MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY, JAMSHORO

DEPARTMENT OF ELECTRONIC ENGINEERING

Revised Curriculum of Bachelor of Engineering (BE) Electronic Engineering Program

(September 2020)

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 Report Writing	2	0	2		
		Communication Skills	2	0	2		
	Culture	Islamic Studies / Ethics	2	0	2	2	4
		Pakistan Studies	2	0	2		
	Electives	Professional Ethics	2	0	2	2	4
		Sociology for Engineers	2	0	2		
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						**15**	**40 (29%)**

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	3	3	4		
Electronics Engineering Foundation	Electronic Workshop	0	3	1	9	28
	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	3	0	3		
	Electromagnetic Fields	3	0	3		
	Signals and Systems	3	3	4		
	Measurement & Instrumentation	3	3	4		
Electronics Engineering Core (Breadth)	Communication Systems	3	3	4	6	23
	Introduction to Embedded System	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		
Electronics Engineering Specialization Based Electives (Depth)	Depth Elective-I: Integrated Electronics	3	3	4	6	23
	Depth Elective-II: FPGA Based Digital Design	3	3	4		
	Depth Elective-III: Optoelectronics	2	1	3		
	Depth Elective-IV: Digital Control Systems	3	3	4		
	Depth Elective-V: Embedded Systems Design	3	3	4		

	Depth Elective-VI: Digital Signal Processing	3	3	4		
IDEE	IDEE-I: Computer Communication Networks	3	3	4	2	7
	IDEE-II: Mechatronic Systems and Applications	3	0	3		
Senior Design Project	Final Year Project-I	0	9	3	2	6
	Final Year Project-II	0	9	3		
Total					**28**	**97 (71%)**

Table 3: Sum of Table 1 and Table 2

	CH Theory	**CH Practical**		**Subjects**	**Credit Hours**
GRAND TOTAL	**107**	**30**		**43**	**137**

Semester Wise Breakup of BE-Electronic Engineering with Knowledge Area

FIRST SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
01	ENG-111	Functional English	(3+0)	Humanities and Social Sciences (English)	English Language Proficiency of Intermediate
02	MTH-108	Applied Calculus	(3+0)	Natural Sciences (Math)	Nil
03	CS-150	Introduction to Computing	(2+1)	Computing	Nil
04	EL-116	Applied Physics	(3+1)	Natural Sciences (Physics)	F.Sc. Physics
05	SS-125	Professional Ethics	(2+0)	Humanities and Social Sciences (Elective-I)	H.Sc. Pre-Engineering
06	ES-102	Electronics Workshop	(0+1)	Engineering (Foundation)	Nil
TOTAL			**(13+3)**		

SECOND SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
07	MTH-112	Linear Algebra & Analytical Geometry	(3+0)	Natural Sciences (Math)	Applied Calculus
08	CS-113	Computer Programming	(2+1)	Computing	Introduction to Computing
09	ES-112	Basic Electronics	(3+1)	Engineering (Foundation)	Nil
10	EL-107	Electrical Circuits	(3+1)	Engineering (Foundation)	Applied Physics
11	PS-106	Pakistan Studies	(2+0)	Humanities and Social Sciences (Culture)	F.Sc. Pakistan Studies
12	SS-111/104	Islamic Studies/Ethics	(2+0)	Humanities and Social Sciences (Culture)	Nil
TOTAL			**(15+3)**		

THIRD SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
13	MTH-212	Differential Equations & Fourier Series	(3+0)	Natural Sciences (Math)	Applied Calculus, Linear Algebra and Analytical Geometry
14	ES-203	Electronic Circuit Design	(3+1)	Engineering Core (Breadth-I)	Basic Electronics
15	ES-225	Digital Electronics	(3+1)	Engineering (Foundation)	Nil
16	ES-223	Measurements & Instrumentation	(3+1)	Engineering (Foundation)	Nil
17	INM-291	Engineering Management	(2+0)	Management Sciences (Elective-I)	Nil
18	CS-215	Computer Aided Engineering Design	(0+1)	Engineering (Foundation)	Introduction to Computing, Computer Programming
TOTAL			**(14+4)**		

FOURTH SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
19	MTH-213	Complex Variables & Transforms	(3+0)	Natural Science (Math)	Applied Calculus, Linear Algebra and Analytical Geometry
20	EL-202	Electrical Machines	(2+1)	Engineering Core (Breadth)	Applied Physics
21	ENG-201	Communication Skills	(2+0)	Humanities and Social Sciences (English)	Nil
22	ES-243	Electromagnetic Fields	(3+0)	Engineering (Foundation)	Linear Algebra & Analytical Geometry, Applied physics
23	ES-253	Integrated Electronics	(3+1)	Engineering Depth Elective-I	Electronic Circuit Design
TOTAL			**(13+2)**		

FIFTH SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
24	ES-304	Signals & Systems	(3+1)	Engineering (Foundation)	Electrical Circuits, Complex Variables & Transforms
25	ES-314	Introduction to Embedded Systems	(3+1)	Engineering Core (Breadth)	Digital Electronics
26	SS-338	Sociology for Engineers	(2+0)	Humanities and Social Sciences (Elective-II)	----
27	ES-319	Power Electronics	(3+1)	Engineering Core (Breadth-II)	Basic Electronics
28	MTH-310	Numerical Methods	(3+1)	Natural Sciences (Math Elective)	Intermediate Mathematics
TOTAL			**(14+4)**		

SIXTH SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
29	ES-385	Communication Systems	(3+1)	Engineering Core (Breadth)	Electronic Circuit Design, Signals and Systems
30	ES-353	Control System	(3+1)	Engineering Core (Breadth)	Complex Variables & Transforms, Signals and Systems
31	ES-324	Probability and Random Signals	(3+0)	Engineering (Foundation)	Nil
32	ES-373	FPGA Based Digital Design	(3+1)	Engineering Depth Elective-II	Digital Electronics
33	ES-397	Optoelectronics	(2+1)	Engineering Depth Elective-III	------
TOTAL			**(14+4)**		

SEVENTH SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
34	TL-416	Computer Communication & Networking	(3+1)	Inter-disciplinary IDEE-I	Communication Systems
35	ES-413	Digital Control System	(3+1)	Engineering Depth Elective-IV	Control Systems
36	ES-423	Embedded Systems Design	(3+1)	Engineering Depth Elective-V	Introduction to Embedded Systems
37	ENG-401	Technical Report Writing & Presentation Skills	(2+0)	Humanities and Social Sciences (English)	Functional English
38	ES-499	Electronic Engineering Project-1	(0+3)	Project	-----
TOTAL			**(11+6)**		

EIGHTH SEMESTER					
Sr.#	**Code**	**Title**	**Credit Hours**	**Knowledge Area**	**Pre-requisites**
39	SS-411	Entrepreneurship	(3+0)	Management Sciences (Elective-II)	
40	ES-433	Digital Signal Processing	(3+1)	Engineering Depth Elective-VI	Signals & Systems
41	ES-451	Mechatronic Systems and Applications	(3+0)	Inter-disciplinary IDEE-II	Digital Control Systems, Embedded Systems Design
42	CS-490	Artificial Intelligence	(3+1)	Computing Elective	Computer Programming, Complex Variables & Transforms
43	ES-499	Electronic Engineering Project-2	(0+3)	Project	----------
TOTAL			**(12+5)**		