

**SYST 101**  
**Introduction to Systems Engineering**  
**Spring 2016**

**Instructor:** Marty Rothwell

**Lecture:** Tuesday & Thursday 4:30-5:45 Rob B 222

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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 2016 Spring Syllabus**

Date		Day	Lesson	Activity
1/19	T	1	Introduction Lec 1- What is an engineer?	Introduction
1/21	TH	2	Lec 2 – What is Systems Engineering?	Mech Universe
1/26	T	3	Common Engineering Terms	Equations for Work
1/28	TH	4	Common Engineering Concepts	Equations for Work
2/2	T	5	Common Engineering Concepts	.Quiz
2/4	TH	6	Lec 3 Define Needs & Requirements	Create Context, Ext system Download CORE
2/9	T	7	Lec 4 Using CORE	
2/11	TH	8	Lec 5 System Modeling	
2/16	T	9	Lec 6 CORE functional modeling	EFFBD's & Simulation

2/18	TH	10	Lec 7 Putting it all together in CORE	
2/23	T	11		Order Arduino kits
2/25	TH	12	Final review for CORE Project	Turn in CORE project
3/1	T	13	Review for Mid-term	
3/3	TH	14	Mid-term exam	
3/7-11			Spring Break	
3/15	T	15	Intro to Arduino Electronics Devices	Get Arduino boards Setup, loop, Hello World
3/17	TH	16	Programming Basics	blink, variables, functions, breadboarding, LEDs, resistors
3/22	T	17	Intro to Electronic Circuits	Voltage, Current, Resistance, Ohm's Law, Power
3/24	TH	18	Intro to Electronic Circuits	Sensors, Voltage dividers, potentiometers, thermistor.
3/29	T	19	Programming Basics	Control loops
3/31	TH	20	Arduino Basics	Speaker, tone(), servo, arrays
4/5	T	21	Project Discussion Rubrics	Create Conops Paper
4/7	TH	22	IR lecture	Infrared Detectors – LEDs
4/12	T	23	IR lecture	Conops paper
4/14	TH	24	Rubrics for Project	Requirements paper
4/19	T	25	Decision Tables	Create SRD
4/21	TH	26	Senior Design talk	Download Conops and SRD into CORE, create requirements & components.
4/26	T	27	Dr Laskey	Write Technical paper using CORE
4/28	TH	28	Lec 12 Building Quality into your system	
5/5	TH		Presentations	Review for Final
5/7			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. The names must be written on the cover sheet of the paper, and 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.