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

Undergraduate Curriculum - Industrial Engineering Program (AY 2021 - 2022)

Semester I					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
CS100	Computer Skills		0	2	3
MATH101	Calculus I		3	2	6
ELIT100	Academic English and Effective Communication		2	1	6
xxx	University Elective I See Table 1				6
xxx	Free Elective I				6
xxx	Foreign Language Elective I See Table 2				3
				Semester Total =	**30**
Semester III					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
ENS205	Materials Science		3	1	6
ENS207	Engineering Graphics		1	2	6
MATH201	Linear Algebra		3	2	6
MATH203	Introduction to Probability and Statistics	MATH101	3	2	6
ENS208	Introduction to Manufacturing Systems		2	2	6
				Semester Total =	**30**
Semester V					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
IE301	Production Planning I	MATH203	3	2	6
IE303	Operations Research I	MATH201	3	2	6
IE309	Ergonomics	Junior standing	2	2	6
xxx	Faculty Elective I See Table 3				6
xxx	Faculty Elective II See Table 3				6
				Semester Total =	**30**
Semester VII					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
IE408	Project Management	Senior standing	2	2	6
IE370	Work Placement / Internship (at least 25 work days)		0	14	6
xxx	Program Elective III See Table 4		2	2	6
xxx	Program Elective IV See Table 4				6
xxx	Program Elective V See Table 4				6
				Semester Total =	**30**
Abbreviations: T (Theory), P (Practice), ECTS credit					
Total Credits Required for Graduation					**240**
Total Credits of Electives					**66**

Semester II					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
MATH102	Calculus II	MATH101	3	2	6
NS102	Physics		3	2	6
ELIT200	Critical Reading and Writing		2	1	6
xxx	University Elective II See Table 1				6
xxx	University Elective III See Table 2				3
xxx	Foreign Language Elective II See Table 2				3
				Semester Total =	**30**
Semester IV					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
MATH205	Numerical Analysis	MATH101	3	2	6
MATH202	Differential Equations	MATH102	3	2	6
ENS213	Programming for Engineers		3	2	6
MATH306	Statistical Modeling	MATH203	3	2	6
xxx	Free Elective II				6
				Semester Total =	**30**
Semester VI					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
IE306	Simulation	MATH203	3	2	6
IE307	Quality and Reliability Engineering	MATH306	3	2	6
SPS103	Law and Ethics		3	0	6
xxx	Program Elective I See Table 4				6
xxx	Program Elective II See Table 4				6
				Semester Total =	**30**
Semester VIII					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
IE425	Computer Aided Design and Manufacturing		3	2	6
IE413	Manufacturing Systems	Senior standing	3	0	6
xxx	Program Elective VI See Table 4				6
xxx	Program Elective VII See Table 4				6
ENS490	Graduation Project		2	2	6
				Semester Total =	**30**
No. of Courses					**42**
Average ECTS Credit Load Per Semester					**30**
Elective Ratio					**28%**

3 University Elective courses are taken from Table 1 or Table 2.

2 Faculty Elective courses are taken from FENS with the approval of the academic advisor.

2 Free Elective courses – level two or higher courses offered from any program at IUS.

2 Language Elective courses are taken from Table 2.

7 Program Elective courses are taken from junior or senior level courses. See Table 4.

***Junior Standing** means the student has successfully completed 110 ECTS credits.*

***Senior Standing** means the student has successfully completed 165 ECTS credits.*

Table 1: IUS Pool of 6 ECTS University Courses					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
ECON111	Introduction to Microeconomics				6
ECON112	Introduction to Macroeconomics				6
ELIT101	Introduction to Literature				6
IR101	Introduction to International Relations				6
NS104	General Chemistry				6
NS103	Biology				6
POLS102	Introduction to Political Science				6
PSY103	Introduction to Psychology				6
SPS120	Critical Thinking				6
SPS150	World History				6
SOC102	Introduction to Sociology				6
VA121	History of Art I				6

Table 2: IUS Pool of 3 ECTS University Courses					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
ARCH107	Understanding Art and Architecture		2	0	3
HUM100	Social Responsibility and Sustainable Development		2	0	3
NS111	Understanding Nature and Knowledge		2	0	3
NS112	Understanding Science and Technology		2	0	3
CULT101	Understanding Cultural Encounters		2	0	3
SPS140	Understanding Religion		2	0	3
TURK111	Spoken Turkish I *		2	0	3
BOS111	Spoken Bosnian I *		2	0	3
TURK112	Spoken Turkish II **	TURK111	2	0	3
BOS112	Spoken Bosnian II **	BOS111	2	0	3
ENS105	The Brain		3	0	6
	* *Scholarship students will take either TURK111 / BOS 111*				
	** *Scholarship students will take either TURK112 / BOS 112*				

Table 3: Faculty electives for IE						
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**	
ARCH100	Introduction to Architectural Design		1	2	6	
ARCH101	Basic Design Communication		1	2	6	
ARCH108	Introduction to Architectural Design II	ARCH100	1	2	6	
ARCH109	Introduction to Building Technology		1	2	6	
BIO310	Bioinformatics	ENS213 / CS103	3	1	6	
ENS210	Computational Biology	NS103	2	2	6	
ENS221	Introduction to Engineering		3	0	6	
ENS203	Electrical Circuits I	MATH101			6	(***) These constitute Minor in Electr. Eng.
ENS201	Electromagnetism I	MATH102			6	
ENS206	System Modelling	MATH202			6	
EE321	Electrical Machines	MATH203			6	
EE305	Instrumentation and Measurements	MATH101			6	
ENS209	Statics	MATH101			6	(***) Five of these courses constitute Minor in Mech. Eng.
ME210	Strength of Materials	ENS209			6	
ME312	Machine Elements	ME210			6	
ME208	Dynamics and Vibrations	ENS209			6	
ENS202	Thermodynamics	MATH102, NS102			6	
ME306	Heat and Mass Transfer	MATH202			6	
ME304	Fluid Mechanics	MATH202			6	
CS105/204	Advanced Programming	ENS213 / CS103			6	(***) These constitute Minor in Computer Science
MATH204	Discrete Mathematics	MATH101			6	
CS302	Algorithms and Data Structures	CS105, MATH204			6	
CS305	Programming Languages	CS105			6	
CS306	Database Management	CS105			6	
*** ***Minor-*** *5 courses from these lists can be completed to get a minor in ME or EEE or CS.*						

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Table 4: Program electives for IE					
Code	**Title**	**Prerequisites**	**T**	**P**	**ECTS**
CS306	Database Management	CS105	3	2	6
MAN231	Financial Accounting	Junior standing	3	0	6
ECON301	Econometrics	Junior standing	2	2	6
IE302	Production Planning II	IE301	3	2	6
IE304	Operations Research II	IE303	3	2	6
IE305	Work Analysis and Design	Junior standing	2	2	6
IE318	Engineering Economics	Junior standing	2	2	6
IE401	Manufacturing Processes	Senior standing	2	2	6
IE402	Integrated Manufacturing	Senior standing	2	2	6
IE404	Logistics	Senior standing	2	2	6
IE405	Decision Analysis	Senior standing	2	2	6
IE406	Financial Analysis	Senior standing	2	2	6
IE407	Management Information Systems	Senior standing	2	2	6
IE409	Reliability Analysis	Senior standing	2	2	6
IE410	Design of Experiments	Senior standing	2	2	6
IE411	Forecasting	Senior standing	2	2	6
IE412	Financial Engineering	Senior standing	2	2	6
IE414	Stochastic Models	Senior standing	2	2	6
IE415	Scheduling and Sequencing	Senior standing	2	2	6
IE416	Supply Chain Management	Senior standing	2	2	6
IE417	Facilities Design and Planning	Senior standing	2	2	6
IE418	Queuing Theory	Senior standing	2	2	6
IE419	Managerial Economics	Senior standing	2	2	6
IE420	Technology and R&D Management	Senior standing	2	2	6
IE421	Total Quality Management	Senior standing	2	2	6
IE425	Computer Aided Design and Manufacturing	Senior standing	3	2	6
IE430	Special Topics in Industrial Engineering	Senior standing	2	2	6
IE440	Current Topics in Industrial Engineering	Senior standing	2	2	6
IE450	Seminars in Industrial Engineering	Senior standing	2	2	6
PSY311	Organisational Psychology	PSY103	3	0	6
Other ME, MAN, ECON or IBF coded 3xx, 4xx or 5xx level courses can also be taken as program elective with Academic Advisor's consent.					