**LESSON PLAN**

**Subject Code & Name: Embedded and Real time Systems**

**Branch: VLSI Class / Semester: IM.Tech-SEM 1 Academic Year:2014-15**

**Faculty: L.Rambabu**

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| **Period** | **Date (Tentative)** | **Topic** | **Unit No.** | **Teaching Methodology** | **Remarks** | **Corrective action upon review** |
|  |  | **INTRODUCTION** | **I** |  |  |  |
| 1 | 06/10/14 | Embedded systems over view |  | PPT |  |  |
| 2 | 06/10/14 | Design challenges |  | PPT |  |  |
| 3 | 09/10/14 | Processor technology |  | PPT |  |  |
| 4 | 09/10/14 | Design technology |  | PPT |  |  |
| 5 | 15/10/14 | Trade-offs |  | PPT |  |  |
| 6 | 15/10/14 | Single purpose processors RT-level combinational logic |  | PPT |  |  |
| 7 | 14/10/14 | sequential logic (RT level) |  | PPT |  |  |
| 8 | 14/10/14 | Custom purpose processor design (RT level) |  | PPT |  |  |
| 9 | 20/10/14 | Optimizing custom single purpose processors. |  | PPT |  |  |
|  |  | **GENERAL PURPOSE PROCESSORS** | **II** |  |  |  |
| 10 | 20/10/14 | Introduction |  |  |  |  |
| 11 | 23/10/14 | Basic architecture |  | PPT |  |  |
| 12 | 23/10/14 | Operations |  | PPT |  |  |
| 13 | 27/10/14 | Programmer's view |  | PPT |  |  |
| 14 | 27/10/14 | Development environment |  | PPT |  |  |
| 15 | 30/10/14 | Application specific Instruction -Set processors (ASIPS)-Micro controllers |  | PPT |  |  |
| 16 | 30/10/14 | ASIPS-Digital signal processors |  | PPT |  |  |
|  |  | **STATE MACHINE AND CONCURRENT PROCESS MODELS** | **III** |  |  |  |
| 17 | 02/11/14 | Introduction, models Vs Languages |  | PPT |  |  |
| 18 | 02/11/14 | Finite state machines with data path model(FSMD) |  | PPT |  |  |
| 19 | 06/11/14 | Using state machines, |  | PPT |  |  |
|  | 06/11/14 | Program state machine model(PSM) |  | PPT |  |  |
| 20 | 10/11/14 | concurrent process model |  |  |  |  |
| 21 | 10/11/14 | Concurrent processes, communication among processes |  | PPT |  |  |
| 22 | 15/11/14 | Synchronization among processes |  | PPT |  |  |
| 23 | 15/11/14 | Implementation, data flow model |  | PPT |  |  |
| 24 | 14/11/14 | Real-time systems. |  | PPT |  |  |
|  |  | **Communication processes**: | **IV** |  |  |  |
| 25 | 14/11/14 | Need for communication interfaces |  | BB |  |  |
| 26 | 20/11/14 | Rs232/UART |  | BB |  |  |
| 27 | 20/11/14 | Rs422/RS485 |  | BB |  |  |
| 28 | 24/11/14 | USB |  | BB |  |  |
| 29 | 24/11/14 | Infrared |  | BB |  |  |
| 30 | 04/12/14 | IEEE 1594 Fire wire |  | BB |  |  |
| 31 | 04/12/14 | Ethernet |  | BB |  |  |
| 32 | 08/12/14 | IEEE 802.11, Blue tooth |  | BB |  |  |
|  |  | **EMBEDDED/RTOS CONCEPTS-I** | **V** |  |  |  |
| 33 | 08/12/14 | Introduction |  | BB |  |  |
| 34 | 11/12/14 | Architecture of the Kernel |  | BB |  |  |
| 35 | 11/12/14 | Tasks and task scheduler |  | BB |  |  |
| 36 | 15/12/14 | Interrupt service routines |  | BB |  |  |
| 37 | 15/12/14 | Semaphore |  | BB |  |  |
| 38 | 15/12/14 | Mutex |  | BB |  |  |
|  |  | **EMBEDDED/RTOS CONCEPTS- II** | **VI** | BB |  |  |
| 39 | 22/12/14 | Mailboxes |  | BB |  |  |
| 40 | 22/12/14 | Message Queues |  | BB |  |  |
| 41 | 29/12/14 | Event Registers |  | BB |  |  |
| 42 | 29/12/14 | Pipes-Signals |  | BB |  |  |
|  |  | **EMBEDDED/RTOS CONCEPTS -III** | **VII** |  |  |  |
| 44 | 05/01/15 | Introduction |  |  |  |  |
| 45 | 05/01/15 | Timers-Memory Management |  | PPT |  |  |
| 46 | 08/01/15 | Priority inversion problem |  | PPT |  |  |
| 47 | 08/01/15 | embedded operating systems |  | PPT |  |  |
| 48 | 19/01/15 | Embedded Linux-Real-time |  | PPT |  |  |
| 49 | 19/01/15 | operating systems-RT Linux |  | PPT |  |  |
| 50 | 22/01/15 | Handheld operating systems Windows CE. |  | PPT |  |  |

**CR: CLASS ROOM PPT: POWER POINT PRESENTATION LCD**

**TEXT BOOKS:**

1. Embedded System Design-A Unified Hardware/Software Introduction- Frank Vahid, Tony D.

Givargis, John Wiley & Sons, Inc.2002.

2. Embedded/Real Time Systems- KVKK prased, Dreamtech press-2005.

3. Introduction to Embedded Systems - Raj Kamal, TMS-2002.

**REFERENCE BOOKS:**

1. Embedded Microcomputer Systems-Jonathan W.Valvano,Books/Cole,ThomsonLeaarning.

2. An Embedded Software Primer- David E.Simon, pearson Ed.2000

**FACULTY HEAD OF THE DEPARTMENT**