

SYST 101
Introduction to Systems Engineering
Spring 2014

Instructor: Marty Rothwell

Lecture: Tuesday & Thursday 3:00-4:15 Planetary Hall 122

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Office Hours: Before or after class, or by appointment

Text: None

Description: The intent of this course is to provide a basic understanding of systems engineering (SE) and the systems engineering process. Students will become familiar with common SE terms and procedures as well as terms and procedures of other engineering disciplines. Students will also learn to use CORE, a systems engineering software program.

Students will also learn Arduino to use in a hands-on SE design process starting from a Conops paper to a completed system. Students will learn the SE process by building and programming an electronic device of their choice. This course is designed to give an overview of topics that will be covered in more detail in later SE classes.

SYST101 2014 Spring Syllabus

Date		Day	Lesson	Activity
1/21	T	1	Introduction Lec 1- What is an engineer?	Introduction
1/23	TH	2	Common Engineering Terms	Mech Universe
1/28	T	3	Common Engineering Concepts	Equations for Work
1/30	TH	4		Quiz on Eng Concepts
2/4	T	5	Lec 2 – What is Systems Engineering?	Create Context, Ext system.
2/6	TH	6	Lec 3 Define Needs & Requirements	Download CORE
2/11	T	7	Lec 4 Using CORE	
2/13	TH	8	Lec 5 System Modeling	
2/18	T	9	Lec 6 CORE functional modeling	EFFBD's & Simulation
2/20	TH	10	Lec 7 Putting it all together in CORE	

2/25	T	11		Order Arduino kits
2/27	TH	12	Final review for CORE Project	Turn in CORE project
3/4	T	13	Review for Mid-term	
3/6	TH	14	Mid-term exam	
3/10-16			Break	
3/18	T	15	Intro to Arduino Electronics Devices	Get Arduino boards Setup, loop, Hello World
3/20	TH	16	Programming Basics	blink, variables, functions, breadboarding, LEDs, resistors
3/25	T	17	Intro to Electronic Circuits	Voltage, Current, Resistance, Ohm's Law, Power
3/27	TH	18	Intro to Electronic Circuits	Sensors, Voltage dividers, potentiometers, thermistor.
4/1	T	19	Programming Basics	Control loops
4/3	TH	20	Arduino Basics	Speaker, tone(), servo, arrays
4/8	T	21	Project Discussion Rubrics	Create Conops Paper
4/10	TH	22	IR lecture	Infrared Detectors – LEDs
4/15	T	23	Decision Tables	
4/17	TH	24	Senior Design talk	Create SRD
4/22	T	25	Dr Laskey	Download Conops and SRD into CORE, create requirements & components.
4/24	TH	26	Lec 8 - Verification &Validation	Write Technical paper using CORE
4/29	T	27	Lec 12 Building Quality into your system	
5/1	TH		Presentations	Review for Final
5/8	TH		Final Exam	1:30-4:15

Grade Breakdown

20% Mechanics & Electronics
 20% CORE & Arduino Exercises
 20% Arduino Project
 20% Mid-Term
 20% Final Exam

100 – 95 =A+

94 – 90 = A

89 – 85 = B+

84 – 80 = B

79 – 75 = C+

74 – 70 = C

69 – 65 = D+

< 65 = F

Important Points:

- All Submissions will be submitted via Blackboard. No paper copies.
- During the course individuals will work in group exercises. When a group turns in a paper, the paper must have the full names of each person who participated in the exercise. I like the names as part of the paper, but I will also accept names in the notes section of the BB submission.
- If someone in your group was not present and did not participate in the exercise, then do not put their name on the paper. They will have to do the exercise on their own and turn in their own paper to receive their own grade.
- All submissions will have a deadline. The deadline will appear in BB. Any paper turned in late will have 10 points deducted from the total.
- Any submission should have a professional quality to it. It should look like a paper you would turn in if you were an employee with a company. Sentences must be grammatically correct and spelling must be correct.
- It is your responsibility to check Blackboard to verify your grades.