

BEME PROGRAM REVISED CURRICULUM FALL 25

2A

BEME SEMESTER # 1

S1	Code	Subject	Pre-Requisite	Course Cr Hrs
1	CS 181	Applications of Information and Communication Technologies	-	2-0-2
2	HU 124	Islamic Studies and Ethics	-	2-0-2
3	MA 110	Calculus & Analytical Geometry	-	3-0-3
4	CE 112	Computer Programming	-	2-0-2
5	ME 140	Workshop Practice – I	-	0-1-1
6	ME 139	Engineering Drawing and Graphics	-	1-0-1
7	EL 170	Functional English	-	3-0-3
8	CS 181L	Applications of Information and Communication Technologies Lab	-	0-1-1
9	ME 139L	Engineering Drawing and Graphics Lab	-	0-1-1
10	CE 112L	Computer Programming Lab	-	0-1-1
		Semester Credit Hours		13-4-17
10		Cumulative Credit Hours		13-4-17

BEME SEMESTER # 2

S2	Code	Subject	Pre-Requisite	Course Cr Hrs
1	ME 121	Engineering Statics	-	3-0-3
2	MA 214	Complex Variables and Transforms	-	3-0-3
3	ME 131	Thermodynamics – I	-	3-0-3
4	CH 102	Applied Chemistry	-	3-0-3
5	ME 143	Workshop Practice – II	ME 140 - Workshop Practice – I	0-1-1
6	ME 147	Computer Aided Graphics	ME 139 - Engineering Drawing and Graphics	0-1-1
7	EE 114	Electrical Engineering		2-0-2
8	HU 405	Ideology and Constitution of Pakistan	-	2-0-2
		Semester Credit Hours		16-2-18
18		Cumulative Credit Hours		29-6-35

BEME SEMESTER # 3

S3	Code	Subject	Pre-Requisite	Course Cr Hrs
1	MA 225	Linear Algebra and Differential Equations	-	3-0-3
2	ME 222	Engineering Dynamics	ME 121- Engineering Statics	3-0-3
3	ME 223	Mechanics of Materials – I	ME 121- Engineering Statics	3-0-3
4	ME 233	Fluid Mechanics – I	-	3-0-3
5	ME 234	Thermodynamics – II	ME 131- Thermodynamics – I	3-0-3
6	ME 202	Health Safety and Environment	-	1-0-1
7	ME 226L	Engineering Mechanics Lab	-	0-1-1
8	ME 234L	Thermodynamics Lab	-	0-1-1
		Semester Credit Hours		16-2-18
26		Cumulative Credit Hours		45-8-53

BEME SEMESTER # 4

S4	Code	Subject	Pre-Requisite	Course Cr Hrs
1	ME 227	Mechanics of Machines	ME 222- Engineering Dynamics	3-0-3
2	ME 224	Mechanics of Materials – II	ME 223 - Mechanics of Material – I	3-0-3
3	ME 235	Fluid Mechanics – II	ME 233 - Fluid Mechanics – I	3-0-3
4	EE 215	Electronics Engineering	-	2-0-2
5	ME 249	Manufacturing Processes	-	1-0-1
6	ME 249L	Manufacturing Processes Lab – I	-	0-1-1
7	ME 235L	Fluid Mechanics Lab	-	0-1-1
8	ME 224L	Mechanics of Materials Lab	-	0-1-1
9	ME 227L	Mechanics of Machines Lab	-	0-1-1
10	EE 215L	Electrical and Electronics Engineering Lab		0-1-1
		Semester Credit Hours		12-5-17
36		Cumulative Credit Hours		57-13-70

SUMMER SEMESTER

	Code	Subject	Pre-Requisite	Course Cr Hrs
	ME 491	Industrial Internship (#)	-	P/F
		Semester Credit Hours		0-0-0
		Cumulative Credit Hours		57-13-70

BEME SEMESTER # 5

S5	Code	Subject	Pre-Requisite	Course Cr Hrs
1	ME 301	Engineering Materials	-	3-0-3 ✓
2	ME 337	Refrigeration and Air Conditioning	ME 234 – Thermodynamics -- II	2-0-2 ✓
3	MA 221	Numerical Analysis and Computation	MA 110- Calculus & Analytical Geometry	2-0-2
4	ME 324	Machine Design – I	ME 224-Mechanics of Materials-II	2-0-2
5	ME 329	Mechanical Vibrations	ME 222-Engineering Dynamics	3-0-3
6	ME 341	Reverse Engineering and Investigative Techniques	-	3-0-3
7	ME 329L	Mechanical Vibrations Lab	-	0-1-1
8	MA 221L	Numerical Analysis and Computation Lab	-	0-1-1
9	ME 344L	Manufacturing Processes Lab – II	-	0-1-1
		Semester Credit Hours		15-3-18
45		Cumulative Credit Hours		72-16-88

#Internship of 6-8 weeks is mandatory. To be taken in summer break either after 4th semester or 6th semester.

BEME SEMESTER # 6

S6	Code	Subject	Pre-Requisite	Course Cr Hrs
1	EL 271	Expository Writing	EL 170 Functional English	3-0-3
2	ME 328	Machine Design -- II	ME 324 Machine Design – I	2-0-2
3	ME 349	Computer Aided Engineering-FEM	ME 224 – Mechanics of Materials-II ME 235 – Fluid Mechanics-II	2-0-2
4	ME 314	Control Engineering	-	2-0-2
5	ME 336	Heat and Mass Transfer	-	3-0-3
6	ME 337L	Refrigeration and Air Conditioning & Heat and Mass Transfer Lab	-	0-1-1
7	HU XXX	Social Science Elective	-	2-0-2
8	ME 349L	Computer Aided Engineering-FEM Lab	-	0-1-1
9	ME 314L	Investigative Techniques and Controls Lab	-	0-1-1
10	FQ 100	Fehm-c-Quran I	-	0-1-1
		Semester Credit Hours		14-4-18
55		Cumulative Credit Hours		86-20-106

SUMMER SEMESTER

	Code	Subject	Pre-Requisite	Course Cr Hrs
	ME 491	Industrial Internship ^(#)	-	P/F
		Semester Credit Hours		0-0-0
		Cumulative Credit Hours		86-20-106

#Internship of 6-8 weeks is mandatory to be taken in summer break either after 4th semester or 6th semester.

BEME SEMESTER # 7

S7	Code	Subject	Pre-Requisite	Course Cr Hrs
1	PM 330	Project Management	-	2-0-2
2	HU 411	Civics and Community Engagement	-	2-0-2
3	ME 469	IC Engines and Propulsion	ME 234 – Thermodynamics-II	2-0-2
4	ME XXX	Technical Elective – I	-	2-0-2
5	ME 479	Artificial Intelligence with Python		2-0-2
6	ME 479L	Artificial Intelligence with Python Lab		0-1-1
7	ME 469L	IC and Power Plant Lab	-	0-1-1
8	ME 495	Final Year Project – I	ME 224 – Mechanics of Materials-II ME 234 – Thermodynamics-II ME 235 – Fluid Mechanics-II	0-3-3
9	FQ 101	Fehm-e-Quran II	FQ100 Fehm-e-Quran I	0-1-1
Semester Credit Hours				10-6-16
64	Cumulative Credit Hours			96-26-122

BEME SEMESTER # 8

S8	Code	Subject	Pre-Requisite	Course Cr Hrs
1	BA 353	Entrepreneurship	-	2-0-2
2	ME XXX	Technical Elective – II	-	3-0-3
3	ME 496	Final Year Project – II	ME 495- Final Year Project-I	0-3-3
4	FL/HU XXX	Arts and Humanities Elective	-	2-0-2
5	HU 115	Pakistan Studies	-	2-0-2
Semester Credit Hours				9-3-12
69	Cumulative Credit Hours			105-29-134
Total Courses: 69				Total CHs: 134

List of Technical Electives	
Subject	Cr Hrs
ME 407 Fundamentals of Composite Materials	2-0-2
ME 408 Engineering Design Optimization	2-0-2
ME 410 Polymer Engineering	2-0-2
ME 420 Computational Fluid Dynamics (CFD)	2-0-2
ME 421 Aerodynamics	2-0-2
ME 422 Gas Dynamics	2-0-2
ME 430 Automation and Robotics	2-0-2
ME 432 Advanced Manufacturing Techniques	2-0-2
ME 474 Sustainable Practices in Engineering	2-0-2
ME 472 MEMS/NEMS	2-0-2
ME 473 Automotive Engineering	2-0-2
ME 475 Renewable Energy Technology	2-0-2
ME 478 Tribology	2-0-2
ME 471 Power Plant Engineering	2-0-2
ME 483 Special Topics/ Advancements in Mechanical Engineering – I	2-0-2
ME 484 Special Topics/ Advancements in Mechanical Engineering – II	2-0-2
ME 467 Nuclear Engineering	3-0-3
ME 449 Automation and Robotics	3-0-3
ME 429 Experimental Stress Analysis	3-0-3
ME 486 Machine Learning with Applications	2-0-2
ME 486L Machine Learning with Applications Lab	0-1-1
Note: The list of technical electives will increase with time as per requirement	

List of Management Electives	
Subject	Cr Hrs
EM 443 Procurement Management	2-0-2
EM 436 Engineering Management & Entrepreneurship	2-0-2
EM 445 Engineering Management and Economics	2-0-2
EM 446 Total Quality Management	2-0-2
PM 301 Operations Management	2-0-2
EM 457 Maintenance Management	2-0-2
EM 458 Techniques of Safety Management	2-0-2
Note: The list of management electives will increase with time as per requirement	

List of Social Sciences Electives	
Subject	Cr Hrs
HU 318 Public Relations	2-0-2
HU 213 Introduction to Psychology	2-0-2
HU 316 International Relations	2-0-2
HU 415 Professional Ethics	2-0-2
BA 152 Introduction to Management	2-0-2
HU 211 Introduction to Sociology	2-0-2
ME 455 Engineering Law	2-0-2
HU XXX Comparative Religions	2-0-2
Note: This list of social electives will increase with time as per requirement	

List of Arts and Humanities Electives	
Subject	Cr Hrs
FL 320 Functional Arabic	2-0-2
FL 322 Functional Chinese	2-0-2
FL 323 Functional Japanese	2-0-2
FL 324 Functional German	2-0-2
EL 200 English III: Communication and Presentation Skills	2-0-2
Note: This list of language electives will increase with time as per requirement	

Electives Coding Scheme: DMAE, IAA

Code Bracket	Discipline
ME 401- 409	Solid Mechanics, Structures, FEM
ME 410- 419	Materials Science & Engineering
ME 420- 429	Fluid Mechanics, Thermo-Fluids
ME 430- 439	Automation, Robotics, Manufacturing, IR 4.0
ME 440- 445	Industrial Engineering, Engineering Reliability & Maintenance
ME 460- 474	Multidisciplinary Area (MEMS, Nanotechnology, Reverse Engineering and others)
ME 475- 479	Power Plant, IC Engines & Energy Recourses
ME 480- 489	Special Topics & Emerging Technologies
ME 490- 499	Final Year Project & Internships, Soft and Job Skills