COURSE DESCRIPTION
Microsoft founder Bill Gates, in a 2006 Scientific American article, predicted robotics to be the next revolution in our homes and likened robotics today to the state of computer industry 30 years ago. Today, we are at the cusp of a major robotics and physical computing trend made possible by the ubiquity of cheap computers and open source movement in both hardware and software. In this class, we will learn fundamentals of designing and prototyping robots and machines that interact with the environment and execute motions that are either useful or entertaining. This will be enabled using Arduino -- an open source programmable microcontroller and physical computing platform -- that can take input from a range of sensors and actuate outputs. We will also learn about different sensors that can detect light, touch, sound, etc. and how the information gained from them can be processed to effect outputs using motors, lights, and other actuators. The class is at a beginner level and meant not only for science and engineering students, but also for students from arts with an interest in imparting their creations a "moving" element.

COURSE GOALS
• Improve critical thinking by developing evaluative, problem-solving, and expressive skills.
• Enhance group communication skills through discussions, small-group work, presentations or debates.
• Develop intellectual curiosity and better understand the role of a student in an academic community.
• Learn basic electronics, sensing, actuation, and circuit drawing
• Learn Microcontroller programming using Arduino
• Work in a team based project to design and fabricate an autonomous, microcontroller driven machine

COURSE REQUIREMENTS
1. **Class Attendance & Participation:** Students are expected to attend all of the classes and actively participate in the discussions. More than 2 absences will result in an unsatisfactory grade. Turn your cell phones/pagers off before a class begins. No computer, cell phone, ipod, iphone, or any other device that can potentially distract your class-mates should be used during lectures. If you have an urgent need to use these devices, please leave the lecture hall before doing so.

2. **ITS Program Attendance Requirement:** All students are expected to attend a Spring Commons Day event which will focus on major and career exploration. More information will be available at [http://ucolleges.stonybrook.edu/first-year-reading/commons-day-spring](http://ucolleges.stonybrook.edu/first-year-reading/commons-day-spring)

   • The ITS End of Year Ceremony (Date and Location TBD)

   **Additionally, students will need to attend:**

   • 1 ITS event designated as an educational program

   • 1 ITS event designated as a social program

   Students can only choose from among options offered on the ITS event website that specifically designate events as satisfying the requirements ([http://ucolleges.stonybrook.edu/its/events](http://ucolleges.stonybrook.edu/its/events))

   **University Scholar students are strongly encouraged to attend ITS programs, but are not required. Scholars have their own event requirement, which includes at least one Scholars (for-credit) event and one ITS (for-credit) event per semester, or two Scholars (for-credit) events.**

3. **Required Reading:** any online references, tutorials, lecture slides, or book chapters assigned by the instructor

4. **Assignments:** All assignments and projects will have to be completed by the students.

5. **Spring Commons Day**- All students in a Freshman 102 Seminar are required to attend a Spring Commons Day Event on Wednesday, March 26, 2014. For more information about this day visit: [http://ucolleges.stonybrook.edu/spring-commons-day](http://ucolleges.stonybrook.edu/spring-commons-day)

6. **Computer use:** Students are expected to regularly check Blackboard and their e-mail account for information and correspondence with the instructor and Undergraduate Colleges. In addition, we will be uploading information about in-class exercises on a separate google site at [https://sites.google.com/a/stonybrook.edu/its102/home](https://sites.google.com/a/stonybrook.edu/its102/home)
7. **Piazza:** This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com. Find our piazza class page at: [http://piazza.com/stonybrook/spring2014/its10210](http://piazza.com/stonybrook/spring2014/its10210)

**EVALUATION AND GRADING PROCEDURES**
Each Freshman 102 Seminar is a 1-credit course. Students may receive a grade between A-C or a U (Unsatisfactory). Missing more than 2 classes or failure to attend required Undergraduate College events will result in you earning an Unsatisfactory. Class participation, assignments, and final project will be factored into the grading for this course.

**Weights:** 10% class participation, 50% assignments and Quizzes, 40% Final Project

**ACADEMIC INTEGRITY**
Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at [http://www.stonybrook.edu/uaa/academicjudiciary/](http://www.stonybrook.edu/uaa/academicjudiciary/)

**AMERICANS WITH DISABILITIES ACT**
If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

**CRITICAL INCIDENT MANAGEMENT**
Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

**COURSE EVALUATIONS**
Stony Brook University values student feedback in maintaining the high quality education it provides and is committed to the course evaluation process, which includes a mid-semester assessment as well as an end-of-the-semester assessment, giving students a chance to provide information and feedback to an instructor which allows for development and improvement of courses. Please click the following link to access the course evaluation system: http://stonybrook.campuslabs.com/courseeval/
# ITS 102: UNDERGRADUATE COLLEGE SEMINAR
## 11-WEEK SCHEDULE
### SPRING 2014

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<td>Electronics II</td>
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<td>Introduction to Arduino</td>
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<td>Circuits Demo and Introduction to Arduino</td>
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<td>Arduino Programming I, Hands-on</td>
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<tr>
<td>3/3</td>
<td>Arduino Programming II, Hands-on</td>
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<td>3/10</td>
<td>Actuation and Sensing, Hands-on</td>
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<td>NO CLASS- SPRING BREAK</td>
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<tr>
<td>3/24</td>
<td>Robot Building: Putting it all together and Making it Move</td>
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<td>Hands on Robot Building: Adding Touch and Light Sensors</td>
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