PROPOSED SCHEME OF STUDY FROM FALL 2025 – ONWARDS

B.E. ELECTRICAL

AS PER HEC POLICY

NHU – NAZEER HUSSAIN UNIVERSITY, PAKISTAN

I SEMESTER (6 Courses + 4 Labs)			Pre-Requisite
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
HS-101	Functional English	2+0	None
NS-102	Calculus and Analytical Geometry	3+0	None
HS-103	Understanding of Quran – I/Civics & Community Engagement-I (For Non-Muslims)	0+1	None
NS-105	Applied Physics	3+1	None
CS-100	Computing and Programming Fundamentals	3+1	None
EE-102	Linear Circuit Analysis	3+1	None
EE-105	Workshop Practice	0+1	None
	Total Semester Credit Hours	**14+5=19**	
II SEMESTER (6 Courses + 2 Labs)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
HS-102	Islamic Studies / Ethics	2+0	None
ME-102	Thermodynamics (IDEE)	2+0	None
HS-104	Communication Skills	2+0	None
NS-107	Differential Equations	3+0	Calculus and Analytical Geometry
HS-108	Pakistan Studies	2+0	None
CS-104	Object Oriented Programming	3+1	Computing and Programming Fundamentals
EE-103	Electronic Devices and Circuits	3+1	None
	Total Semester Credit Hours	**17+2=19**	
III SEMESTER (6 Courses + 3 Labs)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
HS-203	Ideology of Pakistan	1+0	None
HS-205	Understanding of Quran – II/Civics & Community Engagement-II (For Non-Muslims)	0+1	None
NS-203	Complex Variables and Transforms	3+0	Differential Equations
EE-202	Electronic Circuit Design	3+1	Electronic Devices and Circuits
EE-201	Digital Logic Design	3+1	Electronic Devices and Circuits
EE-204	Electrical Network Analysis	3+1	Linear Circuit Analysis
	Total Semester Credit Hours	**13+4=17**	
IV SEMESTER (5 Courses + 3 Labs)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
NS-204	Linear Algebra	3+0	Calculus and Analytical Geometry
xx-xxx	Probability and Statistics	3+0	Calculus & Analytical Geometry
ME-201	Mechanical Engineering	2+0	None
EE-208	Microprocessor Based Systems and Applications	3+1	Digital Logic Design
TE-201	Signals and Systems	3+1	Electrical Network Analysis, Complex Variables & Transforms
EE-203	Computer Aided Engineering Drawing	0+1	None
	Total Semester Credit Hours	**15+3=18**	
V SEMESTER (5 Courses + 3 Labs)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
EE-301	Electrical Machines	3+1	Electrical Network Analysis
EE-307	Electromagnetic Field Theory	3+0	Complex Variables and Transforms
EE-302	Power Electronics	3+1	Electronic Circuit Design

EE-308	Power Distribution and Utilization	3+0	Electrical Network Analysis
	Communication Systems	3+1	Signals and Systems, Probabilistic Methods in Engineering
	Total Semester Credit Hours	**14+3=17**	
VI SEMESTER (5 Courses + 3 Labs)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
HS-301	Technical and Business Writing	3+0	None
EE-305	Instrumentation & Measurements	3+1	Electrical Network Analysis, Digital Logic Design
EE-303	Robotics and Artificial Intelligence	3+0	Linear Algebra
EE-304	Linear Control Systems	3+1	Signals and Systems
HS-307	Cooperative Housing Societies	N/C	
XX-XXX	Depth Elective – I:	3+1	As per HEC NCRC
	Total Semester Credit Hours	**15+3=18**	
VII SEMESTER (5 Courses + 1 Labs)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
HS-401	Professional Ethics	3+0	None
MS-402	Engineering Economics and Management	3+0	None
XX-XXX	Depth Elective – II:	3+1	As per HEC NCRC
XX-XXX	Depth Elective – III:	3+0	As per HEC NCRC
EE-411	Final Year Project Part – I	0+3	None
HS-100	Community Service	Non-Credit	None
	Total Semester Credit Hours	**12+4=16**	
VIII SEMESTER (5 Courses + 1 Lab)			**Pre-Requisite**
Course Code	**Course Title**	**Cr. Hr.**	**Course Title**
HS-402	Organizational Behaviour	3+0	None
MS-401	Technopreneurship	3+0	None
XX-XXX	Depth Elective – IV:	3+1	As per HEC NCRC
XX-XXX	Depth Elective – V:	3+0	As per HEC NCRC
EE-412	Final Year Project Part – II	0+3	None
	Total Semester Credit Hours	**12+4=16**	

Proposed Programme Summary – B.E. Electrical	
Duration of Programme	4 Year
Number of Semesters	8
Average number of courses per semester	5 or 6
Total Credit Hours	139
Total Number of Courses	43 + Final Year Project (Part – I and II)

Programme Comparison Summary HEC and NHU – B.E. Electrical		
Description	**HEC**	**NHU**
Duration of Programme:	4 Year	4 Year
Number of Semesters	8	8
Average number of courses per semester	5 or 6	5 or 6
Total Credit Hours	130 – 136	140
Total Number of Courses	42	43 + FYP Project (I & II)
Engineering Domain Courses	65% to 70%	6%
Non-Engineering Domain Courses	30% to 35%	31%

Engineering: 95 Credit Hours **Non-Engineering: 42 Credit Hours**

List of Breath Core

- PE-404 Power System Analysis
- CS-426 Computer Communication Networks
- CS-302 Operating Systems

List of Elective Courses

- Integrated Electronics (EE-309)
- VLSI Design
- Industrial Electronics (EE-404)
- Solid State Devices
- Microelectronics Technology
- Optoelectronics (EE-306)
- Digital System Design
- Introduction to Nanotechnology
- Digital Signal Processing (EE-402)
- Wave Propagation and Antenna
- Digital Control Systems
- RF and Microwave Engineering
- Biomedical Instrumentation
- Data Communications
- Medical Robotics
- Digital Image Processing
- Internet of Things (IoT)
- Digital Systems Design
- Embedded Systems
- Antennas and Wave Propagation
- Instrumentation and Measurements
- Wireless and Mobile Communications (TE-402)
- Satellite Communication
- Optical Communication
- Emerging Wireless Technologies and RF Planning
- Telecommunication policies and standards
- Power Generation
- Electrical Power Transmission
- Power System Protection
- Power System Operation & Control
- Electrical Machine Design and Maintenance
- High Voltage Engineering
- Renewable Energy Systems
- Industrial Drives
- FACTS and HVDC Transmission
- Smart Grid
- Electric Vehicles