Course Details

Location:	D240
Date/Time:	Friday, 9:00am-3:00pm
Instructor:	Lucas Yasunaga Haroldsen (lharoldsen@mica.edu)
Office:	D210 (please email me for an appointment)
Class site:	http://yasunaga.work/raif19

Course Description

This class will introduce the arduino (http://www.arduino.cc) microcontroller, sensors, programming and various output devices (lights/sound/motion) as media for art making. Each student will create their own robotic work for presentation at the end of the semester. Studio work will be supplemented by lectures/presentations, video, critiques, and readings.

Focus point

This is a studio class focused on the practice of experimentation with the electronic medium through hands-on work. While we cover the basics of electronics, this is NOT an engineering class with textbooks to learn everything about electronics and coding, but it is a class to learn how to work with electronics through touching, looking, listening and using. Class materials are designed to encourage students to closely observe their making and the discovery.

Goals

This course is intended to demonstrate foundational knowledge of basic electronics and microcontrollers for students to make kin with their own creative practices. We strive to create a supportive and active studio class environment that supports this process. You will be exposed to an array of materials that are seeds for bigger ideas and projects that you might develop in the future.

Learning Objectives

By the end of this course you will

- be able to demonstrate fundamental knowledge of basic electronic components and workings
- have an understanding of the workflow of the programing and prototyping process with the Arduino Microcontroller
- be able to write a program for Arduino that is responsive and interactive
- be able to understand and use the vocabulary of basic electronics, including simple schematics to seek advice, collaborate, and participate in the community
- be able to solder, wire, and troubleshoot with electronics
- produce studio practice documentation of each experimentation and projects

Important Dates
- 09/20   Last day to drop a class (no transcript record)
- 10/07   Last day to drop a class (W on transcript)
- 12/13   Last day of class

Required Materials and costs
- Laptop (PC or MAC)
- Arduino UNO and matching USB ($20 ~ 30)
- 400+ pin Breadboard (prototyping board) ($5 ~ 8)
- Jumper wires ($5 ~ 10)
- Small storage container for your projects
- Drawing and writing materials

    Total Cost for required purchases will be $40 ~ 60
    Budget $10 ~ $50 for your final project

Grading System

Attendance: 30%
Studio Work: 40%
Participation: 10%
Documentation: 20%

Attendance
Attendance is simply coming to class on time 2 x 15 weeks = 30%

Studio Work
Studio work includes
1. Class assignments and exercises = 15%
2. Completion and quality of final project= 10%
3. Working in the class 1 x 15 weeks = 15%

Participation
Participation includes involvement and engagement with class material and subject = 10%

Documentation
Includes, proper documentation of
1. Studio work documentation= 15%
2. Final drawing, description, photograph, and video = 5%

Details of documentation expectations is discussed on the first day of class

Student Responsibilities

Attendance

Attendance is mandatory
- 3 unexcused absences is a failing grade (F)
- Excused absence must include written documentation
- You are responsible for any follow up with class materials and homework missed in your absence
- Attendance of critique is mandatory. Absence of critique will be reflected in your participation grade in addition to your project grade

Lateness
- Arriving after 9am is late
- 3 times being late is 1 absence
- Leaving early without permission counts as late

Late work

- Late work can be completed and graded with penalty up until a week later, dropping half a grade per day
- Late work due to an excused absence are free from penalty but still need to be submitted to me within one week

Studio Practice

Keep in mind that studio *practice* is the most important part of this class. Coming to class and working in class is **60%** of your grade. Leaving a class early or working on something that is not related to this class will affect your studio work and participation grade.
Please be respectful of each other and the creative studio environment.

Submitting your work

We will be using a Google Drive folder to upload your class work and documentation.

Backing up your work

It is your responsibility to backup all of your work throughout the semester. Broken computers and lost data will not be accepted as excuses for unfinished or late work. Please get yourself an external hard drive or cloud based backup account. It is an important practice to have reliable backups of your work!

Getting help

We will be covering an array of materials and some of them might be unclear to you. If so, please let me know and we can schedule some time to talk and go over the material; or, ask your peers, friends, and or utilize available online resources. Don't be shy to ask, we are all learning.

Schedule(subject to change)

Here is the initial schedule of this semester:

Week 1-2 (8/30 - 9/6)
- Introduction, syllabus review
- Speculative exercises and demos
- Introduction to electronic components
- Switch making
- Tool demos and practice

Week 3 - 4 (9/13 - 9/20)
- Logic Gates
- Physical Programing
- Soldering Exercise
- Construction techniques
- Solar bugs

Week 5 (9/27)
- Introduction to Arduino

Week 6 (10/4)   No class!

Week 7 (10/11)
- Electronic Harvest day

Week 8 - 12 (10/18 - 11/15)
- Introduction to Arduino
- Digital input and output
- Analog input and output
- Motors
- Conditional logic and memory

Week 13 (11/22) Thanksgiving Break!

Week 14 (11/29)
- Review and workday towards final project

Week 15 (12/7)
- Project workday

Week 16 (12/14)
- Final presentation
- Documentation
- Returning equipment

ACADEMIC POLICY STATEMENTS:

Americans with Disabilities Act

Any student who may need an accommodation based on the potential impact of a disability should contact the Learning Resource Center at 410-225-2416, in Bunting 458, to establish eligibility and coordinate reasonable accommodations.

Environmental Health and Safety (EHS)

Students are responsible to follow health and safety guidelines relevant to their individual activities, processes, and to review MICA's Emergency Action Plan and attend EHS training. Students are required to purchase personal protection equipment appropriate for their major or class. Those students who do not have the proper personal protection equipment will not be permitted to attend class until safe measures and personal protection are in place.

Plagiarism

Each discipline within the arts has specific and appropriate means for students to cite or acknowledge sources and the ideas and material of others used in their own work. Students have the responsibility to become familiar with such processes and to carefully follow their use in developing original work.

Policy

MICA will not tolerate plagiarism, which is defined as claiming authorship of, or using someone else's ideas or work without proper acknowledgement. Without proper attribution, a student may NOT replicate another's work, paraphrase another's ideas, or appropriate images in a manner that violates the specific rules against plagiarism in the student's department. In addition, students may not submit the same work for credit in more than one course without the explicit approval of all of the instructors of the courses involved.

Consequences

When an instructor has evidence that a student has plagiarized work submitted for course credit, the instructor will confront the student and impose penalties that may include failing the course. In the case of a serious violation or repeated infractions from the same student, the instructor will report the infractions to the department chair or program director. Depending on the circumstances of the case, the department chair or program director may then report the student to the appropriate dean or provost, who may choose to impose further penalties, including expulsion.

Appeal Process

Students who are penalized by an instructor or department for committing plagiarism have the right to appeal the charge and penalties that ensue. Within three weeks of institutional action, the student must submit a letter of appeal to the department chairperson or program director, or relevant dean or provost related to the course for which actions were taken. The academic officer will assign three members of the relevant department/division to serve on a review panel. The panel will meet with the student and the instructor of record and will review all relevant and available materials. The panel will determine whether or not to confirm the charge and penalties. The findings of the panel are final. The panel will notify the instructor, the chairperson, division, the student, and the Office of Academic Affairs of their findings and any recommendations for change in penalties.

Title IX Notification

Maryland Institute College of Art seeks to provide an educational environment based on mutual respect that is free from discrimination and harassment. If you have encountered sexual harassment/misconduct/assault, please know that there are multiple ways to report it and you are encouraged to do so (www.mica.edu/equal_opportunity). Additionally, in order to meet our commitments to equity and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, faculty and staff members are required to report disclosures of gender based discrimination made to them by students, except when prior notice regarding a specific classroom assignment or discussion is provided. If you require academic accommodations due to an incident involving sexual harassment or discrimination, please contact Student Affairs at 410.225.2422 or Human Resources at 410.225.2363.

Students with Extended Illness or Cause for Legitimate Absence

In the case of extended illness or other absences that may keep the student from attending a class for more than three meetings, undergraduate students must contact the Student Development Specialist in the Division of Student Affairs. The Student Development Specialist will then work with the student to determine the cause and appropriateness of the absences and subsequently notify instructors as necessary. Graduate students must contact the instructor, program director, and the Office of Graduate Studies. Students in art education or professional studies programs must contact the Dean for the Center for Art Education or the Associate Dean
for Open Studies, respectively. The appropriate administrator will facilitate a conversation with relevant faculty to determine whether the student can achieve satisfactory academic progress, which is ultimately at the sole discretion of the faculty member.