

## Scheme of Studies for B.Sc. Electrical Engineering

Department of Electrical Engineering  
Mirpur University of Science & Technology  
Session 2019-23 (Revised)

Duration:	4-7 Years
Semesters:	8-14 Semesters
Number of weeks per semester:	18 (16 for teaching and 2 for examination)
Total number of Credit Hours (CH)	135
Core Electrical Engineering - Power	92
Core Electrical Engineering - Electronics	92
Core Electrical Engineering - Communication	92
Number of CH per semester:	15-18
Engineering Domain Courses: (Power/ Electronics/ Communication)	92 CH (68.1%)
Non-Engineering Domain Courses:	43 CH (31.9%)
Internship/Practical Training:	S/U Basis

Semester 1									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-111	Linear Circuit Analysis	Foundation	3	1	4	3	3	6	
EE-112	Introduction to Computing	Computing	1	1	2	1	3	4	
EE-113	Workshop Practice	Foundation	0	1	1	0	3	3	
GS-114	Applied Physics	Natural Sciences	3	1	4	3	3	6	
GS-115	Calculus and Analytical Geometry	Natural Sciences	3	0	3	3	0	3	
HS-116	Functional English	Humanities and Social Sciences	3	0	3	3	0	3	
<b>Total</b>			13	4	17	13	12	25	

Semester 2									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE -121	Programming Fundamentals	Computing	2	1	3	2	3	5	
HS -122	Health Safety and Environment	IDEE-I	3	0	3	3	0	3	
EE -123	Basic Electronics	Foundation	3	1	4	3	3	6	
GS -124	Linear Algebra	Natural Sciences	3	0	3	3	0	3	
HS -125	Communication Skills	Humanities and Social Sciences	2	0	2	2	0	2	
HS -126	Islamic Studies	Humanities and Social Sciences	3	0	3	3	0	3	
<b>Total</b>			16	2	18	16	6	22	

Semester 3									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-231	Probability Methods in Engineering	Foundation	2	0	2	2	0	2	
EE-232	Data Structures and Algorithms	Computing	2	1	3	2	3	5	EE-121
EE-233	Digital Logic Design	Foundation	3	1	4	3	3	6	
EE-234	Engineering Drawing	Foundation	0	1	1	0	3	3	
HS-235	Pakistan and Kashmir Studies	Humanities and Social Sciences	3	0	3	3	0	3	
GS-236	Differential Equations	Natural Sciences	3	0	3	3	0	3	
<b>Total</b>			13	3	16	13	9	22	

Semester 4									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-241	Electrical Machines-I	Core (Breadth)	2	1	3	2	3	5	
EE-242	Signal and Systems	Foundation	2	1	3	2	3	5	
EE-243	Electrical Network Analysis	Foundation	3	1	4	3	3	6	EE-111
HS-244	Technical Report Writing	Humanities and Social Sciences	3	0	3	3	0	3	
GS-245	Complex Variables and Transforms	Natural Sciences	3	0	3	3	0	3	
Total			13	3	16	13	9	22	

Semester 5									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-351	Linear Control Systems	Core (Breadth)	3	1	4	3	3	6	
EE-352	Microprocessor Systems	IDEE-II/ Core (Breadth)	2	1	3	2	3	5	
EE-353	Electromagnetic Field Theory	Foundation	3	0	3	3	0	3	
EE-354	Power Electronics	Depth Elective (P)	2	1	3	2	3	5	
		Breadth Core-1 (E)							
EE-355	Electronic Circuit Design	Breadth Core-II (E)	3	1	4	3	3	6	
		Breadth Core-1 (C)							
Total			13	4	17	13	12	25	

Semester 6									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-361	Communication System	Core (Breadth)	2	1	3	2	3	5	EE-242
HS-362	Engineering Management and Entrepreneurship	Management Sciences	3	0	3	3	0	3	
EE-363	Instrumentation and Measurement	Depth Elective (P/E/C)	3	1	4	3	3	6	
EE-364	Electrical Machines-II	Core (Breadth)	3	1	4	3	3	6	
HS-365	Arabic	Humanities and Social Sciences	2	0	2	2	0	2	
Total			13	3	16	13	9	22	

Semester 7 (Power)									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-471	Power System Analysis	Breadth Core-I (P)	3	1	4	3	3	6	
EE-472	Power Distribution and Utilization	Breadth Core-II (P)	3	1	4	3	3	6	
EE-473	Power Generation	Depth Elective (P)	2	0	2	2	0	2	
EE-474	Electrical Power Transmission	Depth Elective (P)	3	1	4	3	3	6	
EE-475	Final Year Project-I	Senior Design Project	0	3	3	0	9	9	
Total			11	6	17	11	18	29	

Semester 7 (Electronics)									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-471	Introduction to Nanotechnology	Depth Elective (E)	3	0	3	3	0	3	
EE-472	Digital System Design	Depth Elective (E)	3	1	4	3	3	6	EE-233
EE-473	Digital Control System	Depth Elective (E)	3	0	3	3	0	3	EE-351
EE-474	Digital Signal Processing	Depth Elective (E)	3	1	4	3	3	6	EE-242
EE-475	Final Year Project-I	Senior Design Project	0	3	3	0	9	9	
Total			12	5	17	12	15	27	

Semester 7 (Communication)									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
EE-471	Satellite Communication	Depth Elective (C)	3	0	3	3	0	3	
EE-472	Computer Communication Networks	Breadth Core (C)	3	1	4	3	3	6	
EE-473	Digital Communication	Depth Elective (C)	3	0	3	3	0	3	
EE-474	Digital Signal Processing	Depth Elective (C)	3	1	4	3	3	6	EE-242
EE-475	Final Year Project-I	Senior Design Project	0	3	3	0	9	9	
Total			12	5	17	12	15	27	

Semester 8 (Power/ Electronics/ Communication)									
Code	Course Title	Knowledge Area	Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
HS-481	Engineering Ethics	Humanities and Social Sciences	2	0	2	2	0	2	
HS-482	Engineering Economics	Humanities and Social Sciences	3	0	3	3	0	3	
GS-483	Numerical Analysis	Natural Sciences	3	0	3	3	0	3	
	Inter-Deciplinary Engineering Elective	IDEE-II	3	0	3	2	3	5	
	Engineering Elective (Power/ Electronics/ Communication)	Depth Elective (P) Depth Elective (E) Depth Elective (C)	3	1	4	3	3	6	
EE-486	Final Year Project-II	Senior Design Project	0	3	3	0	9	9	
Total			14	4	18	13	15	28	
List of Elective Courses (Power)									
Code	Course Title								Pre-requisites
EE-48E1	Power System Protection								
EE-48E2	Renewable Energy Systems								
EE-48E3	Power System Operation and Control								
EE-48E4	Smart Grid								
EE-48E5	High Voltage Engineering								
EE-48E6	Electrical Machine Design								
List of Elective Courses (Electronics)									
Code	Course Title								Pre-requisites
EE-48E1	VLSI Design								
EE-48E2	Opto-Electronics								
EE-48E3	Integrated Electronics								
EE-48E4	Medical Robotics								
EE-48E5	Wave Propagation and Antennas								
EE-48E6	RF and Microwave Engineering								
EE-48E7	Biomedical Instrumentation								
List of Elective Courses (Communication)									
Code	Course Title								Pre-requisites
EE-48E1	Wireless and Mobile Communications								
EE-48E2	Optical Communication								
EE-48E3	Navigation and Radar Systems								
EE-48E4	Digital Image Processing								
EE-48E5	Wave Propagation and Antennas								
EE-48E6	RF and Microwave Engineering								
List of IDEEs									
Code	Course Title		Credit Hours			Contact Hours			Pre-requisites
			Theory	Practical	Total	Theory	Practical	Total	
ME-48E1	Engineering Mechanics		3	0	3	3	0	3	
ME-48E2	Applied Thermodynamics		3	0	3	3	0	3	