Department of Electrical and Computer Engineering (ECE)
School of Engineering and Physical Sciences
North South University, Bashundhara, Dhaka-1229, Bangladesh

CSE331L: Microprocessor Interfacing & Embedded System (Lab)
Fall 2020

Number of Credits	**3+0**
Type	Core, Engineering, Lecture + Lab
Prerequisites	**CSE 332, Computer Organization & Architecture**
Section	1
Faculty Member	Rishad Arfin (Rsf)
Lab Instructor	Asif Ahmed Neloy
Office Room	***LIB 600(C7)**
Email	asif.neloy@northsouth.edu neloyn@myumanitoba.ca
Github Repo	CSE331L Section 1 Fall 2020

Office Hours:	Monday (M)	08:00 pm – 9:00 pm
Class Hours:	Section 1 – Saturday (A)	8.00 am – 11.10 am
Class Room:	LIB 610	

Course Description:
This course provides an introduction to the fundamental concept of microprocessor architecture and microprocessor based embedded systems. A basic idea of the internal and external architecture of the microprocessor 8086 will be provided followed by the physical pin diagram of microprocessor 8086. The course will also cover the other peripheral devices of a microprocessor-based system i.e. RAM 6116, PIO 8255 Controller and 7-Segment Display. The course will then cover the programming languages for interfacing: Assembly language followed by Interrupt and data conversion algorithm. A brief introduction to the Microcontroller 8051 will also be provided. Simulation software tool: emulator 8086 will be introduced in the laboratory classes for doing simulation-based project works. This course has separate mandatory laboratory session every week as CSE 331L.

Course Objectives: The objectives of this course are to

1. to introduce the internal and external architecture of microprocessor 8086.
2. to explain the interconnection of microprocessor and different peripheral devices.
3. to introduce Assembly language for direct manipulation of microprocessor 8086.
4. to introduce to simulation tool i.e. emulator 8086 for simulation-based works.

Mark Distribution:

Criteria	***Marks (%)***
Lab Assessment (6)	25%
Quiz (6)	10%
Assignment (6)	30%
Midterm Exam (1)	15%
Final (1)	20%
Total	***100%***

The marks distribution may change according to the discretion of the instructor.

Tentative Class Schedule: (6 Classes to cover Assembly Language and 3 Classes to Cover Simulation and Project Related Works)

Week 1	**Lab 1**	**Github and Introduce the Registers, Show the invalid and valid way of writing the assembly code.**
Week 2	Lab 2	Introduce Basic MOV functions and the basic arithmetic, logical functions and interrupt
Week 3	**Lab 3**	**Microarchitecture**
Week 4	Lab 4	Interrupt codes and using them for printing and getting input. Examples of the scrolling screen, clear screen and etc.
Week 5	**Lab 5**	**Introduce the Implemented Microprocessor and its workflow and assign a project. Midterm Exam**
Week 6	**Lab 6**	**Do various problems using assembly code in emu8086.**
Week 7	Lab 7	String operations, Variable declarations, Arrays concept, LEA, OFFSET.
Week 8	Lab 8	ALU design, CU design, Register write/read, Memory write/read, Program Counter
Week 9	**Lab 9**	**Final**

** The marks distribution along with course materials may change according to the discretion of the instructor.*