Study Plan for Industrial Engineering (Ed. 5)

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co
		First Year - Level (1)				
1	MATH 1050	Differential Calculus	3	(3,2,0)		
2	ENGL 1210	Reading Skills	3	(3,3,0)		
3	ENGL 1220	Writing Skills	3	(3,3,0)		
4	IC 101	Entrance to Islamic Education	2	(2,0,0)		
5	PHYS 1010	General Physics I	4	(3,1,1)		
		Total	**15**	**(14,9,1)**		

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co
		First Year - Level (2)				
1	ENGL 1230	Listening and conversation Skills	3	(3,3,0)		
2	ARAB 101	Arabic Language Skills	2	(2,0,0)		
3	MATH 1060	Integral Calculus	3	(3,2,0)	MATH1050	
4	CT 1400	Computer Skills	3	(2,0,1)		
5	MC 1400	Communication Skills	2	(2,0,0)		
6	ENGL 1604	English for Technical Purposes	3	(3,3,0)		
		Total	**16**	**(15,8,1)**		

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co
		Second Year - Level (3)				
1	CHEM 1010	General Chemistry	4	(3,1,1)		
2	PHYS 1040	General Physics II	4	(3,1,1)	PHYS 1010	
3	GEU 1011	Introduction to Engineering	2	(2,1,0)		
4	GEU 1090	Computer Programming in Engineering	3	(1,0,2)		
5	MATH 1070	Algebra and Analytical Geometry	3	(3,1,0)	MATH 1050	
6	IC 102	Islam and Building of Society	2	(2,0,0)		
		Total	**18**	**(14,4,4)**		

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co
		Second Year - Level (4)				
1	GEU 3201	Engineering Statistics	3	(3,1,0)		
2	IE 1021	Engineering Drawing and Graphics	3	(2,0,1)		
3	MATH 2030	Differential and Integral Calculus	3	(3,1,0)	MATH 1060 MATH 1070	
4	GEU 2100	Engineering Mechanics	3	(3,1,0)	PHYS 1040 MATH 1060 MATH 1070	
5	GEU 2610	Engineering Professional Communications	2	(1,0,1)	ENGL 1210	
6	ARAB 103	Arabic Editing	2	(2,0,0)		
7	ISL 103	Economic System in Islam	2	(2,0,0)		
		Total	**18**	**(16,3,2)**		

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co
		Third Year - Level (5)				
1	Math 2040	Differential Equations	3	(3,1,0)	MATH 2030	
2	IE 2141	Industrial Operations Management I	3	(3,1,0)	GEU 3201 MATH 1060	
3	ME 3570	Mechanics of Materials	3	(3,1,0)	GEU 2100	
4	IE 2511	Manufacturing Materials	3	(2,1,1)	PHYS 1040 CHEM 1010	
5	EE 3080	Circuits and Electrical Machines	2	(2,1,0)	PHYS 1040	
6	IE 3331	Design & Analysis of Experiment	3	(3,1,0)	GEU 3201	
		Total	**17**	**(16,6,1)**		

Third Year - Level (6)

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Requisites Co
1	ISL 104	Principles of Political System in Islam	2	(2,0,0)		
2	IE 2440	Linear Algebra	3	(3,1,0)	MATH 1070	
3	IE 2521	Manufacturing Process I	3	(2,1,1)	IE 2511 ME 3570	
4	IE 2221	Industrial Operations Analysis I	3	(3,1,0)	MATH 1070 GEU 1090	
5	IE 3141	Industrial Operation Management II	3	(3,1,0)	IE 2141	
6	ME 3290	Thermal & Fluid	3	(3,1,0)	PHYS 1040	
		Total	**17**	**(16,5,1)**		

Fourth Year - Level (7)

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Requisites Co
1	IE 3521	Manufacturing Process II	3	(2,1,1)	IE 2521	
2	IE 4491	Safety Engineering	3	(3,1,0)	IE 2521	IE 3411
3	IE 3411	Human Factors Engineering	3	(2,1,1)	IE 3331	
4	IE 4010	Engineering Economy	3	(3,1,0)		
5	IE 3221	Industrial Operations Analysis II	3	(3,1,0)	IE 2221	
6	IE 3371	Automatic Control Systems	3	(2,1,1)	MATH 2040 EE 3080	
		Total	**18**	**(15,6,3)**		

Fourth Year - Level (8)

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Requisites Co
1	IE 4020	Engineering Project Management	3	(3,1,0)	IE4010	
2	IE 3391	Quality Engineering	3	(2,1,1)	GEU 3201 IE 3521	
3	IE 3421	Work Design & Analysis	3	(2,1,1)	IE 3521	
4	IE 3601	CAD/CAM	3	(2,1,1)	IE 3521	
5	IE 4321	Industrial System Simulation	3	(2,1,1)	IE 3141 GEU3201	
6	IE xxxx	Elective	3	(3,1,0)		
		Total	**18**	**(14,6,4)**		

Fifth Year - Level (9)

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Requisites Co
1	IE 4382	Maintenance and Replacement Strategies	3	(2,1,1)	IE 3141 GEU 3201	
2	IE 4611	CIM	3	(2,1,1)	IE 3601	
3	IE 4500	Industrial Facility Design	3	(2,1,1)	IE 3421	
4	IE xxxx	Elective	3	(3,1,0)		
5	IE 4911	Senior Design Project I	3	(1,0,2)	132 Cr.Hr.	
		Total	**15**	**(10,4,5)**		

Fifth Year - Level (10)

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Requisites Co
1	IE 4711	Manufacturing Systems	3	(3,1,0)	IE 4611	
2	IE xxxx	Elective	3	(3,1,0)		
3	IE xxxx	Elective	3	(3,1,0)		
4	IE 4910	Seminars in Industrial Engineering	1	(0,0,1)		
5	IE 4921	Senior Design Project II	3	(1,0,2)	IE 4911	
6	IE 4991	Practical Training	1	(0,0,*)	112 Cr.Hr.	
		Total	**14**	**(10,3,3)**		

* The student should spend a period of 8 weeks as practical training in industry

The Total Number of Credit Hours for IE Program: 166. Cr. Hr.

#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co
		IE Elective Courses (12 Cr. Hr)				
1	IE 3011	Product Design and Innovation	3	(2,1,1)	IE3601	
2	IE 3021	Industry and Environment	3	(3,1,0)	IE3521	
3	IE 3151	Dynamic Forecasting	3	(3,1,0)	GEU3201	
4	IE 3231	Decision Analysis	3	(3,1,0)	GEU3201	
5	IE 3341	Industrial Stochastic Systems	3	(3,1,0)	GEU3201 IE 3221	
6	IE 3351	Productivity Engineering and Management	3	(3,1,0)	IE3421	
7	IE 4051	Manufacturing Cost Analysis	3	(3,1,0)	IE4010	
8	IE 4131	Supply chain and Logistics	3	(3,1,0)	IE3141	
9	IE 4141	Legislations & Contracts	3	(3,1,0)	IE4020	
10	IE 4151	Reverse Engineering	3	(3,1,0)	IE3141	
11	IE 4161	Risk management	3	(3,1,0)	IE4020	
12	IE 4171	Advanced Safety Engineering	3	(3,1,0)	IE4491	
13	IE 4181	Human resources management	3	(3,1,0)	IE3411	
14	IE 4191	Feasibility studies	3	(3,1,0)	IE4020	
15	IE4211	Total Quality Management	3	(3,1,0)	IE3391	
16	IE 4231	Queuing systems	3	(3,1,0)	GEU3201	
17	IE 4241	Optimization Methods	3	(3,1,0)	IE3221	
18	IE 4351	Inventory management	3	(3,1,0)	IE3141	
19	IE 4371	Material Handling and Packaging	3	(3,1,0)	IE3141	
20	IE 4372	Lean manufacturing	3	(3,1,0)	IE3421	
21	IE4381	Engineering Reliability	3	(3,1,0)	GEU3201	
22	IE 4411	Energy efficiency and sustainability	3	(3,1,0)	IE3521	
23	IE 4621	Industrial Information Systems	3	(3,1,0)	IE3141	
24	IE 4622	Artificial intelligence in industry	3	(3,1,0)	GEU 1090	
25	IE 4661	Machine Learning	3	(3,1,0)	GEU3201	
26	IE 4721	Sequencing and Scheduling	3	(3,1,0)	IE3221	
27	IE 4391	Advanced maintenance Engineering	3	(3,1,0)	IE4382	
28	IE 4811	Special topics in industrial engineering	3	(3,1,0)	xxxx	