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| **JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTER** | | | | | | |
| **Department of Electronics and Communication** | | | | | | |
| **LECTURE PLAN** | | | | | | |
| **Subject:8EC4.3A , MICROCONTROLLERS & EMBEDDED SYSTEMS** | | | **Year/sem: IV/ VIII** | | | |
|  | |  |  |  |  |  |
| **No. of Lecture Req./(Avl.) : 38/(40) Semester Starting: 1/01 /17**  **Semester Ending:**….......................... | | |  |  |  |  |
| **Unit No./ Total lect. Req.** | **Topics** | | **Lect. Req.** | **Lect. No.** | **Date of Delivery** | **Remark/ Actual lect. Taken** |
| **Unit-1**  **(08)** | 1. THE 8051 MICROCONTROLLER: Introduction | | 1 | 1 |  |  |
| 2. The 8051 microcontroller hardware | | 1 | 2 |  |  |
| 3. The 8051 microcontroller I/O pins | | 1 | 3 |  |  |
| 4. The 8051 microcontroller Ports | | 1 | 4 |  |  |
| 5. The 8051 microcontroller External memory | | 1 | 5 |  |  |
| 6. The 8051 microcontroller Counters and Timers | | 1 | 6 |  |  |
| 7. The 8051 microcontroller Serial data | | 1 | 7 |  |  |
| 8. Test | | 1 | 8 |  |  |
| **Unit-2**  **(08)** | 1. 8051 ASSEMBLY LANGUAGE PROGRAMMING: Addressing modes | | 1 | 9 |  |  |
| 2. External data moves | | 1 | 10 |  |  |
| 3. Stack,Push and Pop opcodes | | 1 | 11 |  |  |
| 4. Logical operations | | 1 | 12 |  |  |
| 5. Byte level and bit level logical operations | | 1 | 13 |  |  |
| 6. Arithmetic operations | | 1 | 14 |  |  |
| 7. Jump and call instructions, Interrupts & returns | | 1 | 15 |  |  |
| 8. Test | | 1 | 16 |  |  |
| **Unit- 3 (08)** | 1. REAL TIME CONTROL: Interrupts Interrupt structure in 8051. | | 2 | 18 |  |  |
| 2. Multiple sources of interrupts. | | 1 | 19 |  |  |
| 3. Non maskable sources of interrupts. | | 1 | 20 |  |  |
| 4. Timers, | | 1 | 21 |  |  |
| 5 Free running counter | | 1 | 22 |  |  |
| 6. Real Time control | | 1 | 23 |  |  |
| 7. Test | | 1 | 24 |  |  |
| **Unit-4**  **(08)** | 1. SYSTEM DESIGN | | 1 | 25 |  |  |
| 1a. Serial I/O interface | | 1 | 26 |  |  |
| 2 Parallel I/O ports interface | | 1 | 27 |  |  |
| 3. Digital and Analog interfacing methods | | 1 | 28 |  |  |
| 4. LED array, keyboard, | | 1 | 29 |  |  |
| 5. Printer, Flash memory interfacing | | 1 | 31 |  |  |
| 6.Test | | 1 | 32 |  |  |
| **Unit-5**  **(08)** | 1 INTRODUCTION TO EMBEDED SYSTEM | | 1 | 32 |  |  |
| 2. Application of Microcontrollers in interfacing | | 1 | 33 |  |  |
| 3 MCU based measuring instruments | | 1 | 34 |  |  |
| 4. Real Time Operating System for System Design | | 1 | 35 |  |  |
| 5. Multitasking System, Task Definition in a Multitasking System | | 1 | 36 |  |  |
| 6. Round Robin Scheduling, Full Preemptive Scheduling | | 1 | 37 |  |  |
| 7. Basic study and Features of Commercial RTOS : WINCE and Embedded Linux.. | | 1 | 38 |  |  |
| 8. Test | | 1 | 39 |  |  |
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| **Recommended books:** | | | | | | |
| 1.    Text Books: Kenneth J.Ayala, “The 8051 Micro controller”, Penram Interfacing Publishing, 1996.. | | | | | | |
| 2.    Reference books: Rajkamal, “Embedded Systems” TMH. | | | | | | |
| 3. A Textbook of Microprocessors and Microcontrollers, R. Thegarajan, Scitech Publishers | | | | | | |