

SYST 395

Applications in Systems Engineering

Lab: R B222

Text: None

Pre-req – SYST 210

Co-req- SYST 330, 371, 335, 220/221

The intent of the class is to give you an understanding of modern technology and systems. We will cover three main topics of modern technology (Robotics, Communication, Programming). Each of these systems plays an important role in today's technological infrastructure.

Moreover, each of these systems are merging with one another to create huge advances in what is possible in modern systems technology.

Towards that end of learning how these systems work you are going to build a robot that is capable of moving by receiving instructions from your laptop via wifi. Your robot should also send data to your laptop via sensors on the robot. You will also create a GUI on your laptop to control your robot and receive data from it.

We are going to break the curriculum down into three main sections:

1. Robotics
 - a. Mechanics
 - b. Electronics
 - c. Sensors
2. Communications
 - a. Wired
 - b. Wireless
3. Programming
 - a. Arduino
 - b. Processing
 - c. Matlab

You will learn each about each section starting at the component level, then as a system, then how each section plays a part in the overall system of performing the mission. As you physically create the robot you will also be building a functional and architectural model of the robot using CORE.

SYST395 2016 Spring Syllabus

Date		Day	Lesson	
1/19	T	1	Orientation	<ul style="list-style-type: none"> • Students receive their kits • Learn how grading works
1/21	TH	2	Overview	
1/26	T	3	Building the Frame	
1/28	TH	4	Motor Assembly	Create project design in CORE
2/2	T	5	Learning Arduino	
2/4	TH	6	Learning Arduino	
2/9	T	7	Electronics	
2/11	TH	8	Electronics	
2/16	T	9	Sensors	
2/18	TH	10	Sensors	
2/23	T	11	Robot Motion	
2/25	TH	12	Robot Motion	
3/1	T	13	Robot Calibration	
3/3	TH	14	Power Calibration	Submit CORE model
3/7-11			Spring Break	
3/15	T	15	Power Calibration	
3/17	TH	16	IR Detection	
3/22	T	17	IR Detection	
3/24	TH	18	IR Detection	
3/29	T	19	Intro to Wifi	
3/31	TH	20	Intro to Wifi	
4/5	T	21	Intro to Wifi	
4/7	TH	22	Intro to Processing	Submit CORE model
4/12	T	23	Intro to Processing	Students test their respective subsystems.
4/14	TH	24	System Assembly	Students assemble their respective subsystems to systems level.
4/19	T	25	System Assembly & Test	Students assemble their respective subsystems to systems level and begin systems testing
4/21	TH	26	System Testing	Students test at systems level.
4/26	T	27	System Demonstration	Students demonstrate system

				meets all requirements in accordance with Test Verification Plan submitted in Requirements paper.
4/28	TH	28	System Demonstration	
TBD			Final Exam	