Department of Electronics Engineering Curriculum for Session 2K23 onwards in accordance with PEC/HEC guidelines					
Semester-I				
Code	**Course Title**	**Knowledge Area**	**CHs**	**Pre-Requisites**
BH-111	Functional English	Humanities (English)	3	
BH-112	Calculus-I	Natural Sciences (Maths/ Eq Quantitative Reasoning-I)	3	
BH-113	Applied Physics	Natural Sciences (Physics)	3	
BH-113-L	Applied Physics	Natural Sciences (Physics)	1	
CS-114	Computer Fundamentals & Programming	Computer and Information Sciences	2	
CS-114-L	Computer Fundamentals & Programming	Computer and Information Sciences	1	
BH-115	Islamic Studies/Ethics	Humanities (Culture)	2	
EN-116-L	Workshop Practice	Engineering Foundation	1	
		Th./Lab. Semester Total	13+03=16	
Semester-II				
CS-121	Object Oriented Programming	Computer and Information Sciences	2	Computer Fund. & Prog.
CS-121-L	Object Oriented Programming	Computer and Information Sciences	1	
BH-122	Differential Equations	Natural Sciences (Maths)	3	Calculus-I
BH-123	Calculus-II	Natural Sciences (Maths/Eq Quantitative Reasoning-II)	3	Calculus-I
EN-124	Circuit Analysis-I	Engineering Foundation	3	
EN-124-L	Circuit Analysis-I	Engineering Foundation	1	
EN-125	Solid-State Electronics	Engineering Foundation	3	
BH-126	Civics and Community Engagement	Humanities (Social Sciences)	2	
		Th./Lab. Semester Total	16+2=18	
		Total for First Year	34	
Semester-III				
BH-211	Linear Algebra	Natural Sciences (Maths)	3	
BH-212	Expository Writing	Humanities (English)	3	
EN-213	Digital Logic Design	Engineering Foundation	3	
EN-213-L	Digital Logic Design	Engineering Foundation	1	
EN-214	Circuit Analysis-II	Engineering Foundation	3	Circuit Analysis-I
EN-214-L	Circuit Analysis-II	Engineering Foundation	1	
EN-215	Electronic Devices & Circuits	Engineering Foundation	3	Solid State Electronics
EN-215-L	Electronic Devices & Circuits	Engineering Foundation	1	
		Th./Lab. Semester Total	15+03=18	
Semester-IV				
BH-221	Complex Variables & Transforms	Natural Sciences (Maths)	3	Differential Equations
EN-222	Probability & Random Variables	Engineering Foundation	3	
EN-223	Microprocessors & Micro controllers	Engineering Breadth	3	Digital Logic Design
EN-223-L	Microprocessors & Micro controllers	Engineering Breadth	1	
EN-224	Electrical Machines	Engineering Breadth	3	Circuit Analysis-II
EN-224-L	Electrical Machines	Engineering Breadth	1	
EN-225	Electronic Circuit Design	Engineering Breadth	3	Electronic Devices & Circuits
EN-225-L	Electronic Circuit Design	Engineering Breadth	1	

		Th./Lab. Semester Total	15+03=18	
		Total for Second Year	36	
Semester-V				
BH-311	Social Sciences Elective	Humanities (Social Sciences)	2	
EN-312	Integrated Electronics	Engineering Depth	3	Electronic Circuit Design
EN-312-L	Integrated Electronics	Engineering Depth	1	
EN-313	Signals Processing	Engineering Breadth	3	Complex Variables and Transform
EN-313-L	Signals Processing	Engineering Breadth	1	
EN-314	Electromagnetic Field Theory	Engineering Foundation	3	Calculus-II
EN-315	Instrumentation & Measurements	Engineering Breadth	3	
EN-315-L	Instrumentation & Measurements	Engineering Breadth	1	
EN-316	Occupational Health and Safety	Multidisciplinary Engineering Courses	1	
		Th./Lab. Semester Total	15+03=18	
Semester-VI				
BH-321	Applications of ICT	Humanities (Social Sciences)	2	
BH-321-L	Applications of ICT	Humanities (Social Sciences)	1	
EN-322	Analog & Digital Communication	Multidisciplinary Engineering Courses	2	Signal Processing
EN-322-L	Analog & Digital Communication	Multidisciplinary Engineering Courses	1	
EN-323	Control Systems	Engineering Breadth	3	Complex Variables & Transforms
EN-323-L	Control Systems	Engineering Breadth	1	
EN-324	Power Electronics	Engineering Depth	3	Circuit Analysis-II
EN-324-L	Power Electronics	Engineering Depth	1	
BH-325	Ideology and Constitution of Pakistan	Humanities (Culture)	2	
		Th./Lab. Semester Total	12+04=16	
		Total for Third Year	34	
Semester-VII				
MS-411	Project Management	Management Sciences (Professional Practice)	2	
EN-412	VLSI Design	Engineering Depth	3	Integrated Electronics
EN-412-L	VLSI Design	Engineering Depth	1	
EN-4XX	Elective-I	Engineering Depth	3	
EN-4XX-L	Elective-I	Engineering Depth	1	
XX-4XX	Elective-II	Multidisciplinary Engineering Courses	2	See list of Multidisciplinary Elective Courses
XX-4XX-L	Elective-II	Multidisciplinary Engineering Courses	0/1	
EN-499A-L	Electronics Engineering Project	Final Year Design Project (FYDP)	3	
		Th./Lab. Semester Total	10+5/6= 15/16	
Semester-VIII				
MS-421	Entrepreneurship	Management Sciences (Professional Practice)	2	
BH-422	Language-Elective	Humanities (Culture)	2	
EN-4XX	Elective-III	Engineering Depth	3	See list of Elective Courses
EN-4XX-L	Elective-III	Engineering Depth	0/1	
EN-4XX	Elective-IV	Engineering Depth	3	See list of Elective Courses
EN-4XX-L	Elective-IV	Engineering Depth	0/1	

EN-499B-L	Electronics Engineering Project	Final Year Design Project (FYDP)	3	
		Th./Lab. Semester Total	10+3/5=13/15	
		Total for Final Year	28/31	
		Grand Total for Four Years	132/135	

List of Elective Courses				
I.	**Engineering Elective Courses**			
Code	**Course Title**	**Lec.**	**Lab.**	**Pre-Requisites**
EN-413	FPGA-based System Design	3	1	Digital Logic Design
EN-414	Embedded Systems Design	3	1	Microprocessors & Microcontrollers
EN-415	Microelectronics Technology	3	0	
EN-416	Microprocessor-based System Design	3	1	Microprocessors & Microcontrollers
EN-417	Digital System Design	3	1	Integrated Electronics
EN-418	Opto-Electronic Devices	3	0	Applied Physics
EN-419	Analog & Mixed Signal Design	3	1	Integrated Electronics
EN-420	IC Testing and Verification	3	0	
EN-421	Computer Architecture	3	1	Microprocessors and Microcontrollers
EN-422	Industrial Electronics	3	1	Power Electronics
EN-423	Industrial Automation	3	1	Instrumentation & Measurements
EN-424	Digital Control Systems	3	1	Control Systems
EN-425	State-Space Control Design	3	1	Control Systems
EN-426	Microwave Engineering	3	0	Electromagnetic Field Theory
EN-427	RF Electronics	3	0	Electromagnetic Field Theory
EN-428	Laser and Fiber Optics	3	0	Applied Physics
EN-429	Advanced Signal Processing	3	1	Signal Processing
EN-430	Wireless Communications	3	0	Analog and Digital Communications
EN-431	Wave Propagation and Antennas	3	1	Electromagnetic Field Theory
EN-432	Artificial Intelligence	3	0	Object Oriented Programming
EN-433	Machine Learning	3	0	Object Oriented Programming
EN-434	Operating Systems	3	0	Computer Fundamentals & Programming
EN-435	Introduction to Nanotechnology	3	0	Solid-State Electronics
EN-436	Biomedical Instrumentation	3	1	Instrumentation & Measurements

Note: All the above mentioned Elective courses are either 3+0 credit hours or 3+1 credit hours. The Elective courses (either 3+0 or 3+1) offered by the department in a semester can be changed depending on the availability of teachers and related Lab facility and will be notified before the start of the semester.

II.	**Multidisciplinary Elective Courses**			
CS-437	Computer Communication Networks	2	1	Analog and Digital Communications
CS-438	Telecommunication & Networks	2	0	Analog and Digital Communications
CS-439	Digital Image Processing	2	1	Digital Signal Processing
CS-440	Introduction to Neural Networks	2	0	
CS-441	Fuzzy Logic	2	0	
MT-442	Introduction to Robotics	2	0	Linear Algebra
BH-443	Numerical Methods	2	0	
BH-444	Statistical Methods	2	0	

Note: All the above mentioned Elective courses are either 2+0 credit hours or 2+1 credit hours. The Elective courses (either 2+0 or 2+1) offered by the department in a semester can be changed depending on the availability of teachers and related Lab facility and will be notified before the start of the semester.

III.	**Social Sciences Elective Courses**
Professional and Social Ethics	
Sociology and Development	
Social Anthropology	
Understanding Psychology and Human Behavior	
Applied Psychology	

Organizational Behavior
Introduction to Sociology
Critical Thinking
Introduction to Philosophy
IV.   Language Elective Courses
National Languages
International Languages