**NAME OF THE FACULTY** : Manju

**DISCIPLINE** : ECE

**SEMESTER** : 5 th

**SUBJECT** : Microcontroller

**LESSON PLAN DURATION** : - 15 weeks (from Oct.2021 to Jan. 2022)

WORK LOAD (LECTURE/PRACTICAL) PER WEEK (IN HOURS):- LECTURE-**04**, PRACTIACL-**03** PER GROUP

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| **WEEK S.N.** | **THEORY** | **PRACTICAL** |
| **Lecture****/ Hrs** | **TOPIC****(Including Assignment/Test)** | **Practical****/ Hrs** | **Experiment** |
| 1st | 1 | Introduction to Microcontroller series (MCS) | Group-1 | 1 | Familiarization with Micro- controller Kit and its different sections |
| 2 |
| 2 | Architecture of 8051Microcontroller | 3 |
| Group-2 | 1 | Familiarization with Micro- controller Kit and its different sections |
| 3 | Architecture of 8051Microcontroller | 2 |
| 4 | Pin details | 3 |
| 2nd | 5 | I/O Port structure | Group-1 | 1 | Familiarization with Assembly Language Programming (PC Based) |
| 2 |
| 6 | Memory Organization | 3 |
| Group-2 | 1 | Familiarization with Assembly Language Programming (PC Based) |
| 7 | Memory Organization | 2 |
| 8 | Special Function Registers (SFRs) | 3 |
| 3rd | 9 | Special Function Registers (SFRs) | Group-1 | 1 | Programming to interface switches and LEDs |
| 2 |
| 10 | External Memory | 3 |
| Group-2 | 1 | Programming to interface switches and LEDs |
| 11 | Instruction Set, Introduction | 2 |
| 12 | Instruction Set of 8051 | 3 |
| 4th | 13 | Instruction Set of 8051 | Group-1 | 1 | Programming and interface of Seven Segment and LCD. |
| 2 |
| 14 | Addressing Modes, | 3 |
| Group-2 | 1 | Programming and interface of Seven Segment and LCD. |
| 15 | Addressing Modes, | 2 |
| 16 | Types of Instructions | 3 |
| 5th | 17 | Types of Instructions | Group-1 | 1 | Programming and interfacing of Graphical LCD |
| 2 |
| 18 | Timer operation | 3 |
| Group-2 | 1 | Programming and interfacing of Graphical LCD |
| 19 | **Assignment-1/Quiz** | 2 |
| 20 | **Sessional Test-1** | 3 |

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| **WEEK S.N.** | **THEORY** | **PRACTICAL** |
| **Lecture****/ Hrs** | **TOPIC****(Including Assignment/Test)** | **Practical****/ Hrs** | **Experiment** |
| 6th | 21 | Serial Port operation | Group-1 | 1 | Programming to interface Hex 4x4 matrix Keypad |
| 2 |
| 22 | Serial Port operation | 3 |
| Group-2 | 1 | Programming to interface Hex 4x4 matrix Keypad |
| 23 | Interrupts | 2 |
| 24 | Interrupts | 3 |
| 7th | 25 | Introduction- Assembly/C programming for Micro controller | Group-1 | 1 | Programming for A/D converter, result on LCD. |
| 2 |
| 26 | Assembler directives | 3 |
| Group-2 | 1 | Programming for A/D converter, result on LCD. |
| 27 | Assembler directives | 2 |
| 28 | Assembler operation | 3 |
| 8th | 29 | Assembler operation | Group-1 | 1 | Programming for D/A converter, result on LCD. |
| 2 |
| 30 | Compiler operations | 3 |
| Group-2 | 1 | Programming for D/A converter, result on LCD. |
| 31 | Compiler operations | 2 |
| 32 | Assembler operation & Compiler operations recap | 3 |
| 9th | 33 | De bugger | Group-1 | 1 | Programming for serial data transmission from PC to Kit or Vice versa. |
| 2 |
| 34 | De bugger | 3 |
| Group-2 | 1 | Programming for serial data transmission from PC to Kit or Vice versa. |
| 35 | Recap- Assembly/C programming forMicro controller | 2 |
| 36 | Design and Interface | 3 |
| 10th | 37 | Design and Interface | Group-1 | 1 | Practice and Revision  |
| 2 |
| 38 | **Assignment-2/Quiz** | 3 |
| Group-2 | 1 | Practice and Revision  |
| 39 | **Sessional Test-2** | 2 |
| 40 | Keypad interface | 3 |
| 11th | 41 | Keypad interface | Group-1 | 1 | Practice and Revision |
| 2 |
| 42 | Keypad interface | 3 |
| Group-2 | 1 | Practice and Revision |
| 43 | 7- segment interface | 2 |
| 44 | 7- segment interface | 3 |

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| **WEEK S.N.** | **THEORY** | **PRACTICAL** |
| **Lecture****/ Hrs** | **TOPIC****(Including Assignment/Test)** | **Practical****/ Hrs** | **Experiment** |
| 12th | 45 | LCD, A/D, D/A and RTC interface with programming. | Group-1 | 1 | Programming and interfacing of RELAY and Buzzer |
| 2 |
| 46 | LCD, A/D, D/A and RTC interface with programming. | 3 |
| Group-2 | 1 | Programming and interfacing of RELAY and Buzzer |
| 47 | LCD, A/D, D/A and RTC interface with programming. | 2 |
| 48 | LCD, A/D, D/A and RTC interface with programming. | 3 |
| 13th | 49 | Recap- Design and Interface | Group-1 | 1 | Practice and Revision |
| 2 |
| 50 | Introduction of PIC Micro controllers | 3 |
| Group-2 | 1 | Practice and Revision |
| 51 | Introduction of PIC Micro controllers | 2 |
| 52 | Introduction of PIC Micro controllers | 3 |
| 14th | 53 | Revision | Group-1 | 1 | Practice and Revision |
| 2 |
| 54 | Revision | 3 |
| Group-2 | 1 | Practice and Revision |
| 55 | Revision | 2 |
| 56 | Revision | 3 |
| 15th | 57 | Seminar | Group-1 | 1 | Practice and Revision |
| 2 |
| 58 | **Assignment- 3/Quiz** | 3 |
| Group-2 | 1 | Practice and Revision |
| 59 | **Sessional Test- 3** | 2 |
| 60 | Revision | 3 |