

## BS Mechatronics 4-Year Program Outline (Total Credit Hours: 144)

Semester – I			Semester – II		
Code	Course Title	Credit Hrs	Code	Course Title	Credit Hrs
MX1201	Introduction to Mechatronics	1+1	ES1303	Calculus 2	3+0
ES1301	Calculus 1	3+0	ES1404	Engineering Physics 2	3+1
EE1201	Applied Electronics	1+1	CS1202	Computing Core 2	2+0
ME1202	Engineering Drawing and Graphics	1+1	LA1302	Islamic Studies	3+0
LA1201	English 1	2+0	ME1305	Engineering Mechanics 1 - Statics	3+0
ES1402	Engineering Physics 1	3+1	ME2211	Mechanical Workshop	2+0
CS1201	Computing Core 1	2+0	CS1203	Fundamentals of Logic Design	2+0
<b>Total Credit Hours</b>		<b>17</b>	<b>Total Credit Hours</b>		<b>19</b>

Semester – III			Semester – IV		
Code	Course Title	Credit Hrs	Code	Course Title	Credit Hrs
ES2305	Differential Equations & Linear Algebra	3+0	MX2301	Mechatronics Design Project 1	2+1
ME2410	Engineering Mechanics 2 - Dynamics	3+0	ME3326	Measurements and Instrumentation	2+1
DS1201	Design Core 1	2+0	MX2304	Power Electronics	3+0
ME2219	CAD/CAM 1	0+2	ME2120	ME Lab 1	0+1
LA2303	Political Science 1	2+0	ME3325	Engineering Materials	3+1
EE2202	Sensors & Actuators 1	1+1	ME2312	Thermodynamics 1	3+0
LA2204	English 2	2+0	-	<i>Free Elective 1</i>	2+0
<b>Total Credit Hours</b>		<b>16</b>	<b>Total Credit Hours</b>		<b>19</b>

Semester – V			Semester – VI		
Code	Course Title	Credit Hrs	Code	Course Title	Credit Hrs
MX3306	Wireless Communications	3+0	MX33XX	<i>(MechX Elective 2)</i>	3+0
ES3307	Chemistry	2+1	MX3303	Mechatronics Design Project 3	2+1
MX33XX	<i>(MechX Elective 1)</i>	3+0	ENTXXX	Entrepreneurship Core 1	2+0
MX3302	Mechatronics Design Project 2	2+1	LA2305	Pakistan Studies	3+0
ME2317	Fluid Mechanics 1	3+0	ME3424	Machine Design	3+1
LA2206	English 3	2+0	DS2202	Design Core 2	2+0
ME3127	ME Lab 2	0+1	LA3307	Political Science 2/Muslim World	2+0
<b>Total Credit Hours</b>		<b>18</b>	<b>Total Credit Hours</b>		<b>19</b>

Semester – VII			Semester – VIII		
Code	Course Title	Credit Hrs	Code	Course Title	Credit Hrs
ME4360	Control Engineering	3+0	ME4371	<b>Final Year Project</b>	1+2
ME4261	Technical Report Writing	2+0	EN4204	Engineering Economics	2+0
MX43XX	<i>(MechX Elective 3)</i>	3+0	EE4303	Industrial Automation	2+1
ME4370	<b>Final Year Project</b>	1+2	ENTXXX	Entrepreneurship Core 3	2+0
ENTXXX	Entrepreneurship Core 2	2+0	MX43XX	<i>(MechX Elective 4)</i>	3+0
ES2306	Probability and Statistics	3+0	DS4203	Design Core 3	2+0
CS4204	Computing Core 3	2+0	-	<i>Free Elective 2</i>	3+0
<b>Total Credit Hours</b>		<b>18</b>	<b>Total Credit Hours</b>		<b>18</b>

Mechatronics Electives <i>(May be revised periodically)</i>					
Code	Stream 1: Robotics and Automation	Credit Hrs	Code	Stream 2: Aerospace and Avionics	Credit Hrs
<b>32</b>	Sensors & Actuators 2	3+0	<b>34</b>	Avionics Instrumentation	3+0
<b>36</b>	Industrial Robotics	3+0	<b>42</b>	Aerospace Instrumentation	3+0
<b>44</b>	Mobile Robotics	3+0	<b>64</b>	Applied Aerodynamics with CFD	3+0
<b>85</b>	Control Engineering 2	3+0	<b>83</b>	Flight Dynamics & Control	3+0