Introduction to ESE112

Course Overview

Introduction

- Instructor:
  - Diana Palsetia
  - Email: palsetia@seas.upenn.edu
  - Office Hour: TBA

- Meeting Times:
  - Lecture - T: 11:00-1 in Moore 212
  - Couple days we be in Moore 207
  - Lab - TW: 430-6:30pm in Moore 204

- Course Website:
  http://www.seas.upenn.edu/~ese112/

ESE112

- Introductory programming that is integrated with traditional engineering theory

- Involves 2 components:
  - Computer Programming Lecture with Java Programming Language
  - Engineering Lab

- You must enroll in both components
  - If you already know Beginner Level Java then come see me

ESE112 contd..

- Get perspective for ESE
  - Unique set of labs that give you perspective to ESE

- Programming skills
  - A must have skill – just not for CS students

- Work on real-world engineering problems
  - E.g. 1 Designing & Prototyping a robotic sensing system
  - E.g. 2 Optimizing robot walking

- Communicate technical content
Goals

- Able to apply knowledge of mathematics, and science to solve engineering problems
  - programming, circuit theory, calculus

- Develop problem solving and critical thinking skills
  - Investigate solutions by applying and evaluating information gathered from, or generated by observation, experience, and reasoning
  - Adapt to different thinking and working styles when working in a team

- Learn how to communicate your ideas to others in the field

ESE major overview

- Electrical Engineering
  - Technology behind
    - Power & Energy
    - Gadgets: LCD displays, computers, phones, robots
    - Communication Devices: Radio, cell phones, WiFi, satellites
  - Electrical engineers are concerned with:
    - Electricity to transmit energy (power engineering)
    - Using electric signals to sense, store and transmit information (electronics engineering)

- System Science and Engineering (SSE)
  - Aspects of engineering pertaining to a system

ESE (contd..)

System

- An arrangement (pattern, design) of parts which interact with each other within the system’s boundaries (form, structure, organization) to function as a whole

ESE (contd..)

SSE contd..

- Designing and developing a system requires integration of several scientific and technical fields
  - Math and Sciences
  - Computing (computer science)
  - Mechanical & Material Engineering
  - Many more...

- Computer & Telecommunications Engineering (CTE)
  - Computer Systems & Information Exchange (Internet)
    - Design & Building computers (embedded and general purpose) & networking systems
Get to work with

- **EduBot**
  - Hexapedal robot
  - Independently moves forward or backward
  - Climbs over a variety of terrains
- **Exemplifies Core ESE Disciplines**
  - EE – electrical devices; electrical circuits
  - CE – embedded and distributed computation
  - SSE – composition, multiple hierarchies of subsystems

Grading

- **Programming is 0.5 cu or 50%**
  - 3 Programming Exams: 60 % (15%, 20%, 25%)
    - Exam 1 (week of Feb 16th)
    - Exam 2 (week of March 30)
    - Exam 3 (Final Exam Period)
- **Homework: 30%**
- **Participation & Attendance: 10%**
- **Late Policy for assignment: 10% off per day upto 4 days and then no credit**
- **No makeup exams are scheduled. Conflict? Schedule in advance**

Grading contd..

- **Lab is 0.5 cu or 50%**
  - Pre-lab exercise: 15%
  - Lab Report Write-ups: 70%
  - Quizzes (1-2): 15%
- **Pre-labs due at start of the lab**
  - Late pre-labs will not be accepted
- **Lab report late submission policy**
  - 10% per day up to 4 days and then no credit
- **Missing Labs**
  - Due to the nature of the course, making up missed labs is not possible.
  - Unexcused absences will be result in a 15% penalty for that lab

Lab Logistics - Prelab

- **Before lab period we will post lab with related background material**
  - There is *no textbook* for this course
- **Questions termed as “Pre-lab” are to be completed & turned in at the start of the lab**
  - Work individually
  - Preferably typed (please write legibly)
Lab Logistics – Post Lab Report

- Post-lab Write-ups
  - A technical report to communicate the findings of your lab experiments
  - Is to be done *individually*
  - The report must be typed
    - See report writing guidelines document on the website
  - You may use course notes & lectures provided and any external source (properly cited) with exception of past years lab/students

Lecture Logistics

- Learn programming theory & practice to get comfortable to do lab assignments
  - There is no required textbook for programming as well

Any material supplemental to lab that needs to be communicated

Lab Logistics – Working in Lab

- Labs are to be done in groups of 2 or 3
  - You are encouraged to collaborate within your group and use any resources available to you
  - However, you may not discuss the lab with other groups

- Throughout the semester you may choose your *own* groups
  - HOWEVER, you may not work with the same person *twice* throughout the semester

Any questions?