



BAHRIA
UNIVERSITY
BACHELOR OF COMPUTER ENGINEERING

Bachelor of Computer Engineering

SEMESTER 1

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
None	CSC-110	Computing Fundamentals	2	0	2
None	CSL-110	Computing Fundamentals Lab	0	1	1
None	EEN-110	Linear Circuit Analysis	3	0	3
None	EEL-110	Linear Circuit Analysis Lab	0	1	1
None	GSC-110	Applied Calculus & Analytical Geometry	3	0	3
None	GSC-113	Applied Physics	3	0	3
None	GSL-113	Applied Physics Lab	0	1	1
None	ENG-103	English- I	2	0	2
None	ISL-101	Islamic Studies/Ethics (for Non-Muslims)	2	0	2
			15	3	18

SEMESTER 2

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
None	CEN-120	Digital Logic Design	3	0	3
None	CEL-120	Digital Logic Design Lab	0	1	1
None	CSC-113	Computer Programming	3	0	3
None	CSL-113	Computer Programming Lab	0	1	1
None	GSC-121	Linear Algebra	3	0	3
EEN-110	EEN-211	Electrical Network Analysis	3	0	3
	EEL-211	Electrical Network Analysis Lab	0	1	1
None	HSS-120	Communication Skills	3	0	3
None	PAK-101	Pakistan Studies	2	0	2
			17	3	20

SEMESTER 3

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
CSC-110	CSC-210	Object Oriented Programming	3	0	3
CSL-110	CSL-210	Object Oriented Programming Lab	0	1	1
GSC-110	GSC-210	Differential Equations	3	0	3
None	CEN-210	Computer Applications in Engineering Design	2	0	2
	CEL-210	Computer Applications in Engineering Design Lab	0	1	1
EEN-110	EEN-210	Basic Electronics	3	0	3
EEL-110	EEL-210	Basic Electronics Lab	0	1	1
CEN-120	CEN-221	Computer Architecture & Organization	3	0	3
CEL-120	CEL-221	Computer Architecture & Organization Lab	0	1	1
			14	4	18

SEMESTER 4

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
CEN-221	CSC-320	Operating Systems	3	0	3
	CSL-320	Operating Systems Lab	0	1	1
		CE Depth Elective I	3	1	4
CSC-210	CSC-221	Data Structures & Algorithms	3	0	3
CSL-210	CSL-221	Data Structures & Algorithms Lab	0	1	1
GSC-110	GSC-220	Complex Variables & Transforms	3	0	3
CSC-210	CSC-220	Database Management Systems	3	0	3
CSL-210	CSL-220	Database Management Systems Lab	0	1	1
			15	4	19

SEMESTER 5

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
GSC-121/GSC-210	GSC-320	Numerical Analysis	3	0	3
GSC-210/GSC-220	EEN-313	Signals & Systems	3	0	3
	EEL-313	Signals & Systems Lab	0	1	1
		CE Depth Elective II	3	1	4
		CE Depth Elective III	3	1	4
None	GSC-221	Discrete Mathematics	3	0	3
			15	3	18

SEMESTER 6

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
None	GSC-122	Probability & Statistics	3	0	3
None	CEN-222	Data Communication & Networking	3	0	3
	CEL-222	Data Communication & Networking Lab	0	1	1
CEN-221	CEN-321	Microprocessor & Interfacing	3	0	3
CEL-221	CEL-321	Microprocessor & Interfacing Lab	0	1	1
None	HSS-320	Technical Writing & Presentation Skills	3	0	3
		CE Depth Elective IV	3	1	4
			15	3	18

SEMESTER 7

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
None	ESC-498	Project I	0	3	3
None	HSS-411	Engineering Economics & Management	3	0	3
		IDEE-I	3	0	3
		CE Depth Elective V	3	1	4
			9	4	13

SEMESTER 8

Pre-Req	Course Code	Course Title	Theory	Lab	Total Credit Hours
	ESC-499	Project II	0	3	3
None	HSS-421	Entrepreneurship & Leadership	3	0	3
		IDEE-II	3	1	4
None	HSS-422	Engineering Ethics	3	0	3
			9	4	13

CE Depth Elective Courses (20 Credit Hours)

Pre-Req	Course Code	Course Title	Total Credit Hours	Theory	Lab
CSC-320/CEN-321	CEN-454	System Programming	4	3	1
EEN-313	EEN-325	Digital Signal Processing	4	3	1
CEN-221	CEN-442	Digital System Design	4	3	1
EEN-210	EEN-224	Electronic Devices & Circuits	4	3	1
CEN-321	CEN-440	Embedded System Design	4	3	1
EEN-210	EEN-442	Digital Electronics	4	3	1
CEN-120	CEN-452	VLSI Design	4	3	1
CSC-320/CEN-221	CSC-456	Distributed Computing	3	2	1
CEN-120	CEN-443	Fault Tolerant System	4	3	1
CSC-320	CEN-453	Real Time Systems	3	3	0

INTER-DISCIPLINARY ENGINEERING ELECTIVES**IDEE-I (3 Credit Hours)**

Pre-Req	Course Code	Course Title	Total Credit Hours	Theory	Lab
CSC-411	CSC-449	Neural Networks and Fuzzy logic	3	3	0
CSC-221	CSC-411	Artificial Intelligence	3	2	1
CSC-221	SEN-220	Software Engineering	3	3	0
EEN-313	EEN-467	Control Engineering	3	3	0
EEN-313	EEN-468	Introduction to Communication Systems	3	2	1
	EEN-466	Nanotechnology	3	3	0

IDEE-II (4 Credit Hours)

Pre-Req	Course Code	Course Title	Total Credit Hours	Theory	Lab
	EEN-444	Opto-electronics	4	3	1
EEN-313	CEN-444	Digital Image Processing	4	3	1
EEN-467	CEN-458	Robotics	4	3	1
CEN-222	EET-456	Telecom. Transmission & Switching Systems	4	3	1
CEN-222	EET-455	Wireless Communication	4	3	1
EET-321	EET-411	Digital Communications	4	3	1

PROGRAM SUMMARY	
Duration	4 Years
Number of Semesters	8
Number of weeks per semester	18 (16 for teaching and 2 for exams.)
Total number of credit hours	137
Non-Engineering Courses (Minimum)	30 – 35 percent
Engineering Courses (Maximum)	65 – 70 percent

Domain	Knowledge Area	Total Courses	Total Credits	% Overall CrHrs
Non-Engineering	Humanities	6	16	32%
	Management Sciences	2	6	
	Natural Sciences	7	22	
	Sub Total	15	44	
Engineering	Computing	3	10	68%
	Engineering Foundation	8	31	
	Computer Engg. Core (Breadth)	5	19	
	Computer Engg. Depth Electives	5	20	
	Inter-Disciplinary Engineering Breadth (Electives)	2	7	
	Final Year Project	2	6	
	Industrial Training (Summer)	0	0	
Sub Total	25	93		
Grand Total		40	137	100%