**Course Number:** ID 6107

**Course Title:** Integrated Product Design

**Credit Value:** 3 credit hours

**Course Times:**

**Instructor:**

**Email/Office Hours:**

***\*Graduate level requirements added***

*This course was developed from ID8900 INT. New assignments have been added.*

**General Information**

**Course Description:**

This course provides an introduction to interactive product design including the basics of sensor technologies, electronics and programming required to produce working product concept prototypes.

## Pre-Requisites

None

**Course Goals and Learning Outcomes:**

Upon completion of the course students demonstrate knowledge, skill and abilities in the following areas:

* Understanding the fundamentals of design for interaction, including affordance, interactive models, iterative design process, and evidence-based design.
* Prototyping early stage interactive products and games using Arduino, Processing, rapid prototyping, and sensor creation techniques.
* Telling compelling stories that explain the value of their work, by communicating through poster, presentation decks, design briefs, and videos.

**Weekly Learning Activities:**

* Lecture (3 hours)

**Course Requirements and Grading**

**Required Texts**

There are no required texts for this course. Whenever possible, reference and reading materials will be provided in digital format via the class website. Sensors and components for basic lab exercises will be provided on a loan basis, subject to replacement if lost or damaged. Students will be required to provide any custom electronic components they may wish to incorporate in their prototypes at their own cost.

## Course Website and Other Classroom Management Tools

Canvas (<http://canvas.gatech.edu/>) will be the main portal for dissemination of course information.

Students are expected to check in on a daily basis

**Grading**

|  |  |  |
| --- | --- | --- |
| Assignment | Date | Weight (points) |
| P1. Storytelling with Littlebits | January 18, 2018 | 10 points |
| P2. Processing exercises | February 1, 2018 | 5 points |
| P2. Processing project | February 8, 2018 | 15 points |
| P3. Arduino exercises | February 22, 2018 | 5 points |
| P3. Arduino project | March 6, 2018 | 15 points |
| P4. Final team project | April 30, 2018 | 40 points |
| Participation | May 1, 2018 | 10 points |
|  |  | 100 points |

**Grading Scale**

Your final grade will be assigned as a letter grade according to the following scale:

A 90-100% (Guide: Independent work style and exceeding expectations)

B 80-89% (Guide: Meet expectations)

C 70-79% (Guide: Meets the majority of expectations)

D 60-69% (Guide: Fails to meet some expectations

F 0-59% (Guide: Fails to meet most expectations)

**Course Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week |  | Topic during class | Homework | Assignments Due |
| 1 |  | Intro to Interactive Products **Project 1: Storytelling with Littlebits** | Kickstarter story analysis |  |
| 2 |  | Littlebits exploration / work session **Project 1: Critique** | Concept work, works-like model | **P1: Short presentation, integrated model** |
| 3 |  | Intro to Processing Processing: Animation |  | Processing assignment #1 |
| 4 |  | Processing: Interaction **Project 2: Processing Game** |  | Processing assignment #2, #3 |
| 5 |  | Interactive Models & Affordance Studio work / check-in | Concept work Game development |  |
| 6 |  | **Project 2: Critique** Intro to Arduino |  | **P2: Working game** |
| 7 |  | Interaction Prototyping **Project 3: Arduino Timer** |  | Arduino assignments |
| 8 |  | Making Models / Making Posters In-class work / check-in | Looks-like, works-like, acts-like models |  |
| 9 |  | **Project 3: Critique** **Project 4: Game controller** |  | **P3: Poster, usable integrated model** |
| 10 |  | Sensor creation Arduino/Processing, Project Briefs | Refined concepts |  |
| 11 |  | Spring Break |  |  |
| 12 |  | Concept critique, Storyboard pinup Model check-in | Project brief, working sensor, storyboards |  |
| 13 |  | Studio work / check-in  **Project 4: First Critique** | Integration progress | **P4: Integrated model #1** |
| 14 |  | Video for interaction Studio work / check-in | Revised sketches, model, storyboard |  |
| 15 |  | Studio work / check-in  **Project 4: Second Critique** | Video draft | **P4: Integrated model #2, video** |
| 16 |  | Class Reflection / check-in **Project 4: Final Critique (Exam Period)** |  | **P4: Prototype, video, slides, image set** |

**Course Expectations, Guidelines and Policies**

## Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or <http://www.catalog.gatech.edu/rules/18/>.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

## Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

## Attendance and/or Participation

Students are expected to attend and participate during each class session. Attendance for all scheduled exams or any in class presentation is required. If you know that you will miss a class, please advise your instructor at least 24 hours in advance. If an unexpected situation occurs, it is your responsibility to contact the instructor within 24 hours of the scheduled class time. Missing three classes over the course of the semester without prior approval from the instructor will result in the loss of a full letter grade in the final grade for the course. See information about the Institute’s absence policy at <http://www.catalog.gatech.edu/rules/4/>.

Students are expected to actively engage in any in-class discussions and activities. This includes asking and answering questions with the instructors and other classmates, providing supportive critiques when the opportunity is provided, helping other classmates with their projects in class, and working effectively in class teams. Any active disengagement with in-class activities will result in an assessed penalty against the student’s participation grade.

## Collaboration and Group work

Collaboration and team-work is a core part of this class. By its nature, this class brings together people of many different disciplines and backgrounds, and provides an opportunity for them to learn from each other and work together. It is expected that members of this class will support each other, provide constructive criticism and feedback, and work to help each other complete assignments. Teams are expected to work together towards a common goal, and to resolve any differences amicably and with respect. Failure to do so may result in a penalty assessed to the semester participation grade.

## Extensions, Late Assignments, & Re-Scheduled/Missed Exams

All written assignments, graphical assignments, videos, photos, presentation decks, process books, and any other visual material will be submitted through Canvas as a digital copy. Some assignments may require a printout of a poster or paper, which should be presented at the beginning of the required class. All physical and on-screen models should be brought to class to present, and must be completed and in working order by the start of the appropriate class.

## Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek.

## Student Use of Mobile Devices in the Classroom

Mobile devices are permitted in the classroom during open work sessions and lab hours. However, mobile devices should not be used during lectures, class discussions, guest presentations, critiques or any other situation where a speaker has the focus of the class. Repeated usage of mobile devices during these periods in the class will result in a penalty assessed to the semester participation grade.

## Additional Course Policies

* All work must be original
* No internet images or stock photography allowed.
* Social Media boundaries. LinkedIn – Yes Facebook – No
* Work is done in the studio. Keep email communications brief and to the point.
* No pets in studio
* No texting or phone calls during studio. If you have urgent phone call please step outside classroom.
* No eating in class. Coffee and water encouraged and please clean up

**Campus Resources for Students**

We encourage making use of the range of laboratories, workshops and makers spaces around campus. In the School of ID we house the ID Shop (basement), Body Scan Lab, IPDL Lab and Driving Lab. Please contact workshop and lab staff to arrange working space and access to facilities. The Digital Fabrication Lab is a few minutes away.

This course may make use of support facilities such as the workshop, computing lab and other resources. The College of Design workshop (basement, east building) and laser-cutters (third floor, east building) are available to support design activities. Students wishing to use the facility and equipment must have completed the required introductory course and /or have been checked out in the proper use of the equipment by lab personnel. Students whose home department is outside of the College of Design may find that they have similar facilities available to them elsewhere on campus. Students must have completed a laser-cutter training course, and gained approved access to an on-campus laser-cutting facility.

Students have the option of purchasing their own Sparkfun Inventor’s kit to complete the course exercises with, though they are not required to do so. If students wish to purchase their own kits, these are the products approved for use in the class:

* Sparkfun Inventor’s Kit – Redboard: https://www.sparkfun.com/products/14094
* Sparkfun Inventor’s Kit – Arduino Uno: <https://www.sparkfun.com/products/13154>

If the student elects to borrow a Sparkfun Inventor’s Kit from the Interactive Product Design Lab, they will be required to sign a contract with the Lab, acknowledging that they have received all of the required parts in the kit, and that will commit to returning the kit in its original state. Any damage to parts contained within the kit must be disclosed immediately to the instructor. Any damaged or missing parts must be replaced by the student who signed out the kit, prior to the end of semester. Proof of a receipt for a shipped order from Sparkfun.com, with all required replacement parts on that order, and with the shipping address directed to the Georgia Tech School of Industrial Design, will be accepted for this replacement. Failure to return a borrowed kit with all parts intact as originally provided to the student, without submitting this proof prior to 12:00am on Saturday, May 5, 2018 will result in the loss of a full letter grade in the final grade for the course.

**Student Academic Bill of Rights**

* The right to attend classes at regularly scheduled times without deviation from such time and without penalty if the student cannot attend instructional, lab, or examination hours not institutionally scheduled.
* The right to consult with an assigned and qualified advisor for a reasonable amount of time each term.
* The right to consult with faculty outside usual classroom time such as regularly scheduled office hours by appointment.
* The right to have reasonable access to campus facilities of which use is required to complete course assignments and/or objectives.
* The right to receive a syllabus for each course at the first class meeting. The syllabus should include an outline of the course objectives, criteria used in determining the course grade, and any other requirements. Students should be informed of any changes made to the syllabus with reasonable time to adjust to these changes.
* The right to have reasonable time to learn course material prior to the administration of an examination.
* The right of each student to receive access to any of his/her records kept by the institution.
* The right to have reasonable access to grading instruments and/or evaluation criteria and to have graded material returned in a timely fashion.
* The right to be informed of the grade appeals process.
* The right to have reasonable facilities in which to receive instruction and examinations.
* The right to be informed in each course of the definition of academic misconduct.

Last update 01/08/2019