

## Bachelor of Science in Mechanical Engineering Program - Plan of Study in Trimesters

First Year (Preparatory) Level (1)							
#	Course Code	Title	Credits	Contact Hours	Requisites		T Hr
					Pre	Co	
1	ENGL1210	Reading Skills	5	(2,3,0)			
2	ENGL1220	Writing Skills	5	(2,3,0)			
3	MATH1050	Differential Calculus	4	(2,2,0)			
4	IC101	Entrance to Islamic Education	2	(2,0,0)			
<b>Total</b>			<b>16</b>	<b>(8,8,0)</b>			<b>16</b>

First Year (Preparatory) Level (2)							
#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	MATH1060	Integral Calculus	4	(2,2,0)	MATH1050		
2	CT1400	Computer Skills	3	(2,0,1)			
3	ENGL1230	Listening and conservation Skills	5	(2,3,0)			
4	ARAB101	Arabic Language Skills	2	(2,0,0)			
<b>Total</b>			<b>14</b>	<b>(8,5,1)</b>			<b>14</b>

First Year (Preparatory) Level (3)							
#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	MC1400	Communication Skills	2	(2,0,0)			
2	ENGL1604	English for Technical Purposes	5	(4,0,1)			
3	PHYS1010	General Physics (1)	5	(3,1,1)			
4	ENGL1605	English for Academic Purposes	4	(2,2,0)			
<b>Total</b>			<b>16</b>	<b>(11,3,2)</b>			<b>16</b>

Second Year Level (4)							
#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	GEU1011	Introduction to Engineering	3	(3,1,0)			
2	GEU1090	Computer Programming in Engineering	4	(3,0,3)			
3	CHEM1010	General Chemistry	5	(4,1,3)			
4	MATH1070	Algebra and Analytical Geometry	4	(4,1,0)	MATH1050		
5	IC 102	Islam and Building of Society	2	(2,0,0)			
<b>Total</b>			<b>18</b>	<b>(16,3,6)</b>			<b>25</b>

Second Year Level (5)							
#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	GEU3201	Engineering Statistics	5	(5,1,0)	MATH1060		
2	MATH2030	Differential and Integral Calculus	4	(4,1,0)	MATH1060 MATH1070		
3	PHYS1040	General Physics (2)	5	(4,1,3)	PHYS1010		
4	ARAB103	Arabic Editing	2	(2,0,0)			
5	IC 103	Economic System in Islam	2	(2,0,0)			
<b>Total</b>			<b>18</b>	<b>(17,3,3)</b>			<b>23</b>

Second Year Level (6)							
#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	ME 2410	Mechanical Engineering Drawing I	4	(2,0,4)			
2	GEU2610	Engineering Professional Communications	3	(2,0,3)			
3	GEU2010	Statics	5	(5,1,0)	PHYS1040 MATH1060 MATH1070		
4	ME 2520	Materials Science & Engineering	5	(4,1,2)	CHEM101 PHYS1040		
<b>Total</b>			<b>17</b>	<b>(13,2,9)</b>			<b>24</b>

### Third Year Level (7)

#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	MATH 2040	Differential Equations	5	(5,1,0)	MATH2030		
2	GEU 2020	Dynamics	5	(5,1,0)	GEU 2010		
3	ME 2420	Mechanical Engineering Drawing II	4	(3,0,3)	ME 2410		
4	ME 2530	Material selection	3	(3,1,0)	ME 2510		
<b>Total</b>			<b>17</b>	<b>(16,3,3)</b>			<b>22</b>

### Third Year Level (8)

#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	ME 3410	Mechanics of Machinery	4	(3,1,2)	GEU 2020		
2	EE 3090	Circuits and Electrical Machines	3	(3,1,0)	MATH1070 PHYS 1040		
3	ME 3710	Thermodynamic I	5	(5,1,0)	PHYS 1040		
4	ME 3510	Mechanics of Materials	5	(4,1,2)	GEU 2010 ME 2520		
<b>Total</b>			<b>17</b>	<b>(15,4,4)</b>			<b>23</b>

### Third Year Level (9)

#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	ME 3420	Mechanical Design I	3	(3,1,0)	ME 2420 ME 3410 ME 3510		
2	ME 3310	Manufacturing Processes I	5	(4,1,2)	ME 3510		
3	ME 3730	Thermodynamic II	5	(5,1,0)	ME 3710		
4	ME 3810	Fluid Mechanics	5	(5,1,0)	GEU 2020 ME 3710		
5	ME 3731	Thermodynamic Lab	1	(0,0,2)	ME 3710		
<b>Total</b>			<b>19</b>	<b>(17,4,4)</b>			<b>25</b>

### Fourth Year Level (10)

#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	ISL 104	Principles of Political System in Islam	2	(2,0,0)			
2	GEU 3010	Numerical Computing for Engineering	4	(3,0,3)	MATH2040		
3	ME 3750	Heat Transfer	5	(5,1,0)	ME 3810		
4	ME 3430	Mechanical Design II	5	(4,1,2)	ME 3420		
5	ME 3811	Heat and Fluid Lab	1	(0,0,2)	ME 3810		
<b>Total</b>			<b>17</b>	<b>(14,2,7)</b>			<b>23</b>

### Fourth Year Level (11)

#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	ME 4610	Measuring and Instrumentation	5	(4,1,2)	EE 3090		
2	ME 4620	Dynamic Systems	5	(5,1,0)	GEU1090 MATH2040		
3	GEU 4010	Engineering Economics	3	(3,1,0)			
4	ME 4710	Refrigeration and Air Conditioning	5	(5,1,0)	ME 3750		
<b>Total</b>			<b>18</b>	<b>(17,4,2)</b>			<b>23</b>

### Fourth Year Level (12)

#	Course Code	Title	Credits	Contact Hours	Requisites		T
					Pre	Co	
1	ME 4630	Mechatronics	5	(4,1,2)	ME 4610		
2	ME 4720	Power Plants	3	(3,1,0)	ME 3750		
3	ME 4310	Manufacturing Processes II	5	(4,1,2)	ME 3310		
4	ME 4640	Automatic Control	4	(3,1,2)	ME 4620		
<b>Total</b>			<b>17</b>	<b>(16,4,6)</b>			<b>26</b>

Fifth Year Level (13)							
#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co	T
1	ME 4730	Desalination	3	(3,1,0)	ME 3750		
2	ME 4410	FE in Mechanical Design	4	(3,1,2)	ME 3510 GEU 3010 ME 3430		
3	GEU 4020	Engineering Project Management	3	(3,1,0)	GEU 4010		
4	ME ****	Elective Course	5	(5,1,0)			
<b>Total</b>			<b>15</b>	<b>(14,4,2)</b>			<b>20</b>

Fifth Year Level (14)							
#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co	T
1	ME ****	Elective Course	5	(5,1,0)			
2	ME ****	Elective Course	5	(5,1,0)			
3	ME 4980	Senior Design Project I	4	(3,0,3)	213 Cr. Hr.		
4	ME 4930	Seminars in Mechanical Engineering	1	(0,0,3)			
<b>Total</b>			<b>15</b>	<b>(13,2,6)</b>			<b>21</b>

Fifth Year Level (15)							
#	Course Code	Title	Credits	Contact Hours	Requisites Pre	Co	T
1	ME ****	Elective Course	5	(5,1,0)			
2	ME ****	Elective Course	5	(5,1,0)			
3	ME 4990	Senior Design Project II	4	(3,0,3)	ME 4980		
4	ME 9990	Summer training	0	(0,0,0)	180 Cr. Hr.		
<b>Total</b>			<b>14</b>	<b>(13,2,3)</b>			<b>18</b>

**The Total Number of Credit Hours for ME Program: 248. Hr.**

### Colors Meaning

Arabic and Islamic Courses

Mathematics and Basic Science Courses

General Engineering Courses

Electrical Engineering Courses

General Education Courses in Preparatory Year

### Notes:

#### Details of Contact Hours Cell (L,T,P) According to Higher Education Regulations

Contact Hours (L,T,P)	Contact Hours	Credit
Lecture (L)	1 (50 min)	1
Tutorial (T)	1 (50 min)	0
Practical Lab (P)	Max 3 (150 min)	1

**ME Elective Courses (25 Cr. Hr)**

**Each student is required to take: 25 Cr. Hr. (5 Courses)**

#	Course Code	Title	Credits	Contact Hours	Requisites		T Hr
					Pre	Co	
<b>Design and Manufacturing - Electives (1)</b>							
1	ME 4320	Theory of Metal Cutting	5	(5,1,0)	ME 4310		
2	ME 4330	Modern welding processes and Quality	5	(5,1,0)	ME 3310		
3	ME 4340	CAD-CAM	5	(4,1,3)	ME 4310		
4	ME 4350	Special Topics in Manufacturing	5	(5,1,0)	ME 4310		
5	ME 4360	Advanced Manufacturing Processes	5	(5,1,0)	ME 4310		
6	ME 4370	Tribology	5	(5,1,0)	ME 4310		
7	ME 4380	Computer Integrated Manufacturing	5	(5,1,0)	ME 4310		
8	ME 4390	Advanced Metal Forming Processes	5	(5,1,0)	ME 3310		
9	ME 4420	Mechanical Vibrations	5	(5,1,0)	GEU 2020 ME 4410		
10	ME 4430	Machine tool Design	5	(5,1,0)	ME 4310 ME 3430		
11	ME 4440	Modeling and Simulation in ME design	5	(5,1,0)	ME 4410		
12	ME 4450	Finite Element Analysis II	5	(5,1,0)	ME 4410		
13	ME 4460	Design of Medical Devices and Implants	5	(5,1,0)	ME 3430		
14	ME 4470	Product Design and Development	5	(5,1,0)	ME 3430		
<b>Materials Engineering – Elective (2)</b>							
1	ME 4530	Fracture Mechanics and Fatigue	5	(5,1,0)	ME 3510		
2	ME 4540	Powder Metallurgy	5	(5,1,0)	ME 3310		
3	ME 4550	Advanced Composite Materials	5	(5,1,0)	ME 3510		
4	ME 4560	Principles and Applications of NDT	5	(4,1,3)	ME 3310		
5	ME 4570	Mechanical Behavior of Materials	5	(5,1,0)	ME 3510		
6	ME 4580	Nanomaterials principals and fabrication	5	(4,1,3)	ME 2520		
7	ME 4590	Advanced Materials Engineering	5	(5,1,0)	ME 2520		
<b>Mechatronics – Elective (3)</b>							
1	EE 3031	Electromagnetic field	5	(5,1,0)	Phys 1040 Math 2030		
2	EE 3100	Electronics	5	(4,1,2)	EE 3090		
3	EE 3150	Introduction to Logic Design	5	(4,1,2)	None		
4	EE 3571	Microsystems Technology	5	(5,1,0)	EE 3150		
5	EE 3580	Introduction to Microprocessor System	5	(4,1,2)	EE 3150		
6	EE 4101	Actuators and Power Electronics	5	(5,1,0)	EE 3100		
7	EE 4591	Design of Smart Mechanisms	5	(5,1,0)	None		
8	ME 4641	Robotics and automation	5	(5,1,0)	ME 4620 ME 4640		
9	ME 4650	Introduction to Industrial Control System	5	(4,1,2)	ME 4640		
10	ME 4661	Hydraulic Components and Servo Technology Systems	5	(5,1,0)	ME 3810 EE 3090		
<b>Heat and Fluid Engineering Sciences – Elective (4)</b>							
1	ME 4740	Solar Energy Systems Design	5	(5,1,0)	ME 3750		
2	ME 4750	Heat Ventilations and Air Conditioning Systems	5	(5,1,0)	ME 4710		
3	ME 4760	Design of Refrigeration & Air Conditioning Systems	5	(5,1,0)	ME 3750 ME 4710		
4	ME 4770	Design of Thermal Systems	5	(5,1,0)	ME 3750		
5	ME 4780	Desalination Plants	5	(5,1,0)	ME 4730		
6	ME 4790	Introduction to Nuclear Engineering	5	(5,1,0)	PHYS 1040		
7	ME 4791	Renewable and Alternative Energy	5	(5,1,0)	ME 3750		
8	ME 4792	Internal Combustion Engines	5	(5,1,0)	CHEM 1010 ME 3730		
9	ME 4793	Introduction to Combustion	5	(5,1,0)	CHEM 1010 ME3730		
10	ME 4794	Biofuels	5	(5,1,0)	CHEM 1010 ME3730		

11	ME 4810	Turbomachinery	5	(5,1,0)	ME 3730 ME 3810		
12	ME 4820	Introductory Gas Dynamics	5	(5,1,0)	MATH 2030 ME 3730 ME 3810		
13	ME 4830	Aerodynamics	5	(5,1,0)	MATH 2030 ME 3810		
14	ME 4840	Introduction to Computational Fluid Dynamics	5	(5,1,0)	ME 3810		
15	ME 4850	Thermal-fluid Systems	5	(5,1,0)	ME 3750 ME 3810		
16	ME 4860	Turbulent Flow	5	(5,1,0)	ME 3850		

**The Total Number of Credit Hours for ME Program: 248 Cr. Hr.**