye cannot enroll in courses of their native language.

Table 2: Faculty Elective Courses for EEE					
Code	**Title**	**Prerequisites**			**ECTS**
CS105	Advanced Programming	CS103			6
CS304	Computer Architecture	CS105			6
ENS202	Thermodynamics	MATH102, NS102			6
ENS205-6	Materials Science				6
ENS302	Engineering Optics	NS102			6
ENS208-6	Introduction to Manufacturing Systems	MATH101			6
ENS211	Signals and Systems	MATH102			6
MATH204	Discrete Mathematics	MATH101			6
MATH207	Vector Calculus	MATH101			6
MATH209	Discrete Mathematics II	MATH204			6
MATH306	Statistical Modeling	MATH203			6
ME306	Heat and Mass Transfer	MATH202			6
ME330	Engineering Graphics II				6
ME414	Energy Conversion Technologies	Senior standing			6
NS207	Organic Chemistry				6

Junior standing: successfully completed at least 108 ECTS, Senior standing: successfully completed at least 168 ECTS

Table 3: Programme Electives for EEE, ***			
Code	**Title**	**Pre-requisites**	**ECTS**
EE301	Analog Electronics II	EE201	6
EE309	Introduction to Optimization	MATH202	6
EE310	Introduction to E-mobility	EE201	6
EE323	Illumination Techniques		6
EE331	Introduction to Communication Systems	ENS211	6
EE332	Electromagnetism II	ENS201	6
EE334	Information and Coding Theory	ENS211	6
EE403	Industrial Process Instrumentation	EE305	6
EE405	Software Engineering Project	EE325	6
EE406	Hardware Engineering Project		6
EE412	Motion Control System	ENS206	6
EE413	Fundamentals of Photonics	ENS201	6
EE418	Introduction to Machine Learning		6
EE422	Power Electronics *	EE301	6
EE423	High Voltage Engineering *	EE322	6
EE424	Electrical Power Transmission and Distribution	EE322	6
EE429	Digital Power Systems Protection	EE322	6
EE430	Control of Electrical Drivers	EE321	6
EE431	Digital Signal Processing **	Senior Standing	6
EE432	Wireless and Mobile Communications		6
EE433	Microwave Engineering	ENS201	6
EE434	Digital Communications	EE331	6
EE435	Microprocessors I	CS303	6
EE436	Programmable Logic Controllers **	CS303	6
EE437	Introduction to Robotics	Senior Standing	6
EE439	Optimal Filtering	MATH201	6
EE440	Microprocessors II	EE435	6
EE442	Antennas and Wave Propagation	ENS201	6
EE446	Satellite Systems and Communications	Senior Standing	6
EE451	Power System Stability	EE322	6
EE453	Power System Control and Optimization	EE322	6
EE454	Electrical Power Generation	EE321	6
CS302	Algorithms and Data Structures	MATH204, CS105	6
CS304	Computer Architecture	CS105	6
CS305	Programming Languages	CS206	6
CS306	Database Management	CS105	6
CS307	Operating Systems	CS304	6
CS308	Software Engineering	CS105	6
CS309	Advanced Logic Design	CS303	6
CS310	Human Computer Interaction	CS105	6
CS405	Computer Graphics	MATH201, CS302	6
SE308	Communication Systems and Networks	CS105	6
CS412	Web Application Development	CS105	6
CS414	Computer Vision	MATH201, CS103	6
CS415	Pattern Recognition	MATH201	6
CS417	Introduction to Data Mining	CS302	6
CS422	Wireless and Mobile Networks	SE308	6
CS427	Computer and Network Security	CS307, SE308	6
*	Course is required for Electrical Power Engineering Path		
**	Course is required for Electronics Engineering Path		
***	Or Any new elective course offered later due to new technologies or new facilities		
#	Strongly recommended that students take MAN303 Entrepreneurship and Small Business Management		

Ver 3/25-26
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