| | National Institute of Technology Meghalaya | | CURRICULUM |
|---|---|---|---|
| | An Institute of National Importance | | |

| Programme | **Bachelor of Technology in Electronics and Communication Engineering** | Year of Regulation | **2018-19** |
|---|---|---|---|
| Department | **Electronics and Communication Engineering** | Semester | **IV** |

| Course Code | Course Name | Credit Structure | | | | Marks Distribution | | |
|---|---|---|---|---|---|---|---|---|
| | | L | T | P | C | CONTINOUS EVALUATION | VIVA | Total |
| **EC 256** | **Microprocessors and Microcontrollers Lab** | **0** | **1** | **2** | **2** | **70** | **30** | **100** |

| Course Objectives | To understand principles and microlevel operation of processors/controllers | Course Outcomes | CO1 | Ability to understand the basic concepts of processors, controllers and instruction execution. |
|---|---|---|---|---|
| | To develop the skills for programme the processors with low and high level programming languages | | CO2 | Ability to apply assembly and high level languages to program processors and controllers |
| | | | CO3 | Ability to apply interfacing processor/controller with peripherals like, I/O, A/D, D/A, timer etc |
| | | | CO4 | Ability to design real time applications using different microcontrollers |
| | | | CO5 | |
| | | | CO6 | |

| No. | COs | Mapping with Program Outcomes (POs) | | | | | | | | | | | | Mapping with PSOs | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| 1 | CO1 | **3** | **3** | - | **2** | **3** | - | **1** | - | - | - | - | - | - | - | - |
| 2 | CO2 | **3** | **2** | - | **2** | **3** | - | **1** | - | - | - | - | - | - | - | - |
| 3 | CO3 | **3** | **1** | - | **2** | **3** | - | **1** | - | - | - | - | - | - | - | - |
| 4 | CO4 | **3** | **1** | - | **2** | **3** | - | **1** | - | - | - | - | - | - | - | - |
| 5 | CO5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6 | CO6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| SYLLABUS | | | |
|---|---|---|---|
| No. | Content | Hours | COs |
| I | **8085/86 Based programming (Assembly):**<br>o Program set for Logical and Decimal.<br>o Program set for Subroutines and Delay.<br>o Interfacing | **04** | **CO1** |
| II | **8051 Based system programming (Assembly and C):**<br>o Arithmetical and logical<br>o I/O port interfacing.<br>o Timer based system<br>o Interrupt generation<br>o Display and Keyboard interfacing,<br>o Serial Communication<br>o Sensor interfacing | **12** | **CO2, CO3** |
| III | **PIC Based system programming (Assembly and C):***:*<br>o I/O port interfacing.<br>o Timer based system.<br>o Display/Keyboard interfacing | **04** | **CO3, CO4** |
| | Total Hours | **20** | |

**Essential Readings**

1. Gaonkar R. S., "Microprocessor Architecture, Programming and Applications with 8085", Penram International, Fifth edition 1999

2. M. A. Mazidi , J. G. Mazidi and R. D. Mckinlay others, "The 8051 Microcontroller and Embedded Systems", Prentice Hall of India. Second Edition, 2007

**Supplementary Readings**

1. M.K. Patel "The 8051 Microcontrollers based Embedded Systems", MCGraw Hill, 2014
2. Hall D., "Microprocessors and Interfacing : Programming and Hardware", Tata McGraw-Hill,1992
3. Wilmshurst, T. "Designing Embedded Systems With PIC Microcontrollers : Principles and Applications", Elsevier (Newnes) Second Edition, 201