

Revised Roadmap of BS(ME) Program

For Intake F2023

To be implemented from F2023

Semester 1						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	HM 111	Islamic Studies / Ethics	2	0	2	
2	HM 106	Composition and Communication	2	0	2	
3	CS 143	Programming Fundamentals	2	0	2	
4	CS 143L	Programming Fundamentals Lab	0	1	1	
5	ME 101	Engineering Drawing & Graphics	2	0	2	
6	ME 101L	Engineering Drawing & Graphics Lab	0	1	1	
7	HM 112	Pakistan Studies	2	0	2	
8	ME 122	Engineering Mechanics-I: Statics	2	0	2	
9	ME 122L	Engineering Mechanics-I: Statics Lab	0	1	1	
10	NS 128	Applied Calculus	3	0	3	
Total			15	3	18	

Semester 2						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	NS 129	Differential Equations	3	0	3	
2	ME 123	Engineering Mechanics-II: Dynamics	3	0	3	ME 122
3	ME 123L	Engineering Mechanics-II: Dynamics Lab	0	1	1	
4	EE 105	Basic Electrical Engineering	2	0	2	
5	EE 105L	Basic Electrical Engineering Lab	0	1	1	
6	ME 125	Engineering Materials	2	0	2	
7	ME 125L	Engineering Materials Lab	0	1	1	
8	ME 131	Thermodynamics-I	3	0	3	
9	ME 131L	Thermodynamics-I Lab	0	1	1	
Total			13	4	17	

1 st Summer Semester			
Sr. No.	Course Code	Course Title	Credit Hours
1	HM 108	Community Services	1
Total			1

Semester 3						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	ME 232	Thermodynamics-II	3	0	3	ME 131
2	ME 232L	Thermodynamics-II Lab	0	1	1	
3	ME 213L	Workshop Practice	0	2	2	
4	ME 221	Mechanics of Materials-I	3	0	3	
5	ME 221L	Mechanics of Materials-I Lab	0	1	1	
6	NS 221	Linear Algebra	3	0	3	
7	ME 241	Manufacturing Processes	3	0	3	
8	ME 241L	Manufacturing Processes Lab	0	1	1	
Total			12	5	17	

Semester 4						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	ME 231	Fluid Mechanics-I	3	0	3	
2	ME 231L	Fluid Mechanics-I Lab	0	1	1	
3	ME 242	Mechanical Measurements and Metrology	2	0	2	
4	ME 242L	Mechanical Measurements and Metrology Lab	0	1	1	
5	NS 233	Probability & Statistics	3	0	3	
6	ME 243	Machine Tools & Machining	2	0	2	
7	ME 243L	Machine Tools & Machining Lab	0	1	1	
8	ME 223	Machine Design & CAD-I	2	0	2	
9	ME 223L	Machine Design & CAD-I Lab	0	1	1	
10	HM 223	Social and Ethical Aspects in Engineering	2	0	2	
Total			14	4	18	

2nd Summer Semester			
Sr. No.	Course Code	Course Title	Credit Hours
1	SD100	English Immersion	0
Total			0

Semester 5						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	MS 321	Engineering Economics	3	0	3	
2	NS 321	Numerical Analysis	2	0	2	
3	NS 321L	Numerical Analysis Lab	0	1	1	
4	ME 331	Fluid Mechanics-II	3	0	3	ME 231
5	ME 331L	Fluid Mechanics-II Lab	0	1	1	
6	HM 302	Technical Report Writing & Presentation Skills	2	0	2	
7	ME 321	Machine Design & CAD-II	2	0	2	ME 223
8	ME 321L	Machine Design & CAD-II Lab	0	1	1	
9	ME 342	Instrumentation and Control	2	0	2	
10	ME 342L	Instrumentation and Control Lab	0	1	1	
11	SD102	21 st Century Skills	0	0	0	
Total			14	4	18	

Semester 6						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite (s)
			Theory	Lab	Total	
1	ME 332	Heat & Mass Transfer	3	0	3	ME 331, ME 232
2	ME 333	Refrigeration & Air Conditioning	3	0	3	ME 331, ME 232
3	ME 333L	Refrigeration & Air Conditioning Lab	0	1	1	
4	ME 323	Mechanics of Materials-II	3	0	3	
5	ME 323L	Mechanics of Materials-II Lab	0	1	1	
6	ME 324	Mechanical Vibrations	2	0	2	ME 123
7	ME 324L	Mechanical Vibrations Lab	0	1	1	
8	ME 325	Mechanics of Machines	3	0	3	
9	ME 325L	Mechanics of Machines Lab	0	1	1	
Total			14	4	18	

Semester 7						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	ME 431	Internal Combustion Engines	2	0	2	ME 232
2	ME 431L	Internal Combustion Engines Lab	0	1	1	
3	ME 432	Power Plants	2	0	2	ME 232
4	ME 432L	Power Plants Lab	0	1	1	
5	ME 422	Finite Element Analysis	3	0	3	
6	ME 422L	Finite Element Analysis Lab	0	1	1	
7	ME 4XY	Elective-I	2	0	2	
8	MS 402	Production Management	3	0	3	
9	ME 451	Project Phase I	0	3	3	
Total			12	6	18	

Semester 8						
Sr. No.	Course Code	Course Title	Credit Hours			Prerequisite(s)
			Theory	Lab	Total	
1	MS 403	Entrepreneurship	3	0	3	
2	ME 4XY	Elective-II	2	0	2	
3	ME 452	Project Phase-II	0	3	3	
Total			5	3	8	
Grand Total			99	33	133*	
CO-OP**					6	
Grand Total (With CO-OP)					139	

*including 1 CH is for community service

**Optional

List of Electives

Sr. No.	Course Code	Course Title	Credit Hours	Knowledge Area	Pre-requisite Courses
1	ME 442	Environmental Engineering	(2-0-2)	Major Based Core (Breadth)	--
2	ME 443	Health, Safety & Environment	(2-0-2)	Major Based Core (Breadth)	--
3	ME 433	Energy Resources & Utilization	(2-0-2)	Major Based Core (Breadth)	--
4	ME 434	Computational Fluid Dynamics	(2-0-2)	Major Based Core (Breadth)	ME 331 - Fluid Mechanics-II
5	ME 444	Mechatronics: Principles & Practices	(2-0-2)	Interdisciplinary Engg.	--
6	ME 435	Gas Turbines	(2-0-2)	Major Based Core (Breadth)	--
7	ME 436	Gas Dynamics	(2-0-2)	Major Based Core (Breadth)	ME 331 - Fluid Mechanics-II
8	ME 437	Heat Exchanger Design	(2-0-2)	Major Based Core (Breadth)	--
9	ME 401	Total Quality Management	(2-0-2)	Management Sciences	--
10	ME 423	Advance Mechanics of Materials	(2-0-2)	Major Based Core (Breadth)	Mechanics of Material I & II
11	ME 445	Product Design and Development	(2-0-2)	Major Based Core (Breadth)	--

Revisions Highlights

For Intake F2023

1. Complete Roadmap has been revised while considering the common engineering framework.
2. Two courses (English Grammar & Comprehension, Applied Physics) have been removed from roadmap.
3. A mandatory Community Services (1 CH) has been included in first summer semester of the program.
4. Two new courses (*SD100 - English Immersion* & *SD102 - 21st Century Skills*) have been added in the roadmap.
5. The maximum academic load is 18 CH in semester.
6. CO-OP (6 CH) has been included in 8th Semester, which will be optional for students.
7. The course codes of the following courses have been revised:

Sr. No.	Course Title	Previous Code	New Code
1.	Basic Electrical Engineering	EE 205	EE 105
2.	Basic Electrical Engineering Lab	EE 205L	EE 105L
3.	Pakistan Studies	HM 211	HM 112
4.	Materials Engineering	EF 122	ME 125
5.	Workshop Practice	EF 113L	ME 213L
6.	Probability & Statistics	NS 331	NS 233
7.	Machine Tools & Machining	ME 341	ME 243
8.	Machine Tools & Machining Lab	ME 341L	ME 243L
9.	Social and Ethical Aspects in Engineering	HM 321	HM 223
10.	Instrumentation and Control	ME 441	ME 342
11.	Instrumentation and Control Lab	ME 441L	ME 342L
12.	Mechanical Vibrations	ME 421	ME 324
13.	Mechanical Vibrations Lab	ME 421L	ME 324L
14.	Mechanics of Machines	ME 222	ME 325
15.	Mechanics of Machines Lab	ME 222L	ME 325L
16.	Engineering Economics	HM 421	MS 321
17.	Production Management	MS 403	MS 402
18.	Entrepreneurship	MS 402	MS 403

8. Following courses has shifted as per following:

Engineering Courses

Sr. No.	Course Title	Was in Semester	Moved to Semester
1.	Programming Fundamentals	2	1
2.	Programming Fundamentals Lab	2	1
3.	Basic Electrical Engineering	4	2
4.	Basic Electrical Engineering Lab	4	2
5.	Materials Engineering	1	2
6.	Materials Engineering Lab	1	2
7.	Workshop Practice	2	3
8.	Machine Tools & Machining	5	4
9.	Machine Tools & Machining Lab	5	4
10.	Instrumentation and Control	7	5
11.	Instrumentation and Control Lab	7	5
12.	Mechanical Vibrations	7	6
13.	Mechanical Vibrations Lab	7	6
14.	Mechanics of Machines	4	6
15.	Mechanics of Machines Lab	4	6
16.	Power Plant	8	7
17.	Power Plant Lab	8	7
18.	Finite Element Analysis	8	7
19.	Finite Element Analysis Lab	8	7

Non-Engineering Courses

Sr. No.	Course Title	Was in Semester	Moved to Semester
1.	Composition and Communication	2	1
2.	Pakistan Studies	3	1
3.	Probability & Statistics	6	4
4.	Social and Ethical Aspects in Engineering	6	4
5.	Engineering Economics	7	5
6.	Production Management	8	7

Total Credit Hours (Non-Coop) = 133

CO-OP Credit Hours = 6

Total with CO-OP = 139