FAREAST INTERNATIONAL UNIVERSITY

SYLLABUS FOR:
BACHELOR OF ENGINEERING IN ELECTRICAL AND ELECTRONIC ENGINEERING (EEE)

DEGREE TITLE: BACHELOR OF SCIENCE (B.Sc.) IN ELECTRICAL AND ELECTRONIC ENGINEERING (EEE)

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING (EEE)

CURRICULAM

INTRODUCTION

Bangladesh is progressing rapidly in technical education for producing technical personnel in the field of Electrical and Electronic Engineering. To maintain a good quality of education in this field Fareast International University decided to open the department of Electrical and Electronic Engineering. . Presently ..... is opening the four years undergraduate (B. Sc in EEE) program with the aim to provide quality education because graduates of the program get positions in a number of specialty areas including digital circuits and VSLI and its fabrication, microprocessors and their applications, electromagnetic, communications, control systems, digital image processing, and computer engineering. There is a good demand of engineers graduating in Electrical and Electronic Engineering specializing in Electrical Power Engineering or Electronic Engineering, Computer Engineering or in Communication Engineering. The foundation and basic courses of Electronic and Telecommunication Engineering is common to Electrical Power Engineering, Computer Engineering, Electronic Engineering, and Telecommunication Engineering.

ADMISSION REQUIREMENT:

Students entering the Bachelor of Engineering in Electrical and Electronic Engineering program for a B.Sc. in Electrical and Electronic Engineering degree, must have completed SSC and HSC with Science or equivalent level of education such as O'Level (Five subjects including Physics, Chemistry and Mathematics) and A'Level (with three major subjects -Physics, Chemistry & Mathematics) or Polytechnic Diploma in a related programs (Electrical/ Electronics/ Computer/ Telecommunication/ Power/Mechanical) and must have good grades.

- The students with S.S.C. and H.S.C. background must have at least 2nd Division in both the exams separately.
- The students with S.S.C. and H.S.C. under CGPA system must have at least a minimum CGPA of 3.00 in both the exams separately.
- The students with 0-Level and A-Level must have an average grade of B.
- The students with Diploma must have at least a CGP A of 3.00

If an applicant doesn't meet these requirements, she/he will not be accepted for Admission. Admission counselors should be consulted for an evaluation of the grades.

COURSE WAIVER:

Considering some of the course content/outline courses under taken during the previous degree/diploma the grade point of waiver shall not exceed of the total credit hour 147.5.

TRANSFER OF CREDIT HOURS:

For transferring the credit hours for a student desires to admit in the department the maximum limit of credit hours considered shall be less than fifty percent of the whole(147.5 credits). In this case the transferred subjects and grades should be considered after the approval of the advisor and the Equivalent committee.

BASIC STRUCTURE:

The total credit requirement for the degree of Bachelor of Electrical and Electronic Engineering (B. Sc in EEE) is 147.5 credits. A regular student should take about 12 credits per semester. Depending on the student's academic standing and the advisor's recommendation a student may take maximum 15 credits and minimum 9 credits for any semester. Considering the even distribution of the credits the length of study for the degree in Bachelor of Electrical and Electronic Engineering (B. Sc in EEE) is recommended to be 4 years (12 semesters). However if any student fails to earn 147.5 credits in 4 years he/she may allowed 3 years to complete the degree. If any student again fails to complete 8 years he may apply to the Academic council for special permission.

DISTRIBUTION OF COURSES(TABLE-1):

The B.Sc. (Engineering) program in the department of Electrical & Electronic Engineering consists of 65 courses carrying 147.5 Credit Hours. The Summary of course distribution is given in the following table:

SL		Types of Courses	Number of Courses	Credit Hours
01	a	Language Requirements Courses	2	6
	b	Foundation Courses	1	3
02		General Education Courses	3	9
03		Basic Science Courses	6	12
04		Mathematics Courses	5	15
05		Interdisciplinary Engineering Courses	3	07
06		Program Core Courses (Theory)	19	57
	a	Program Core Courses (Sessional)	16	16
	b	Technical Elective Major Courses (Theory)	4	12
		Technical Elective Major Courses (Sessional)	2	2
		Technical Elective Minor Courses(Theory & Sessional)	2	4
07		Thesis/Project	2	4.5
		Total	**65**	**147.5**

WEIGHTAGE OF CREDIT HOURS:

The major areas of concentration in EEE are as follows:

I. Electrical Power

II. Electronics

III. Communication Engineering

The courses under Electrical power are- Energy Conversion, Power Plant Engineering, Power System Protection, Power System Realiability.

The courses under Electronics are-Analog Integrated Circuits, Processing and Fabrication Technology Solid State Devices, VLSI, Optoelectronics, Microprocessor and Interfacing.

The courses under Communication Engineering- Digital Signal Processing, Microwave Engineering ,Mobile Cellular Communication, Digital Communication, Telecommunication Engineering.

A student will need to take minimum FOUR Courses from his/her major field of study and TWO Courses from other major fields as minor. Also, a student will take 2sessional courses from his/her major field of study. Any Sessional course must be preceded by the corresponding theory course and vice versa (if any)

STATUS OF THE STUDENT

The status of a student shall be determine by the cumulative credit hour earn by the student. Following table-2 expresses the status of a student:

Table-2

Cumulative Credit Hour	Registered/ Completed	Status of a Student	Cumulative Credit Hour	Registered/ Completed	Status of a Student
14	Registered	1 year 1 semester	110	Completed	3 year 3 semester
14	Completed	1 year 2 semester	122	Completed	4 year 1 semester
28	Completed	1 year 3 semester	133	Completed	4 year 2 semester
41	Completed	2 year 1 semester	141.5	Completed	4 year 3 semester

55	Completed	2 year 2 semester	147.5	Completed	Degree earned
69	Completed	2 year 3 semester			
80	Completed	3 year 1 semester			
95	Completed	3 year 2 semester			

ACADEMIC CALENDER

According to academic calendar there are three semesters semester 1(Spring), semester 2(Summer), semester 3(Fall) in a year (52 weeks). Semester 1 and semester 3 containing 17 weeks (lecture-14 weeks and jury, exam, checking of scripts, result short vacation etc. 3 weeks) and the semester 2 containing 18 weeks(lecture-12 weeks and jury, exam, checking of scripts, result, long vacation etc. 6 weeks).

Table-3

SEMESTER 1 (Spring)	Lecture Jury, Exam, Checking of Scripts , Result, Vacation	14 weeks , 3 weeks,	Total-17 weeks
SEMESTER2 (Summer)	Lecture Jury, Exam, Checking of Scripts Result, Vacation	12 weeks, 6 weeks,	Total-18 weeks
SEMESTER 3 (Fall)	Lecture Jury, Exam, Checking of Scripts , Result, Vacation	14 weeks 3 weeks,	Total-17 weeks
			Total-52 weeks

COURSE NUMBERING

For identification of a course in the program, the following code plan has been adapted: A 7-8 characters identification code will be used. First 3-4 characters will be alphabetic characters (e.g., EEE or CHEM for example) and last three characters will be numeric. Of the three numeric digits, First Digit stands for Year, the Second Digit stands for Semester ,the Third digit stands for whether the subject is theoretical or Sessional.

Further, an odd number in the third digit has been assigned to theory course and the even number has been assigned to laboratory course.

ASSESMENT OF SESSIONAL COURSES

The marks distribution for Sessional courses is as follows:
Each course will have 100 marks for Sessional courses, out of which

- 50% marks is allotted for running assessment and
- 50% marks are for Sessional exam, viva, quiz, etc at the end of semester final examination.
- Total 100%

THESIS/ PROJECT

The final design project undertaken by students of 4^{th} year 2^{nd} semester in partial fulfillment of the requirement of the degree of Electrical and Electronic Engineering (B. Sc in EEE) is termed as Thesis

Project. Each student needs to defend his/her thesis project in a Final Committee who will decide the acceptability of the thesis.
The thesis/project enables students to fully articulate their concepts and understanding of Electrical and Electronic Engineering as a discipline. It provides them to career opportunities in a multitude of industries including computers, automobile, power, communications etc. At the same time the thesis/ projects enable the examiners to assess the maturity, competence and the ability of the students, to handle projects independently.

The student prepares and submits a thesis/project proposal for approval of the department. The Thesis/Project should reflect a minimum standard of professional competence.

Listing of Courses:

01. Foundation (University Required) Courses

Foundation course includes courses from English Language, Mathematics, Basic Sciences and Computer. The following tables show the list of foundation courses:

(a) Language Requirements: In this section the minimum requirement is 6 credits

Serial No		Course Title	Contact Hours/Week		Credit Hours	
			Theory	Sessional	Theory	Sessional
1		Fundamental English	3	0	3	0
2		Composition and communication skill	3	0	3	0
Sub-Totals		2 Courses	6	0	6	0
Total:			6		6	

(b) Foundation Courses: This course will be offered to overcome the deficiencies of students in mathematics at intermediate level

Serial No		Course Title	Contact Hours/Week		Credit Hours	
			Theory	Sessional	Theory	Sessional
1		Mathematics -I	3	0	3	0
Sub-Totals		1 Course	3	0	3	0
Total:			3		3	

02. General Education Courses

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Principles of Accounting	3	0	3	0
2		Economic Analysis	3	0	3	0
3		Bangladesh Study	3	0	3	0
Total:			9	0	9	0

03 Basic Science Courses

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Physics I	3	0	3	
2		Physics I Sessional	0	3	0	1
3		Physics II (Electromagnetism, Optics & Modern Physics)	3	0	3	0
4		Physics II Sessional	0	3	0	1
5		Chemistry	3	0	3	0
6		Chemistry Sessional		3	0	1
Sub-Totals			9	9	9	3
Total:		6 Courses	18		12	

04 Mathematics Courses: Minimum Requirements 5 Courses (15 Credits)

SL.		Course Name	Contact Hours/Week	Credit Hours	
				Theory	Sessional
1		Mathematics II	3	3	0
2		Mathematics III	3	3	0
3		Statistics	3	3	0
4		Mathematics IV (Differential Equation and Vector Analysis)	3	3	0
5		Mathematics V	3	3	0

05 Inter-disciplinary Engineering (IDE) Courses:

Serial No		Course Title	Contact Hours/Week		Credit Hours	
			Theory	Sessional	Theory	Sessional
1		Fundamental Mechanical Engg	3	0	3	0
2		Engineering Drawing	0	3	0	1
3		Principles of Management	3	0	3	0
Sub-Totals		4 Courses	9	6	9	2
Total:			9		7	

06. Electrical and Electronic Engineering Courses:

06 (a). Program Core Courses:

Serial No	Course Title	Contact Hours/Week		Credit Hours	
1	Electrical Circuits I	3	0	3	0
2	Electrical Circuits I Sessional	0	3	0	1
3	Electrical Circuits II	3	0	3	0
4	Electrical Circuits II Sessional	0	3	0	1
5	Electronics I	3	0	3	0
6	Electronics I Sessional	0	3	0	1
7	Structural Programming	3	0	3	0
8	Structural Programming Sessional	0	3	0	1
9	Eng. Electromagnetic	3	0	3	0
10	Electronics Circuits II	3	0	3	0
11	Electronics Circuits II Sessional	0	3	0	1
12	Energy Conversion I	3	0	3	0
13	Electronics Shop	0	3	0	1
14	Power System I	3	0	3	0
15	Power System I Sessional	0	3	0	1
16	Energy Conversion II	3	0	3	0
17	Energy Conversion Sessional	0	3	0	1
18	Digital Electronics	3	0	3	0
19	Digital Electronics Sessional	0	3	0	1
20	Continues Signals & Systems	3	0	3	0
21	Power System II	3	0	3	0
22	Power System II Sessional	0	3	0	1
23	Digital Signal Processing I	3	0	3	0
24	Digital Signal Processing I Sessional	0	3	0	1
25	VLSI	3	0	3	
26	VLSI Sessional	0	3	0	1
27	Power Electronics	3	0	3	
28	Power Electronics Sessional	3	0		3
29	Communication Theory	3	0	3	0
30	Communication Theory Sessional	0	3	0	1
31	Control System I	3	0	3	0
32	Control System I Sessional	0	3	0	1
33	Electronic properties of materials	3	0	3	0
34	Optical Fiber Communication	3	0	3	0
35	Optical Fiber Communication Sessional	0	3	0	1

Sub-Total	(19+16=35) Courses	60	45	57	16
EEE-420 & EEE-430	Project/Thesis			4.5	
Total:		105		77.5	

06 (b).Technical Elective (Major) Courses: In this section, the minimum requirement is 18 credits.

A student will need to take minimum FOUR Courses from his/her major field of study and TWO Courses from other major fields as minor. Also, a student will take 2sessional courses from his/her major field of study. Any Sessional course must be preceded by the corresponding theory course and vice versa (if any)
The major areas of concentration in EEE are as follows:
I. Electrical Power
II. Electronics
III. Communication Engineering

(I) Electrical Power:

Serial No	Course Title	Contact Hours/Week		Credit Hours	
1	Energy Conversion III	3	0	3	0
2	Energy Conversion III Sessional	0	3	0	1
3	Power Plant Engineering	3	0	3	0
4	Power System Protection	3	0	3	0
5	Power System Protection Sessional	0	3	0	1
6	Power System Reliability	3	0	3	0

(II) Electronics

Serial No	Course Title	Contact Hours/Week		Credit Hours	
1	Analog Integrated Circuit	3	0	3	0
2	Processing & Fabrication Technology	3	0	3	0
5	Solid State Device	3	0	3	0
6	VLSI II	3	0	3	0
7	VLSI II Sessional	0	3	0	1
8	Opto-electronics	3	0	3	0
11	Microprocessor and Interfacing	3	0	3	0
12	Microprocessor and Interfacing Sessional	0	3	0	1

(III) Communication Engineering

Serial No	Course Title	Contact Hours/Week		Credit Hours	
1	Digital Signal Processing II	3	0	3	0
2	Microwave Engineering	3	0	3	0
3	Microwave Engineering Sessional	0	3	0	1
4	Digital Communication	3	0	3	0
5	Digital Communication Sessional	0	3	0	1
6	Mobile Cellular Communication	3	0	3	0
7	Telecommunication Engineering	3	0	3	0
8	Telecommunication Engineering Sessional	0	3	0	1

FIRST SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Electrical Circuits I	3	0	3	0
2		Electrical Circuits Sessional	0	3	0	1
3		Mathematics I	3	0	3	0
4		Physics I	3	0	3	0
5		Physics I Sessional	0	3	0	1
6		Fundamental English	3	0	3	0
Sub-Total (4+2) Courses			12	6	3	0
Total			18		14	

SECOND SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Electrical Circuits II	3	0	3	0
2		Electrical Circuits II Sessional	0	3	0	1
3		Physics II	3	0	3	0
4		Physics II Sessional	0	3	0	1
5		Mathematics II	3	0	3	0
6		Composition and Communication Skill	3	0	3	0
Sub-Total (4+2) Courses			12	6	12	2
Total			18		14	

THIRD SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Chemistry	3	0	3	0
2		Chemistry Sessional	0	3	0	1
3		Mathematics III	3	0	3	0
4		Fundamental Mechanical Eng	3	0	3	0
5		Bangladesh Study	3	0	3	0
Sub-Total (5+1) Courses			12	3	12	1
Total			15		13	

FOURTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Electronics Circuits I	3	0	3	0
2		Electronics Circuits I Sessional	0	3	0	1
3		Mathematics IV(Differential Equation and Vector Analysis)	3	0	3	0
4		Structural Programming	3	0	3	0
5		Structural Programming Lab	0	3	0	1
6		Statistics	3	0	3	0
Sub-Total (4+2) Courses			12	6	12	2
Total			18		14	

FIFTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Electronics Circuits II	3	0	3	0
2		Electronics Circuits II Sessional	0	3	0	1
3		Mathematics V	3	0	3	0
4		Energy Conversion I	3	0	3	0
5		Eng. Electromagnetic	3	0	3	0
6		Electronic Shop	0	3	0	1
Sub-Total (4+2) Courses			12	6	12	1
Total			18		14	

SIXTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Energy Conversion II	3	0	3	0
2		Energy Conversion II Sessional	0	3	0	1
3		Power System I	3	0	3	0
4		Power System I Sessional	0	3	0	1
5		Principles of Accounting	3	0	3	0
Sub-Total (3+2) Courses			9	6	9	2
Total			15		11	

SEVENTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Engineering Drawing	0	3	0	1
2		Digital Electronics	3	0	3	0
3		Digital Electronics Sessional	0	3	0	1
4		Economic Analysis	3	0	3	0
5		Continues Signals & System	3	0	3	0
6.		Power System II	3	0	3	0
7		Power System II Sessional	0	3	0	1
Sub-Total (4+3) Courses			12	9	12	3
Total			21		15	

EIGHTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Principles of Management	3	0	3	0
2		Digital Signal Processing I	3	0	3	0
3		Digital Signal Processing I Sessional	0	3	0	1
4		VLSI	3	0	3	0
5		VLSI Sessional			0	1
6		Optical Fiber Communication	3	0	3	0
7		Optical Fiber Communication Sessional	0	3	0	1
Sub-Total (5+2) Courses			12	6	12	3
Total			18		15	

NINTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Control System I	3	0	3	0
2		Control System I Sessional	0	3	0	1
3		Communication Theory	3	0	3	0
4		Communication theory Sessional	0	3	0	1
5		Power Electronics	3	0	3	0
6		Power Electronics Sessional	3			1
Sub-Total (3+3) Courses			12	6	9	3
Total			18		12	

TENTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Elective	3	0	3	0
2		Elective	3	0	3	0
3		Elective Sessional	0	3	0	1
4		Elective	3	0	3	0
5		Elective Sessional	0	3	0	1
Sub-Total (3+2) Courses			9	6	9	2
Total			15		11	

ELEVENTH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Project/Thesis	0	3	0	1.5
2		Elective	3	0	3	0
3		Elective	3	0	3	0
4		Elective Sessional	0	3	0	1
Sub-Total (4+1) Courses			6	6	6	2.5
Total			12		8.5	

TWELVETH SEMESTER

Serial No		Course Title	Contact Hours/Week		Credit Hours	
1		Project/Thesis	0	3	0	3
2		Electronic properties of materials	3	0	3	0
Sub-Total (2+1) Courses			3	3	3	3
Total			6		6	