

Semester wise plan for B.Sc. Mechatronics and Control Engineering (Session 2025)

Sr.	Code	Course Title	Credit Hours		Contact Hours		Pre-Requisites	Knowledge Area
			Theory	Practical	Theory	Practical		
1st Semester Courses								
1	MCT-121 & MCT-121L	Electric Circuits	3	1	3	3		Engineering Foundation
2	MCT-111 & MCT-111L	Engineering Graphics and Drawing	1	2	1	6		Engineering Foundation
3	ME-100L	Workshop Practice	0	1	0	3		Engineering Foundation
4	MA-113	Calculus and Analytic Geometry	3	0	3	0		Mathematics
5	MCT-107 & MCT-107L	Application of Information and Commun	1	2	1	6		Computing
6	IS-104	Islamic Studies	2	0	2	0		Humanities
		Total	10	6	10	18		
		Semester Credits	16		28			
2nd Semester Courses								
7	MCT-113 & MCT-113L	Manufacturing Processes	3	1	3	3		Inter-Disciplinary Engineering
8	MCT-117 & MCT-117L	Engineering Mechanics	3	1	3	3		Engineering Foundation
9	MCT-122 & MCT-122L	Electronic Devices and Circuits	3	1	3	3		Engineering Foundation
10	HU-111	Communication Skills	3	0	3	0		Humanities
11	MA-225	Differential Equations and Transforms	3	0	3	0		Mathematics
		Total	15	3	15	9		
		Semester Credits	18		24			
3rd Semester Courses								
12	MCT-213 & MCT-213L	Mechanisms	2	1	2	3		Major Based Core (Breadth)
13	MCT-241 & MCT-241L	Digital Logic Design	3	1	3	3		Computing
14	MCT-245 & MCT-245L	Advanced Computing	1	2	1	6	MCT-107 & MCT-107L	Computing
15	EE-204 & EE-204L	Electrical Machinery	2	1	2	3		Inter-Disciplinary Engineering
16	MA-129	Vector and Complex Analysis	3	0	3	0		Mathematics
17	IS-111	Pakistan Studies	2	0	2	0		Humanities
		Total	13	5	13	15		
		Semester Credits	18		28			
4th Semester Courses								
18	MCT-216 & MCT-216L	Machine Design and Elements	3	1	3	3		Major Based Core (Depth)
19	MCT-244 & MCT-244L	Signal Processing	2	1	2	3		Major Based Core (Breadth)
20	MCT-236 & MCT-236L	Embedded Systems-I	3	1	3	3	MCT-142 & MCT-142L	Major Based Core (Breadth)
21	MA-234	Linear Algebra	3	0	3	0		Mathematics
22	IS-203	Ideology and Constitution of Pakistan	2	0	2	0		Humanities
23	IS-109	Fehm-e-Quran - I / Social Ethics-I (For No	0	1	0	1		Humanities
		Total	13	4	13	10		
		Semester Credits	17		23			
5th Semester Courses								
24	MCT-361 & MCT-361L	Hydraulics and Pneumatics	2	1	2	3		Major Based Core (Breadth)
25	MCT-331 & MCT-331L	Modeling and Simulation	3	1	3	3	MA-225	Major Based Core (Breadth)
26	MCT-339 & MCT-339L	Embedded Systems-II	3	1	3	3	MCT-236 & MCT-236L	Major Based Core (Depth)
27	MCT-335 & MCT-335L	Instrumentation and Measurements	2	1	2	3		Major Based Core (Breadth)
28	MA-343	Applied Probability and Statistics	3	0	3	0		Mathematics
29	MGT-318	Entrepreneurship and Management	2	0	2	0		Management Sciences
		Total	15	4	15	12		
		Semester Credits	19		27			
6th Semester Course								
30	MCT-xxx	Elective I	2	1	2	3		Major Based Core (Depth)
31	MCT-333 & MCT-333L	Control Systems – I	3	1	3	3		Major Based Core (Breadth)
32	MCT-352 & MCT-352L	Robotics	3	1	3	3	MA-234	Major Based Core (Breadth)
33	MCT-343 & MCT-343L	Data Sciences and Analytics	3	1	3	3	MCT-142 & MCT-142L	Computing
34	MCT-307	Product Design	2	0	2	0		Management Sciences
35	MCT-309	Internship	0	0	0	0		Industrial Training (Summer)
36	IS-209	Fehm-e-Quran - II / Social Ethics-II (For Non-Muslims)	0	1	0	1		Humanities
		Total	13	5	13	13		
		Semester Credits	18		26			
7th Semester Courses								
37	MCT-xxx	Elective II	2	1	2	3		Major Based Core (Depth)
38	MCT-434 & MCT-434L	Industrial Automation	2	1	2	3		Major Based Core (Depth)
39	MCT-435	Control Systems – II	3	0	3	0	MCT-331 & MCT-331L	Major Based Core (Depth)
40	MGT-xxx	Social Science Elective	2	0	2	0		Humanities
41	HU-221	Technical Writing & Presentation Skills	3	0	3	0		Humanities
42	MCT-498	Final Project- I	0	3	0	9		Senior Design Project
		Total	12	5	12	15	0	
		Semester Credits	17		27			
8th Semester Courses								
43	MCT-xxx	Elective III	3	0	3	0		Major Based Core (Depth)
44	MGT-320	Project Management in Engineering	2	0	2	0		Management Sciences
45	MGT-110	Social Responsibility	2	0	2	0		Humanities
46	MCT-400L	Occupational Health and Safety	0	1	0	3		Inter-Disciplinary Engineering
47	MCT-499	Final Project- II	0	3	0	9	MCT-498	Senior Design Project
		Total	7	4	7	12		
		Semester Credits	11		19			
		Total	98		36		98 104	
		Total Credits	134		202			