

International University of Sarajevo (IUS)						Faculty of Engineering and Natural Sciences (FENS)					
Software Engineering Program Curriculum - BACHELOR						Software Engineering Program Curriculum - BACHELOR					
Semester I						Semester II					
Code	Title	Prerequisites	T	P	ECTS	Code	Title	Prerequisites	T	P	ECTS
ELIT100	Academic English and Effective Communication		2	1	6	CS105	Advanced Programming	CS103	3	2	6
MATH101	Calculus I		3	2	6	SE211	Software Construction	CS103	3	2	6
CS103	Introduction to Programming		3	2	6	MATH201	Linear Algebra	MATH101	3	2	6
ENS101	Introduction to Engineering		2	1	3	ELIT200	Critical Reading and Writing		2	1	6
xxx	University Elective I	See Table 1			6	xxx	University Elective II	See Table 1			3
xxx	Foreign Language Elective I		2	0	3	xxx	Foreign Language Elective II		2	0	3
Semester Total = 30						Semester Total = 30					
Semester III						Semester IV					
Code	Title	Prerequisites	T	P	ECTS	Code	Title	Prerequisites	T	P	ECTS
SE322	Software Requirements Analysis	SE211 or CS105	3	2	6	CS304	Computer Architecture	CS103	3	2	6
MATH204	Discrete Mathematics	MATH101	3	2	6	MATH209	Discrete Mathematics II	MATH204	3	2	6
MATH203	Introduction to Probability and Statistics	MATH101	3	2	6	CS306	Database Management	CS105	3	2	6
CS305	Programming Languages	CS105	3	2	6	xxx	Faculty Elective II	See Table 2			6
xxx	Faculty Elective I	See Table 2			6	xxx	Free Elective I				6
Semester Total = 30						Semester Total = 30					
Semester V						Semester VI					
Code	Title	Prerequisites	T	P	ECTS	Code	Title	Prerequisites	T	P	ECTS
SE302	Software Testing and Maintenance	SE211 or CS105 and, MATH204	3	2	6	xxx	Faculty Elective III	See Table 2			6
CS302	Algorithms and Data Structures	CS105 and MATH204	3	2	6	CS308	Software Engineering	CS105	3	2	6
CS307	Operating Systems	CS304	3	2	6	SE308	Communication Systems and Networks	CS105	3	2	6
CS412	Web Application Development	CS105	3	2	6	CS310	Human Computer Interaction	CS105	3	2	6
IE408	Project Management	MATH102	2	2	6	ENS309	Ethics in Engineering and Sciences				6
Semester Total = 30						Semester Total = 30					
Semester VII						Semester VIII					
Code	Title	Prerequisites	T	P	ECTS	Code	Title	Prerequisites	T	P	ECTS
SE370	Work placement/internship		0	14	6	ENS490	Graduation Project (Senior standing)		3	3	6
CS420	Network Programming	CS105 and SE308	3	2	6	SE407	Software Quality Management	SE211 or CS105	3	2	6
xxx	Program Elective I (Senior standing)	See Table 3	3		6	xxx	Program Elective IV (Senior standing)	See Table 3	3		6
xxx	Program Elective II (Senior standing)	See Table 3	3		6	xxx	Program Elective V (Senior standing)	See Table 3	3		6
xxx	Program Elective III (Senior standing)	See Table 3	3		6	xxx	Program Elective VI (Senior standing)	See Table 3	3		6
Semester Total = 30						Semester Total = 30					
Abbreviations: T (Theory), P (Practice), ECTS credit						No. of Courses					
Total Credits Required for Graduation						42					
Total Credits of Electives						Min. ECTS Credits for Applied/Practical Component of the Curriculum					
84						65,8					
						Elective Ratio					
						35%					
<p>University Electives and 2 Foreign Language Elective courses are taken from the pool of University Elective courses, see Table 1.</p> <p>3 Faculty Elective courses are taken from the pool of Faculty Elective courses, see Table 2. Faculty Elective may be selected from other FENS programmes with the approval of Program Coordinator.</p> <p>5 Program Electives are taken from the pool of Program Elective courses, see Table 3. 2 Program Electives may be selected from other FENS programmes (including FENS graduate level courses) with the approval of Program Coordinator.</p> <p>3 Free Elective courses are taken from any faculty. It is strongly recommended that the students take MAN303 Entrepreneurship and Small Business Management</p> <p>Junior standing: student has successfully completed at least 108 ECTS. Senior standing: student has successfully completed at least 168 ECTS.</p> <p>This new curriculum is being implemented for the new freshman students who entered the freshman class in the year 2017/2018 or after.</p> <p>For the existing sophomore, junior and senior students, the Faculty Council will make plans for proper adaptation to the new curriculum.</p> <p>In exceptional cases only, Faculty Council may make a decision for a student to bypass a prerequisite for any course.</p> <p>Work placement/Internship is typically practiced in summer for a period of at least 30 work days.</p>											

Table 1: University Electives

Code	Title	Prerequisites	T	P	ECTS
Social Sciences Subpool					
CULT101	Understanding Cultural Encounters		2	0	3
NS111	Understanding Nature and Knowledge		2	0	3
NS112	Understanding Science and Technology		2	0	3
SPS140	Understanding Religion		2	0	3
ECON105	Understanding Business		2	0	3
ECON111	Introduction to Microeconomics		3	0	6
ELIT101	Introduction to Literature		2	1	6
HUM100	Social Responsibility and Sustainable Development		2	0	3
IR101	Introduction to International Relations		3	0	6
MAN102	Management		3	0	6
POLS102	Introduction to Political Science		3	0	6
PSY103	Introduction to Psychology		3	0	6
SOC102	Introduction to Sociology		3	0	6
SPS103	Law and Ethics		3	0	6
SPS120	Critical Thinking		3	0	6
SPS150	World History		3	0	6
Natural Sciences Subpool					
CS100	Computer Skills		0	2	3
ENS105	The Brain		3	0	6
NS103	Biology		3	0	6
NS104	General Chemistry		3	2	6
Arts Subpool					
ARCH107	Understanding Art and Architecture		2	0	3
VA121	History of Art I		3	0	6
Language Elective Subpool					
xxx	Foreign Language Elective I (&)		2	0	3
xxx	Foreign Language Elective II (&)		2	0	3

(&) Scholarship students will take either Turkish Language I and II or Bosnian Language I and II.

Table 2: Faculty Electives

Code	Title	Prerequisites	ECTS
BIO301	Molecular Biology	NS103	6
BIO415	Genetic Engineering	BIO301	6
EE201	Analog Electronics I	ENS203	6
EE202	Electrical Circuits II	ENS203	6
EE305	Instrumentation and Measurements	ENS203	6
EE311	Control System Design	ENS206	6
EE321	Electrical Machines	EE202	6
EE322	Power Systems	EE202	6
ENS201	Electromagnetics	MATH102	6
ENS202	Thermodynamics	MATH102 and NS102	6
ENS203	Electrical Circuits I	MATH101	6
ENS205	Materials Science		6
ENS206	System Modeling	MATH202	6
ENS207	Engineering Graphics		6
ENS208	Intro. to Manufacturing Systems	MATH101	6
ENS209	Statics	MATH101	6
ENS211	Signals and Systems	MATH102	6
ENS221	Introduction to Engineering		6
ENS302	Engineering Optics	NS102	6
MATH102	Calculus II	MATH101	6
MATH202	Differential Equations	MATH101	6
MATH205	Numerical Analysis	MATH101	6
MATH207	Vector Calculus	MATH101	6
MATH306	Statistical Modeling	MATH203	6
ME208	Dynamics and Vibrations	ENS209	6
ME304	Fluid Mechanics	MATH202	6
ME306	Heat and Mass Transfer	MATH202	6
NS102	Physics		6
NS122	Physics II	NS102	6
NS205	Cell Biology	NS103	6
NS207	Organic Chemistry	NS104	6
NS209	Genetics I		6
IE301	Production Planning I	MATH203	6
IE303	Operations Research I	MATH201	6
IE304	Operations Research II	IE303	6
IE307	Quality and Reliability Engineering		6

NB. Faculty Elective may be selected from other FENS programmes with the approval of Program Coordinator.

Table 3: Program Electives

Code	Title	Prerequisites	ECTS
BIO310	Bioinformatics	NS103 or Program Coordinator Approval	6
CS299	Social, Legal, and Ethical Issues in Computing		6
CS303	Digital Design		6
CS309	Advanced Logic Design	CS303	6
CS313	Theory of Computation	CS105 and MATH204	6
CS402	Introduction to Design of Compilers	CS105 and MATH204	6
CS403	Distributed Systems	CS307	6
CS404	Artificial Intelligence	MATH204	6
CS405	Computer Graphics	CS302 and MATH201	6
CS413	Developing the Interactive Web	CS105	6
CS414	Computer Vision	MATH201 and CS103	6
CS415	Pattern Recognition	MATH201	6
CS416	Cryptography	MATH204 and CS302	6
CS417	Introduction to Data Mining	CS302	6
CS421	Architecture and Implementation of Database Management Systems	CS306	6
CS422	Wireless Mobile Networks	SE308	6
CS423	Parallel Computing	CS302 and CS307	6
CS426	Software Engineering II	CS308	6
CS427	Computer and Network Security	CS307 and SE308	6
CS498	Special Topics in Computer Science I		6
CS499	Special Topics in Computer Science II		6
EE307	Microcomputer Systems		6
EE310	Introduction to E-mobility		6
EE325	Embedded Systems	CS103	6
EE331	Introduction to Communication Systems		6
EE418	Introduction to Machine Learning		6
EE434	Digital Communications	EE331	6
EE435	Microprocessors-I		6
EE436	Programmable Logic Controllers	CS303	6
EE437	Introduction to Robotics		6
MAN461	Management Information Systems		6
SE304	Tools and Methods of CASE Technologies	CS105	6
SE401	SCADA Systems	MATH101 and CS105 or SE211	6
SE402	Programming of CNC Machines	CS105	6
SE403	Development of Science and Technology	CS105	6
SE404	Psycho Cibernetics	CS105	6
SE421	CAD Systems	CS105	6
SE423	Automatics and Robotics	CS105	

2 Programe Electives may be selected from other FENS programmes (including FENS graduate level courses) with the approval of Program Coordinator.

Last update:

30 Sep 2021, AY 2021-2022