**BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY**
**DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING**

**Course: EEE 315 Microprocessor and Interfacing, 3 *Credits, 3 hours/week,* Term: July 2015**


Course Teacher : Shuvro Chowdhury (Section A and B)
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***Course Goal:***

Microprocessor and Interfacing is a basic course where you will learn how any programmable computing device works. Microprocessor lies at the heart of any programmable computing device. So when you will complete this course you will understand the architecture and programming of a microprocessor (8086 family), how to interface this microprocessor with peripheral devices and how to program them. A basic introduction to the microcontroller will also be given. The ultimate outcome of this course will be to enable each student to design his/her own computer using customized instruction set and a simulation assignment will be given to realize this outcome.

The course does not need any prerequisite but it will be helpful to have a good knowledge on digital logic design, computer algorithm and programming languages.

***Text Book(s):***

1. ***Digital Computer Electronics*** – Albert P. Malvino and Jerald A. Brown (3rd Edition)
2. ***Assembly Language Programming and Organization of the IBM PC*** – Ytha Yu and Charles Marut
3. ***Microprocessor and Interfacing Programming and Hardware*** – Douglas V. Hall

***References:***

4. ***Microprocessors and Microcomputer-Based System Design*** – Mohammed Rafiquzzaman (2nd edition)
5. ***The Intel Microprocessors*** – Barry B. Brey (6th Edition)
6. ***The 8051 Microcontroller and Embedded Systems*** – M. A. Mazidi, J. G. Mazidi, R. D. McKinlay
7. ***Wikipedia*** and ***other internet resources***

***Lecture Plan***

| Week | Class | Topics | Reference |
|---|---|---|---|
| 1 | 1 | Introduction; Components of a Basic Computer System | 8 |
| 1-3 | 2-9 | Introduction to Microprocessors: SAP Computer | 1 |
| 4 | 10 | History/Evolution of Microprocessors | 8, 3 |
| 4 | 11-12 | Intel 8086 Microprocessor: Architecture | 2, 3 |
| 5-7 | 13-21 | Intel 8086 Microprocessor: Assembly Language Programming | 2 |
| 8-9 | 22-25 | Intel 8086 Microprocessor: System Connection and Timing | 3, 5 |
| 9-10 | 26-30 | Intel 8086 Interfacing: Introduction, Programmable Peripheral Interface, Keyboard and Display Interface | 3, 5 |
| 11-12 | 31-36 | Intel 8086 Interfacing: Programmable Timer and Priority Interrupt Controller | 3, 5 |
| 13 | 36-37 | Intel 8086 Interfacing: Serial Communication Interface | 3, 5 |
| 13-14 | 38-41 | Introduction to Microcontrollers: 8051; Ending | 6 |

**Marking Policy**:

1. 10% Attendance
2. 20% Continuous Assessment (10% Class Test + 10% 4 bit Computer Design Assignment)
   *Best 2 class tests will be counted from 3/4 class tests.
   *Assignment is mandatory and individual submission.
   *Bonus Marks will be given for outstanding performance.
3. 70% Term Final