

# PhD Electrical Engineering

**Credit Hours:** 54

**Duration:** Minimum 3 Years and maximum six years

## Criteria for PhD programs

Bahria University follows rules and regulation set by higher education commission (HEC) Pakistan for admission to PhD programs

## Academic Requirements

18 year of education (MS/MPHIL/equivalent degree) in relevant discipline from an HEC recognized university with a minimum CGPA of 3.00/4.00 (semester system) or 60% marks (annual system). HEC's Attestation is required for all local degrees (on the back of original degree. HEC's equivalent certificate would be required for the candidate with foreign degree

## Aptitude test

NTS-GAT (Subject test), or GRE (subject test), or university Based Test passed with minimum 60 marks. Result has to be submitted at the time of admission

## Program Structure

The program structure for the PhD is as follows.

S No.	Activity	Credits
1.	Course work	18
2.	Thesis	36
<b>Total</b>		<b>54</b>

## Road Map

The proposed road map of the PhD program is presented in the following. After passing the 18 credit hours course work, preferably in the first two semesters, the candidate will have to pass comprehensive exam. After qualifying the comprehensive exam, candidate will have to defend the synopsis and will be offered Supervised Research (PhD Thesis) of 36 credit hours.

**SEMESTER I**

<b>Course Code</b>	<b>Subject</b>	<b>Credits</b>
EEN-801	Research Methods in PhD Studies	3
	Elective-I	3
	Elective-II	3
Total credit hours for the 1 <sup>st</sup> semester		<b>9</b>

**SEMESTER II**

<b>Course Code</b>	<b>Subject</b>	<b>Credits</b>
	Elective-III	3
	Elective-IV	3
	Elective-V	3
Total credit hours for the 2 <sup>nd</sup> semester		<b>9</b>

**SEMESTER III**

<b>Course Code</b>	<b>Subject</b>	<b>Credits</b>
EEN-901	Comprehensive Exam	0
EEN-902	Supervised Research (PhD Thesis) including defense and acceptance of research proposal	9
Total credit hours for the 3 <sup>rd</sup> semester		<b>9</b>

**SEMESTER IV**

<b>Course Code</b>	<b>Subject</b>	<b>Credits</b>
EEN-902	Supervised Research (PhD Thesis) including design and implementation of the proposed solution	9
Total credit hours for the 4 <sup>th</sup> semester		<b>9</b>

### SEMESTER V

Course Code	Subject	Credits
EEN-902	Supervised Research (PhD Thesis) including analysis of the results and thesis write-up	9
Total credit hours for the 5 <sup>th</sup> semester		9

### SEMESTER VI

Course Code	Subject	Credits
EEN-902	Supervised Research (PhD Thesis) - Submission of the final thesis for evaluation.	9
Total credit hours for the 6 <sup>th</sup> semester		9
<b>Total Credit hours for PhD Program</b>		<b>54</b>

## PhD Course List (Faculty of Engineering & Sciences)

PhD students, as a part of their course work, are allowed to enroll in 700 or plus level courses (not in the PhD course list given below), if offered in MS programs at BU with the approval of FDRC.

S. No.	Course Code	Title of the Course	Credit Hours
1	EEN-710	MOS VLSI Circuit Design	3
2	EEN-711	Real Time DSP Design and Applications	3
3	EEN-712	Advanced Digital Communications	3
4	EEN-801	Research Methods in PhD Studies	3
5	EEN-802	Power management in wired and wireless systems	3

6	EEN-803	Low Power System Design	3
7	EEN-804	Advance System Modeling and Simulation	3
8	EEN-807	Special Topics in distributed systems	3
9	EEN-808	Power awareness in distributed systems	3
10	EEN-813	Power System Stability and Dynamics	3
11	EEN-814	Power System Transients	3
12	EEN-815	HVDC and Flexible AC Transmission	3
13	EEN-816	Rural Electrification and Distributed Generation	3
14	EEN-817	Artificial Intelligence techniques in Power systems	3
15	EEN-818	Power System Deregulation	3
16	EEN-819	Advanced Computer Architecture	3
17	EEN-820	Advanced Embedded Systems	3
18	EEN-821	Advanced Digital Signal Processing	3
19	EEN-822	Advanced Digital System Design	3
20	EEN-823	ASIC Design Methodology	3
21	SEN-805	Power Aware Computing	3
22	SEN-809	Advanced Artificial Intelligence	3
23	SEN-810	Advanced Neural Networks	3
24	SEN-811	Data Ware housing and Mining	3
25	SEN-812	Machine Learning	3

26	SEN-710	Formal Methods and Specifications	3
27	SEN-719	Human Aspects in Software Engineering	3
28	MAT-853	Advanced Engineering Mathematics	3
29	*MGT-801	Logic and Research	3
30	*MGT-802	Advanced Qualitative Research Methods	3
31	*MGT-806	Advanced Quantitative Research Methods	3
32	*MGT-803	Critical Review of Literature	3
33	CSC-750	Computer Vision	3
34	CSC-715	Pattern Recognition	3
35	CSC-815	Agent-Based Modeling	3
36	CSC-816	Bio Medical Image Analysis	3

\* Only one course may be allowed with the approval of FDRC.