Course Title: Design Laboratory

Course Code: EE3271

Units: 1

Level: B3

Course Aims & Objectives:
The aim of this course is to provide students with a clear understanding of the practical design problems of Computer and Information Technology products. Students, having completed this course, should be aware of how design problems related to the production phase may be minimized by proper design considerations.

The objectives are to help students to familiarize with the concept of product design, production constraints and their interrelationships; to enable the students to learn some basic design skills for testable and reliable IT product design; to enable students to learn design concept with the considerations of development tools, methodologies and performance. To familiarize students with some of the important RFI, safety standards, environment requirements applicable to consumer and industrial class Computer and Information Technology products.

Intended Learning Outcomes:
On completion of this course, the students will be able to
1. Understand the design flow of an IT product.
2. Identify the product constraint and design problems.
3. Recognize the importance of RFI, safety standards, environment requirements applicable to a product.
4. Use a project management (e.g. Microsoft Project) and software engineering tool(s) (e.g. UML) to implement the design flow.
5. Realize a project design life cycle.

Syllabus:
The laboratory session aims to provide the students with hands on experience in computer and information technology product design techniques. Students are required to have a thorough involvement in the design of a product. Each student group, typically 4 students, will be assigned functional specifications for an IT product.

Each student group of two or three will be expected to carry out the planning, design and construction of a working sample which meets all the specifications.

Through the above processes, the students will gain experience in a complete design, prototype development, tests and documentation sequence of an IT product. Products to be built will be regularly updated.

Laboratory Experiment:
Products to be built during the laboratory session will include:

- Smart Card Reader
- USB Interface
- Digital Speech Recorder
- Biometric sensing device
- Palm Pilot Interface
- Web data base design
- Web e-commerce application
- M-commerce application
- Web Game design

Teaching pattern:

Duration of course: 1 semester
Suggested lecture/tutorial/laboratory mix: Laboratory Hour: 39 hours

Assessment pattern:

Examination duration: Nil
Percentage of coursework, examination, etc.: 100% coursework

For a student to pass the course, at least 75% laboratory attendance rate must be obtained.

Pre-requisites: (please quote course code & title)
EE2000 Logic Circuit Design
and
EE3203 Microprocessor System Design

Pre-cursor: (please quote course code & title)
Nil

Exclusive Course: (please quote course code & title)
Nil

Equivalent Courses: (please quote course code & title)
Nil

Equivalent to the Old Course Code and Title: (please quote course code & title)
IT3001 Design Laboratory

Textbook:
Nil

Reference Book:
Nil