TCET

DEPARTMENT OF ELECTRONICS ENGINEERING (ETRX)

Credit Based Grading Scheme(Revised - 2012) - University of Mumbai

CBGS-2012(R)

TCET/FRM/IP-02/10 Revision: A

Semester Plan

(Practical / tutorials / Assignment)

Semester: B**E - VIII** Course: B**.E ETRX** Batches: **BE ETRX**

Subject: **Embedded System Design Laboratory (EXL701)** Class: B**.E ETRX** Batch Size: **20 students**

Laboratory faculty In-Charge: **Mrs. Jyoti Kori** Lab Assistant / Attendant: **Mr. Brij Kishor Dubey**

Note: **Experiments are planned as per University Curriculum**

Basic Experiments

Sr. No	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Planned Date	Completion Date	Remarks
1	Implementing VHDL code for vending machine – FSM / DFG / petrinet	E1E2- 18/7/17, E3E4 - 20/7/17		
2	Implementing VHDL code for five floor lift - FSM / DFG / petrinet	E1E2- 26/7/17, E3E4 - 28/7/17		
3	Interfacing LEDs / LCDs using MSP430F148 / ARM. Intesity control of LED connected.	E1E2- 2/8/17, E3E4 - 4/8/17		
4	Design Speed control mechanism for DC motor using PWM generation on MSP 430 / ARM.	E1E2- 9/8/17, E3E4 - 11/8/17		
5	Case study on comparision of serial communication protocols.	E1E2- 16/7/17, E3E4 - 18/7/17		

Design / Development Experiments:

Sr. No	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Planned Date	Completion Date	Remarks
1	Implementation of Bluetooth / ZigBee / Wireless sensor network using open source tools.	E1E2- 6/9/17, E3E4 - 8/9/17		
2	Implementation of Laboratory work on J2ME Java mobile application.	E1E2- 13/9/17, E3E4 - 15/9/17		
3	Implementation ofLaboratory work on J2ME Java mobile application.	E1E2- 20/9/17, E3E4 - 22/9/17		
4	Case study on comparing soft / Firm / hard real time systems with examples	E1E2- 4/10/17, E3E4 - 6/10/17		
5	Linux Installation and Linux Commands.	E1E2- 7/10/17, E3E4 - 7/10/17		

Group Learning Activity

I. Assignments

Sr. No	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Planned Date	Completion Date	Remarks
1	**Assignment 1: (Fundamentals of Embedded System, Embedded Serial Communication)** List and describe the concepts, requirement, characteristics and development cycle of embedded system. Explain need and working of serial communication protocols like SPI, SCI etc	Week 5		
2	**Assignment 2: Embedded Hardware and Design Embedded** Explain and differentiate between different hardware and architecture of advanced controllers like MSP430, ARM cortex etc. Methodology and Tools while designing	Week 10		
3	**Assignment 3: (Simulation, Testing and Debugging Methodology** apply simulation, Testing and Debugging Methodology and Tools while designing embedded applications, Analyze and differentiate soft, firm and hard ES and design them.	Week 14		

II. Case Study

Sr. No	TITLES Experiments / Tutorials / Assignment	Planned Date	Completion Date	Remarks

	(Planning with use of Technology)			
1	Case study on comparing serial communication protocols.	Week 5		
2	Case study on analysing of soft / Firm / hard real time systems.	Week 10		

III. Mini Project

Mini / Minor Projects Objective: To get hands on experience to execute projects with respect to student choice in the following areas. (**30 Hrs / Semester / Student**).

The areas are :

1. Research 2. Core 3. Interdisciplinary 4. Application

Major project : As per University Scheme

Sr. No	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Type of Project	Modes of Learning	Reference
1	Implemenation of Answering machine / ALU on FPGA	Research	Technical paper Publication and Presentation	Students must refer and study technical papers / articles from journals such as; IEEE, ACM, Elsewire
2	Develop a prototype of lift / traffic light etc	Application	Technical paper Publication and Presentation	

IV. Bridge Course

Bridge courses Objective: Bridging of gaps with respect to prerequisites and industry skills or to carry out research in that particular field. (**30 Hrs / Semester / student**)

Sr. No	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Planned Date	Completion Date	Remarks
1	Introduction to Embedded C	Week 4		
2	Introduction to operating systems	Week 8		
3	Bridge cource - Design of Internet of Things	Week 2 to Week 12		

V. Project

Sr. No	TITLES Experiments / Tutorials / Assignment (Planning with use of Technology)	Type of Project	Modes of Learning	Reference
1	Smart Pathhloe detection sestem for vehicles	Research		
2	Heavy vehicle management system for highways to reduce traffic problem	Research		

No. of Practical		No. of Assignments		No. of Tutorial	
Planned	Conducted	Planned	Conducted	Planned	Conducted
Basic Experiment : **05**		**3**		**3**	
Design Base Experiment : **05**					
Group Learning : **03**					
Bridge Course : **03**					
Minor Project : **02**					
Project ::: **02**					

DOSLNE:	DOSLE (engaged in some other dates):

Group activities are required to be added with the practical related to course to enhance the learning activity of the student in the course. Group activity includes: Group presentation, new experiment design, mini projects etc.

Note:

1. The practical plan date and completion date shall be in compliance. For any non-compliance reason(s) required to be stated in remark column.
2. Learning objective and outcome shall be clearly stated with each of experiments/ tutorials/ assignments and are required to be mapped at the end of the semester.
3. Entry for DOSLE (engaged on some other date) shall be done with proper mapping to DOSLNE.

Name & Signature of Faculty	Signature of HOD	Signature of Principal / Dean Academic
Date: 11/01/2017	Date:	Date: