

**Guideline for preparing standard curriculum of B S in**  
**Electrical Engineering/**  
**Electrical and Electronic Engineering/**  
**Electronic and Communication Engineering/**  
**Electronic and Telecommunication Engineering**

Submitted by

Standard syllabus guideline making committee

*AD*  
*17/01/2017*

## 1. Introduction

To prepare students to meet their career objectives, the Electrical Engineering/Electrical and Electronic Engineering/Electronic and Communication Engineering/Electronic and Telecommunication Engineering curriculum is suggested to be composed of three stages of education:

(a) one and a half year of a combination of mathematics and basic sciences (some with experimental experience) appropriate to the discipline. The program must demonstrate that graduates have: knowledge of probability and statistics, including applications appropriate to the program name and objectives; and knowledge of mathematics through differential and integral calculus, basic sciences, computer science, and engineering sciences necessary to analyze and design complex electrical/electronic devices/communication technology, software, and systems containing hardware and software components, as appropriate to program objectives. If biomedical engineering considers as an area of concentration, an additional course (3 credit hours minimum) on biology must be included.

(b) one and a half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study. The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program.

(c) a general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives. Students take minimum six courses from Language, social science and humanities. In general, (i) one must be a first year course in English Literature and Composition and Bangla; (ii) two or three courses from the list of social science courses, and (iii) one or two course from the list of approved humanities courses.

The curriculum must combine general education requirements, basic sciences, technical and professional requirements with electives to prepare students for a professional career and further study in the area of interest.

### Categories of Courses:

#### 1.0 Language and General Education ( $\approx$ 15-18% of total credit-hours)

##### 1.1. Languages

Type	Description	Remarks
English	Composition, writing and Communication	Compulsory: English – one course (minimum 3 credit-hours) Functional Bengali Language – one course (minimum 2 credit-hours)
Bengali	Functional Bengali Language	

   
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### 1.1.1. General Education

Type	Description	Remarks
Social Science	Engineering Economics, Sociology, Financial and Managerial Accounting, Political Science, Environment and Society, Introduction to Human Development, Social Inequality and Planning, etc.	Compulsory: Ethics and environmental Protection (minimum 2 credit hours),
Arts and Humanities	Bangladesh Studies, International Relations, Ethics & Professionalism, history etc.	History of Independence - (minimum 2 credit hours)
Business	Business Communications, Industrial and Operational Management, Technology Entrepreneurship, business management, etc.	

### 1.2. Basic Sciences and Mathematics ( $\approx 20-25\%$ of total credit hours)

#### 1.2.1 Basic Sciences

Type	Description	Remarks
Physics	Physics Topics: mechanics, Waves and Oscillations, electricity and magnetism, light and thermodynamics, modern and Quantum Physics, etc.	Course (courses) should accompanied with appropriate laboratory work.
Chemistry	Chemistry Topics: Inorganic and Quantitative Analysis	

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1.2.2. Mathematics

Type	Description	Remarks
Mathematics	Topics: differential and integral calculus, probability and statistics, complex variables, vector analysis, differential equations, linear algebra, etc.	Minimum four courses.

1.3. Other engineering ( $\approx$ 5-10% of the total credit hours)

Type	Description	Remarks
a. Computer Science and Engineering	Introduction to computer fundamentals, Computer Methods in Engineering, Chemical engineering fundamentals, Engineering Thermodynamics, Civil engineering drawing, computer networks, mechanical engineering fundamentals, etc.	Compulsory:  One course from CSE
b. Mechanical Engineering		
c. Civil Engineering		
d. Chemical Engineering		
e. Or other engineering disciplines		

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1.4. Program Courses (≈50-60%)

1.4.1. Core

Type	Description	Remarks
Power and Circuits a. Circuits b. Energy Conversion c. Power System	Electric Circuits (DC & AC), Energy Conversion, Introduction to Power System Analysis, Materials Sciences for Electrical Engineers, etc.	Compulsory: One course on circuits with laboratory work. One course on energy conversion
Electronics a. Circuits b. Devices c. Fabrication	Electronic Circuits, digital electronics /digital logic design, Fundamentals of semiconductor devices, semiconductor Physics, nanotechnology, Biomedical Electronics, etc.	Compulsory: One course on electronic circuits with laboratory work. One course on semiconductor devices or physics or technology.
Fields & Waves		Compulsory: One course
Communication and Signal Processing	Communication Systems, Signals and Systems, communication systems, digital communication, etc.	Compulsory: One course on signals and systems One course on communication system
Control Systems	Linear control	Compulsory for EE and EEE but not for ETE/ECE
Others	Microprocessors and Interfacing, Computer programming, etc.	Microprocessors and Interfacing is compulsory. Computer programming may be placed under other engineering category.
Project/Thesis/ Internship		Thesis/Project/Internship is compulsory

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1.4.2. Technical Electives (minimum 10%)

Students will take at least two theories and one laboratory courses from her/his major area and three theories and one laboratory courses from other areas.

Type	Areas*
Technical Electives	a. Electric Power b. Electronics c. Communication & Signal Processing d. Computer Engineering e. Biomedical Engineering

\* University may consider areas outside those mentioned.

2. Minimum Credit Hour Requirement for awarding degree

Program	Minimum Credit hour requirement for degree	
	Bi-semester	
	15 weeks of classes + 60 minutes of classroom	14 weeks of classes + 50 minutes of classroom
B. Sc. in EE/EEE/ETE/EC E	120	154

In other cases, the minimum credit hour requirement should be calculated applying the conversion rule.

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