

## **CSE 3028: Introduction to Embedded Systems Lab**

### **CSE3024: Computer Interfacing Lab**

- Unit coordinator: Rezwan-Al-Islam Khan
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### **Course Objectives:**

This course serves as introduction to exciting world of embedded system and robotics.

### **Course Outcomes:**

- Design and implement embedded circuits involving micro controllers, sensors and actuators.
- Use code and circuit design tools.
- Design, program and debug embedded sensing and control software.
- Work in collaborative teams to solve system design and implementation challenges.

### **Class Timetable**

- **Lab:**
  - Section 1 : Wednesday (AR SPL) 01:00PM- 02:20PM;
  - Section 2 : Wednesday (AR SPL) 02:30PM- 03:50PM;

To pass the unit, you must meet the following conditions.

- You must score an overall mark of 40 or better.
- At least 80% attendance.

### **Assessment**

Component	% of Final Grade
Project 1	10%
Project 2	10%
Project 3	10%
Viva	20%
Final	40%
Attendance	10%

### **Textbook**

- **Essential:** Atmega328p Datasheet

Summer 2019

**Google Class room code :**

**Section 1: iu4azi**

**Section 2: 89uuks**

### ***Tentative Course Outline:***

Lab	Lab Name
1	Setting up AVR development chain
2	Blinking a LED and control using switch
3	Running LED and Relay
4	Accurate delay. Measure time between events
5	Motor Speed control and Poorman's DAC
6	Implementation of last two labs using FSM
7	Servo knob
8	Stepper motor control
9	Exploring ADC using Potentiometer and various sensors
10	Interfacing with Computer
11	Lab on ADXL345 Accelerometer
12	Lab on HC595 Shift register and LED dot matrix
13	Sensing motor rotational direction and calculate RPM
14	Introduction to Internet of Things (IoT)

### **Late work**

In fairness to all students, late work will not be accepted. In exceptional cases where illness or misadventure prevent work being submitted on time, you must make an official application for Special Consideration, in accordance with the policies. Consult the unit coordinator immediately if you feel that you will not be able to meet a deadline for any assessment.

### **Plagiarism**

Plagiarism is where you use the work of another person and present it as your own. This is NOT PERMITTED.

### **Some Ground Rules:**

- 1) If you arrive 20 minutes late don't bother to enter the class.
- 2) **Do not try to change your lab time.**
- 3) Please put your phone to silent during class. If you really need to take a call during the class, exit from the class without causing any interruption.

---CHEERS---

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Rezwan-Al-Islam Khan  
Assistant Professor