# COMSATS Institute of Information Technology
## Registrar Office, Principal Seat, Islamabad

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No: CIIT-Reg/Notif-730/12/1055 July 04, 2012

NOTIFICATION

### Scheme of Studies of Bachelor of Science (BS) in Electrical (Computer) Engineering, BS(ECE)

It is hereby notified that the Academic Council in its 13th Meeting held on June 04, 2012 approved the following scheme of studies of Bachelor of Science (BS) in Electrical (Computer) Engineering, BS(ECE) with effect from Fall 2012 at CIIT system:

| | | |
|---|---|---|
| i. | Minimum Duration: | 04 Years |
| ii. | Minimum No. of Semesters: | 08 |
| iii. | No of Credit Hours in each Semester: | 14-20 |
| iv. | **Core Courses:** | |
| | a. Engineering Courses (List Attached) | 20 |
| | b. Non Engineering Courses (List Attached) | 16 |
| **v.** | **Elective Courses** | |
| | c. Major Electives* | 02 |
| | d. EE Open/Free Elective*** | 01 |
| | e. Non-Engineering Electives**** | 01 |
| **vi.** | **Total No. of Courses:** | 40 |
| **vii.** | **Total Credit Hours:** | **135-138** |

**Note:**

**The Undergraduate rules and Regulations approved /amended from time to time by the Competent Authority shall be applicable.**

This issues with the approval of the Competent Authority.

Nadeem Uddin Qureshi
Additional Registrar

Encl: **Tentative Plan of Studies**

**Distribution:**

1. Dean, Faculty of Engineering, CIIT
2. Dean of Research, Innovation and Commercialization (DORIC), CIIT
3. All Directors, CIIT System.
4. Incharge, CIIT Islamabad Campus.
5. Chairman, Department of Electrical Engineering, CIIT
6. All Incharges, Academic Sections, CIIT Campuses
7. All HoD's/Incharges, Department of Electrical Engineering, CIIT Campuses
8. Controller of Examinations, CIIT
9. All Incharges, Examination Departments, CIIT Campuses.

**CC:**

1. PS to Rector
2. PA to Registrar

## Core Courses

### List of Engineering Courses

| Sr. No | Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|---|
| 1 | EEE112 | Engineering Mechanics and Thermodynamics | 3(3, 0) | |
| 2 | EEE113 | Engineering Drawing | 1(0, 1) | |
| 3 | EEE121 | Electric Circuits Analysis I | 4(3, 1) | MTH101,PHY121 |
| 4 | EEE222 | Electric Circuits Analysis II | 4(3, 1) | MTH242,EEE121 |
| 5 | EEE223 | Signals and Systems | 4(3, 1) | MTH242 |
| 6 | EEE231 | Electronics I | 4(3, 1) | EEE121 |
| 7 | EEE232 | Electronics II | 4(3, 1) | EEE222,EEE231 |
| 8 | EEE241 | Digital Logic Design | 4(3, 1) | |
| 9 | EEE251 | Probability Methods in Engineering | 3(3, 0) | MTH102, MTH231 |
| 10 | EEE261 | Electromagnetic Theory | 3(3, 0) | MTH203 |
| 11 | EEE314 | Data Communication and Computer Networks | 4(3, 1) | |
| 12 | EEE324 | Digital Signal Processing | 4(3, 1) | EEE223 |
| 13 | EEE325 | Control Systems | 4(3, 1) | EEE223,EEE232 |
| 14 | EEE342 | Microprocessor Systems and Interfacing | 4(3, 1) | EEE241 |
| 15 | EEE343 | Computer Organization | 4(3, 1) | EEE241 |
| 16 | EEE351 | Principles of Communication Systems | 4(3, 1) | EEE223 |
| 17 | EEE371 | Electric Machines | 4(3, 1) | EEE222,EEE261 |
| 18 | EEE375 | Power Distribution and Utilization | 3(3, 0) | |
| 19 | EEE490 | Final Year Project (Part I)** | 1(0, 1) | |
| 20 | EEE490 | Final Year Project (Part II)** | 5(0, 5) | |

### List of Non-Engineering Courses

| Sr. No | Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|---|
| 1 | CSC112 | Algorithms and Data Structures | 4(3, 1) | CSC141 |
| 2 | CSC141 | Introduction to Computer Programming | 4(3, 1) | |
| 3 | CSC241 | Object Oriented Programming | 4(3, 1) | CSC141 |
| 4 | CSC322 | Operating Systems Concepts | 3(3, 0) | CSC141 |
| 5 | ECO300 | Engineering Economics | 3(3, 0) | |
| 6 | HUM100 | English Comprehension and Composition | 3(3, 0) | |
| 7 | HUM102 | Report Writing Skills | 3(3, 0) | HUM100 |
| 8 | HUM110 | Islamic Studies | 3(3, 0) | |
| 9 | HUM111 | Pakistan Studies | 3(3, 0) | |
| 10 | MGT462 | Project Planning and Management | 3(3, 0) | |
| 11 | MTH101 | Calculus I | 3(3, 0) | |
| 12 | MTH102 | Calculus II | 3(3, 0) | MTH101 |
| 13 | MTH203 | Calculus III | 3(3, 0) | MTH102 |
| 14 | MTH231 | Linear Algebra | 3(3, 0) | |
| 15 | MTH242 | Differential Equations | 3(3, 0) | MTH102 |
| 16 | PHY121 | Applied Physics for Engineers | 4(3, 1) | |

**Bachelor of Science in Electrical Engineering with Major in Computer Technical Electives*****

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| CSC421 | Systems Programming | 4(3, 1) | CSC322,CSC141 |
| CSC341 | Network Programming | 4(3, 1) | EEE314,CSC141 |
| EEE434 | VLSI Design | 4(3, 1) | EEE241,EEE232 |
| EEE440 | Computer Architecture | 3(3, 0) | EEE343 |
| EEE446 | Real Time Embedded Systems | 4(3, 1) | EEE342 |
| EEE415 | Digital Image Processing | 4(3, 1) | MTH231,EEE223 |
| CSC271 | Database Systems | 4(3, 1) | CSC112 |
| CSC334 | Distributed Computing | 4(3, 1) | EEE314,CSC141 |
| CSC492 | Software Engineering | 3(3, 0) | |
| CSC462 | Artificial Intelligence | 3(2, 1) | CSC141 |
| CSC336 | Web Engineering | 4(3, 1) | CSC141 |
| EEE447 | Robotics | 3(3, 0) | EEE446,CSC462 |
| EEE344 | Digital System Design | 4(3, 1) | EEE241,CSC141 |
| EEE464 | Wireless Communication Systems | 3(3, 0) | EEE351 |

**List of Non-Engineering Electives******

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| HUM200 | Business Communication Workshop | 3(3, 0) | HUM100 |
| HUM202 | Creative Thinking and Decision Making | 3(3, 0) | |
| HUM220 | Introduction to Psychology | 3(3, 0) | |
| HUM320 | Introduction to Sociology | 3(3, 0) | |
| HUM400 | Business Communication | 3(3, 0) | |
| LAW300 | Corporate Law | 3(3, 0) | |
| MGT131 | Financial Accounting | 3(3, 0) | |
| MGT330 | Financial Management | 3(3, 0) | |
| MGT350 | Human Resource Management | 3(3, 0) | |
| MGT403 | Entrepreneurship | 3(3, 0) | |
| MGT450 | HRM Policies and Practices | 3(3, 0) | |
| MGT460 | Operations Management | 3(3, 0) | |
| MGT522 | Marketing of IT and Telecom Products | 3(3, 0) | |
| MTH374 | Optimization | 3(3, 0) | MTH102 |
| MTH375 | Numerical Computations | 3(2, 1) | MTH102, CSC141 |
| MTH467 | Operations Research | 3(3, 0) | MTH102 |

[1] 3 credit hours of theory is equivalent to 3 hours of lectures whereas 1 credit hour of lab is equivalent to 3 hours of lab session. All the lab sessions are graded. Students have to pass both theory and lab to earn the course credits.

† Courses with prerequisites can only be allowed if all prerequisite courses have been passed.

* With the consent of Academic Advisor, Project Supervisor & Course Instructor, the students can select an elective course in their area of specialization according to their aptitudes and requirements of the final year project.

**Students must clear all the engineering subjects in the first five semesters as given in the tentative plan to be eligible for the Final year project

*** With the consent of Academic Advisor, Project Supervisor & Course Instructor, the students can take any course of EE which he/she has not taken before (including the electives of TE, EPE, CE, EL) according to his/her aptitude/future plans and further requirement (if any) of his/her final year project.

**Note:** The list of Electives may be revised from time to time and will be offered by the department subject to the availability of the faculty.

Jadwadi

## Tentative Plan of Studies

The course offering in each semester as given below is not fixed; it may vary depending on the availability of faculty and needs of the students.

| 8 Semesters<br>135-138 Credit Hours |
|---|

### Year 1, Semester 1

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| HUM100 | English Comprehension and Composition | 3(3, 0) | |
| HUM110 | Islamic Studies | 3(3, 0) | |
| PHY121 | Applied Physics for Engineers | 4(3, 1) | |
| MTH101 | Calculus I | 3(3, 0) | |
| EEE113 | Engineering Drawing | 1(0, 1) | |
| EEE112 | Engineering Mechanics and Thermodynamics | 3(3, 0) | |
| | **Total** | **17(15, 2)** | |

### Semester 2

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| HUM111 | Pakistan Studies | 3(3, 0) | |
| MTH102 | Calculus II | 3(3, 0) | MTH101 |
| MTH231 | Linear Algebra | 3(3, 0) | |
| CSC141 | Introduction to Computer Programming | 4(3, 1) | |
| EEE121 | Electric Circuits Analysis I | 4(3, 1) | MTH101,PHY121 |
| | **Total** | **17(15, 2)** | |

### Year 2, Semester 3

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| MTH203 | Calculus III | 3(3, 0) | MTH102 |
| MTH242 | Differential Equations | 3(3, 0) | MTH102 |
| EEE241 | Digital Logic Design | 4(3, 1) | |
| EEE231 | Electronics I | 4(3, 1) | EEE121 |
| CSC241 | Object Oriented Programming | 4(3, 1) | CSC141 |
| | **Total** | **18 (15, 3)** | |

### Semester 4

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| EEE251 | Probability Methods in Engineering | 3(3, 0) | MTH102, MTH231 |
| EEE261 | Electromagnetic Theory | 3(3, 0) | MTH203 |
| EEE222 | Electric Circuits Analysis II | 4(3, 1) | MTH242,EEE121 |
| EEE223 | Signals and Systems | 4(3, 1) | MTH242 |
| EEE375 | Power Distribution and Utilization | 3(3, 0) | |
| | **Total** | **17(15, 2)** | |

### Year 3, Semester 5

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| EEE232 | Electronics II | 4(3, 1) | EEE222,EEE231 |
| EEE371 | Electric Machines | 4(3, 1) | EEE222,EEE261 |
| EEE343 | Computer Organization | 4(3, 1) | EEE241 |
| EEE324 | Digital Signal Processing | 4(3, 1) | EEE223 |
| EEE351 | Principles of Communication Systems | 4(3, 1) | EEE223 |
| | **Total** | **20(15, 5)** | |

### Semester 6

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| ECO300 | Engineering Economics | 3(3, 0) | |
| EEE325 | Control Systems | 4(3, 1) | EEE223,EEE232 |
| EEE342 | Microprocessor Systems and Interfacing | 4(3, 1) | EEE241 |
| EEE314 | Data Communication and Computer Networks | 4(3, 1) | |
| CSC322 | Operating Systems Concepts | 3(3, 0) | CSC141 |
| | **Total** | **18(15, 3)** | |

### Year 4, Semester 7

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| HUM102 | Report Writing Skills | 3(3, 0) | HUM100 |
| | Major/Specialization Elective I | 3(3, 0)/4(3, 1) | |
| | Non-Engineering Elective | 3(3, 0) | |
| EEE490 | Final Year Project (Part I) | 1(0, 1) | |
| CSC112 | Algorithms and Data Structures | 4(3, 1) | CSC141 |
| | **Total** | **14-15(12,2-3)** | |

### Semester 8

| Course Code | Course Title | Credit Hours[1] | Prerequisite(s)† |
|---|---|---|---|
| MGT462 | Project Planning and Management | 3(3, 0) | |
| | Major/Specialization Elective II | 3(3, 0)/4(3, 1) | |
| | EE Open/Free Elective | 3(3, 0)/4(3, 1) | |
| EEE490 | Final Year Project (Part II) | 5(0, 5) | |
| | **Total** | **14-16(9,5-7)** | |

**Grand Total: 135-138 Credit Hours**