



**MEHRAN UNIVERSITY OF ENGINEERING AND
TECHNOLOGY, JAMSHORO**

DEPARTMENT OF ELECTRONIC ENGINEERING

**Curriculum of Bachelor of Engineering (BE)
Electronic Engineering Program
July 2025**

Effective from 25ES Batch

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1. Knowledge Area-wise Distribution of BE-Electronic Engineering Scheme

Table 1: Non-Engineering Courses included in the Electronic Engineering Scheme

Knowledge Area	Sub Area	Name of Course	Theory Contact Hours	Practical Contact Hours	Credit Hours (CH)	No. of Subjects	Total Credit Hours
Humanities and Social Sciences	English	Functional English	3	0	3	3	7
		Technical and Scientific Writing	2	0	2		
		Communication Skills	2	0	2		
	Culture	Islamic Studies / Ethics	2	0	2	5	8
		Pakistan Studies	2	0	2		
		Understanding of Holy Quran I/Comparative Moral Teaching I	0	3	1		
		Understanding of Holy Quran II/Comparative Moral Teaching II	0	3	1		
		Ideology and Constitution of Pakistan	2	0	2		
	Electives	Professional Ethics	2	0	2	3	4
		Sociology for Engineers	2	0	2		
		Community Services	0	0	0		
Management Sciences	Electives	El-I: Engineering Management	2	0	2	2	5
		El-II: Entrepreneurship	3	0	3		
Natural Sciences	Math	Applied Calculus	3	0	3	4	12
		Linear Algebra & Analytical Geometry	3	0	3		
		Differential Equations	3	0	3		
		Complex Variables and Transforms	3	0	3		
	Physics	Applied Physics	3	3	4	1	4
	Elective	Numerical Methods	3	3	4	1	4
Total					44	19	44 (31.65%)

Table 2: Engineering courses included in the Electronic Engineering Scheme

Knowledge Area	Name of Course	Theory Contact Hours	Practical Contact Hours	Credit Hours (CH)	No. of Subjects	Total Credit Hours
Computing	Introduction to Computing	2	3	3	3	10
	Computer Programming	2	3	3		
	Elective: Artificial Intelligence in Edge Computing	3	3	4		
Electronics Engineering Foundation	Electronic Workshop	0	3	1	9	25
	Basic Electronics	3	3	4		
	Electrical Circuits	3	3	4		
	Digital Electronics	3	3	4		
	Computer Aided Engineering Drawing	0	3	1		
	Probability and Random Signals	2	0	2		
	Electromagnetic Fields Theory	2	0	2		
	Signals and Systems	2	3	3		
	Measurement and Instrumentation	3	3	4		
Electronics Engineering Core (Breadth)	Communication Systems	3	3	4	7	27
	Introduction to Embedded Systems	3	3	4		
	Electrical Machines	2	3	3		
	Control Systems	3	3	4		
	Breadth Core I: Electronic Circuit Design	3	3	4		
	Breadth Core II: Power Electronics	3	3	4		
	Breadth Elective-I: Industrial Electronics	3	3	4		
Electronics Engineering Specialization Based Electives (Depth)	Depth Elective-I: Integrated Electronics	3	3	4	5	19
	Depth Elective-II: FPGA Based Digital Design	3	3	4		
	Depth Elective-III: Optoelectronics	2	3	3		
	Depth Elective-IV: Digital Control Systems	3	3	4		
	Depth Elective-VI: Digital	3	3	4		

	Signal Processing					
IDEE	IDEE-I: Robotics and Mechatronics Systems Design	3	3	4	2	8
	IDEE-II: Computer Communication & Networks	3	3	4		
Senior Design Project	Final Year Project-I	0	9	3	2	6
	Final Year Project-II	0	9	3		
Total				95	28	95 (68.35%)

Table 3: Summary of Credit Hours and Courses

	CH Theory	CH Practical	Subjects	Credit Hours
GRAND TOTAL	105	34	47	139

2. Semester-wise Breakup of BE-Electronic Engineering Courses

First Year			
FIRST SEMESTER			
S. No.	Code	Title	CH
1	ENG-101	Functional English	3+0
2	MTH-108	Applied Calculus	3+0
3	EL-116	Applied Physics	3+1
4	EL-120	Electrical Circuits	3+1
5	ES-102	Electronics Workshop	0+1
6	CS-150	Introduction to Computing	2+1
TOTAL			14+4=18
SECOND SEMESTER			
S. No.	Code	Title	CH
7	MTH-112	Linear Algebra & Analytical Geometry	3+0
8	CS-113	Computer Programming	2+1
9	ES-112	Basic Electronics	3+1
10	SS-125	Professional Ethics	2+0
11	PS-106	Pakistan Studies	2+0
12	IS- 111 /SS-104	Islamic Studies/Ethics	2+0
TOTAL			14+2=16

Second Year			
THIRD SEMESTER			
S. No.	Code	Title	CH
13	MTH-212	Differential Equations & Fourier Series	3+0
14	ES-203	Electronic Circuit Design	3+1
15	ES-226	Digital Electronics	3+1
16	ES-227	Measurements & Instrumentation	3+1
17	ENG-201	Communication Skills	2+0
18	CS-215	Computer Aided Engineering Design	0+1
19	SS-214	Understanding of Holy Quran I/Comparative Moral Teaching I	0+1
TOTAL			14+5=19
FOURTH SEMESTER			
S. No.	Code	Title	CH
20	MTH-213	Complex Variables & Transforms	3+0
21	ES-232	Probability and Random Signals	2+0
22	PS-207	Ideology and Constitution of Pakistan	2+0
23	ES-244	Electromagnetic Field Theory	2+0
24	ES-257	Integrated Electronics	3+1
25	ES-250	Introduction to Embedded Systems	3+1
26	SS-215	Understanding of Holy Quran II/Comparative Moral Teaching II	0+1
TOTAL			15+3=18

Third Year			
FIFTH SEMESTER			
S. No.	Code	Title	CH
27	ENG-301	Technical & Scientific Writing	2+0
28	ENT-315	Entrepreneurship	3+0
29	ES-398	Signals & Systems	2+1
30	ES-319	Power Electronics	3+1
31	MTH-310	Numerical Methods	3+1
32	EL-301	Electrical Machines	2+1
TOTAL			15+4=19
SIXTH SEMESTER			
S. No.	Code	Title	CH
33	ES-392	Digital Signal Processing	3+1
34	ES-353	Control Systems	3+1
35	SS-336	Sociology for Engineers	2+0
36	ES-373	FPGA Based Digital Design	3+1
37	ES-385	Communication Systems	3+1
38	ES-335	Community Service	0+0
TOTAL			14+4=18

Fourth Year			
SEVENTH SEMESTER			
S. No.	Code	Title	CH
39	ES-414	Digital Control System	3+1
40	INM-491	Engineering Management	2+0
41	ES-441	Optoelectronics	2+1
42	CS-450	Artificial Intelligence in Edge Computing	3+1
43	ES-498	Electronic Engineering Project-1	0+3
TOTAL			10+6=16
EIGHTH SEMESTER			
S. No.	Code	Title	CH
44	ES-422	Robotics and Mechatronic Systems design	3+1
45	ES-451	Industrial Electronics	3+1
46	TL-416	Computer Communication and Networking	3+1
47	ES-499	Electronic Engineering Project-2	0+3
TOTAL			09+06=15

3. Comparison of Revised vs Existing Semester-wise Breakup of BE-Electronic Engineering Courses

First Year							
Sr.#	FIRST SEMESTER <i>(Revised 25ES)</i>				FIRST SEMESTER <i>(Existing until 24ES)</i>		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
1	ENG-101	Functional English	Nil	3+0	ENG-111	Functional English	3+0
2	MTH-108	Applied Calculus	Nil	3+0	MTH-108	Applied Calculus	3+0
3	EL-116	Applied Physics	Nil	3+1	EL-116	Applied Physics	3+1
4	EL-120	Electrical Circuits	Nil	3+1	EL-120	Electrical Circuits	3+1
5	ES-102	Electronics Workshop	Nil	0+1	ES-102	Electronics Workshop	0+1
6	CS-150	Introduction to Computing	Nil	2+1	CS-150	Introduction to Computing	2+1
TOTAL			14+4=18		TOTAL		14+4=18

Sr.#	SECOND SEMESTER <i>(Revised 25ES)</i>				SECOND SEMESTER <i>(Existing until 24ES)</i>			
	Code	Title	Prerequisite Courses	CH	Code	Title	CH	
7	MTH-112	Linear Algebra & Analytical Geometry	Applied Calculus	3+0	MTH-112	Linear Algebra & Analytical Geometry	3+0	
8	CS-113	Computer Programming	Introduction to Computing	2+1	CS-113	Computer Programming	2+1	
9	ES-112	Basic Electronics	Nil	3+1	ES-112	Basic Electronics	3+1	
10	SS-125	Professional Ethics	Nil	2+0	SS-125	Professional Ethics	2+0	
11	PS-106	Pakistan Studies	Nil	2+0	PS-106	Pakistan Studies	2+0	
12	IS- 111	Islamic Studies/Ethics	Nil	2+0	IS- 111	Islamic Studies/Ethics	2+0	
TOTAL			14+4=18		TOTAL			14+4=18

Second Year							
Sr.#	THIRD SEMESTER (Revised 25ES)				THRID SEMESTER (Existing until 24ES)		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
13	MTH-212	Differential Equations & Fourier Series	Applied Calculus, Linear Algebra & Analytical Geometry	3+0	MTH-212	Differential Equations & Fourier Series	3+0
14	ES-203	Electronic Circuit Design	Basic Electronics	3+1	ES-203	Electronic Circuit Design	3+1
15	ES-226	Digital Electronics	Nil	3+1	ES-226	Digital Electronics	30+1
16	ES-227	Measurements & Instrumentation	Nil	3+1	ES-227	Measurements & Instrumentation	3+1
17	ENG-201	Communication Skills	Functional English	2+0	ENG-201	Communication Skills	2+0
18	CS-215	Computer Aided Engineering Design	Introduction to Computing, Computer Programming	0+1	CS-215	Computer Aided Engineering Design	0+1
19	SS-214	Understanding of Holy Quran I/Comparative Moral Teaching I	Islamic Studies/Ethics	0+1			
TOTAL			14+5=19		TOTAL		14+4=18

Sr.#	FOURTH SEMESTER (Revised 25ES)				FOURTH SEMESTER (Existing until 24ES)		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
19	MTH-213	Complex Variables & Transforms	Applied Calculus, Linear Algebra & Analytical Geometry	3+0	MTH-213	Complex Variables & Transforms	3+0
20	ES-232	Probability and Random Signals	Nil	2+0	EL-202	Electrical Machines	2+1
21	PS-207	Ideology and Constitution of Pakistan	Inter-Science	2+0	ES-232	Probability and Random Signals	2+0
22	ES-244	Electromagnetic Field Theory	Linear Algebra & Analytical Geometry, Applied Physics	2+0	ES-243	Electromagnetic Field	2+0
23	ES-257	Integrated Electronics	Electronic Circuit Design	3+1	ES-253	Integrated Electronics	3+1
24	ES-250	Introduction to Embedded Systems	Digital Electronics	3+1	ES-250	Introduction to Embedded Systems	3+1
25	SS-215	Understanding of Holy Quran II/Comparative Moral Teaching II	Islamic Studies/Ethics	0+1			
TOTAL			15+3=18		TOTAL		15+3=18

Third Year							
Sr.#	FIFTH SEMESTER (Revised 25ES)				FIFTH SEMESTER (Existing until 24ES)		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
25	ENG-301	Technical & Scientific Writing	Nil	2+0	ENG-301	Technical & Scientific Writing	2+0
26	ENT-315	Entrepreneurship	Nil	3+0	ENT-315	Entrepreneurship	3+0
27	ES-398	Signals & Systems	Electrical Circuits, Complex Variables & Transforms	2+1	ES-304	Signals & Systems	2+1
28	ES-319	Power Electronics	Basic Electronics	3+1	ES-319	Power Electronics	3+1
29	MTH-310	Numerical Methods	Nil	3+1	MTH-310	Numerical Methods	3+1
	EL-301	Electrical Machines	Applied Physics	2+1			
TOTAL				15+4=19	TOTAL		13+3=16

Sr.#	SIXTH SEMESTER <i>(Revised 25ES)</i>				SIXTH SEMESTER <i>(Existing until 24ES)</i>		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
30	ES-392	Digital Signal Processing	Signal & Systems	3+1	ES-392	Digital Signal Processing	3+1
31	ES-353	Control Systems	Complex Variables & Transforms, Signals and Systems	3+1	ES-353	Control Systems	3+1
32	SS-336	Sociology for Engineers	Nil	2+0	SS-336	Sociology for Engineers	2+0
33	ES-373	FPGA Based Digital Design	Digital Electronics	3+1	ES-373	FPGA Based Digital Design	3+1
34	ES-385	Communication Systems	Signal & Systems	3+1	ES-385	Communication Systems	3+1
35	ES-335	Community Service	Nil	0+0	ES-335	Community Service	0+0
TOTAL				14+4=18	TOTAL		14+4=18

Fourth Year							
Sr.#	SEVENTH SEMESTER (Revised 25ES)				SEVENTH SEMESTER (Existing until 24ES)		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
36	ES-414	Digital Control System	Control Systems	3+1	ES-414	Digital Control System	3+1
37	INM-412	Engineering Management	Nil	2+0	INM-412	Engineering Management	2+0
38	ES-441	Optoelectronics	Applied Physics	2+1	ES-441	Optoelectronics	2+1
39	CS-450	Artificial Intelligence in Edge Computing	Introduction to Embedded Systems	3+1	CS-450	Artificial Intelligence in	3+1
40	ES-498	Electronic Engineering Project-1		0+3	ES-498	Electronic Engineering Project-1	0+3
TOTAL			10+6=16		TOTAL		10+6

Sr.#	EIGHTH SEMESTER (Revised 25ES)				EIGHTH SEMESTER (Existing until 24ES)		
	Code	Title	Prerequisite Courses	CH	Code	Title	CH
41	ES-451	Industrial Electronics	Power electronics	3+1	ES-451	Industrial Electronics	3+1
42	ES-422	Robotics and Mechatronic Systems design	Control Systems, Introduction to Embedded System	3+1	ES-422	Robotics and Mechatronic Systems design	3+1
43	TL-416	Computer Communication and Networking	Communication Systems	3+1	TL-416	Computer Communication and Networking	3+1
44	ES-499	Electronic Engineering Project-2		0+3	ES-499	Electronic Engineering Project-2	0+3
TOTAL				9+6=15	TOTAL		9+6=15