

**Course Number:** ID 3510

**Course Title:** Intro to Interactive Product Design

**Time and place:** TTH 5:00pm – 6:15pm Room: Arch West IPDL

**Instructor:** David Howard [davidhoward@gatech.edu](mailto:davidhoward@gatech.edu)

**Credit Value:** 3 credit hours

**Office Hours:** W 5:00pm – 6:15pm IPDL or by appointment

## Catalog Description:

The goal of this course is to equip students with additional skills, knowledge, processes, and workflows in the design and prototyping of interactive and immersive experiences, as well as exposing students to examples of interactive products and installations. Students will apply a variety of ideation, development and prototyping methodologies with a focus on interactivity. Focusing on designing digital experiences in the physical environment, students will design and specify design goals and requirements, as well as identifying systems, and content architectures and pipelines for those designs, as well as fabricate functional prototypes of varying fidelities in support of design goals. Students will work individually in lab exercises and in groups as a part of a team to produce cohesive work demonstrating the different user experiences in interactive installations for various stakeholders, as well as present, explain, and justify design decisions and technical artifacts in a professional manner.

## Learning Objectives:

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

### Design

- Apply a range of design processes to address open ended problems
  - Apply research methodologies to gather information throughout the design process
  - Incorporate feedback findings into design outcomes
  - Generate a diverse set of concepts
  - Develop detailed designs which represent finished products
  - Develop detailed designs which represent the design intention to be demo'd in a public environment
- Refine the details of design to consider use, available technology, materials, connect-ability, sustainability and accessibility
- Developing design skills to tailor interactive experiences and products to specific locations
- Develop product designs that are convincing, compelling and characterful.

- Develop meaningful design documentation and diagrams to communicate your design and technical intents to various team members and stakeholders

## Technology

- An introduction and working knowledge of TouchDesigner that will be used for the major projects
- Specify appropriate components for the experienced outcome
- Create a set of design and technology artifacts to justify design decisions as well as document requirements to realize designs.
- Create a working set of software and content pipelines to facilitate a multidisciplinary final product
- Develop an introductory understanding of research and working with technical documentation in software development practices
- Integrating components into functional designs
- Fabricate functional hardware and software for testing and evaluation with the intended experience

## Management

- Plan a project through completion encompassing research, design, fabrication, and testing.
- Produce work as a team that is cohesive
- Develop a project plan and a presentation around client settings and expectations.
- Champion your ideas in a team setting using written, 2D, and 3D design artifacts

## Communication

- Generate written proposals for projects and concepts
- Present, explain, and justify concepts, designs, and decisions through writing and visuals in a professional manner to team members or clients with different professional backgrounds and priorities.
- Explain concepts, designs, and ideas in verbal presentations

## Course Format:

Instructional methods for teaching the course include:

- Lecture and in-class discussions
- In class review (peer and external)
- In class demonstrations and workshop sessions
- Workdays

## Online Resources/Delivery:

The course will utilize Canvas for the distribution of class materials (such as lecture slides or

supplemental readings), announcements, calendar/schedule, and for turning in class assignments.

## **General Responsibilities and Expectations:**

### **Active Participation (formally known as attendance):**

Students are expected to attend and participate in class sessions unless you have a compelling reason not to do so. Absolutely do not attend any in person sessions if you are exhibiting any COVID-19 symptoms, feeling unwell, are immunocompromised, have possibly been exposed to covid, or are awaiting a covid test result. If you know that you will miss class, please inform 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. Any graded assignments missed due to an unexcused absence will be graded as a zero. Students will have an opportunity to make up assignments for absences after discussion with the instructor. Absences may be excused at the instructor's discretion, but any case will require a written excuse from a doctor's office, other instructor, coach, Dean of Students, etc.

### **Participation:**

Students are expected to be active and engaged in all discussions and activities in class. Participation will be recorded and factored into the student's grade. Students are encouraged to provide constructive criticism and feedback to their peers both inside and outside of class and be an active member of the design community. Examples of participation can include but are not limited to

- Engaging in class discussion
- Asking and answering questions in class
- Posting process shots
- Providing feedback on process shots
- Engaging during in person critique

### **Deadlines:**

Students are expected to complete any assigned readings, videos, or assignments and come prepared to each class. Deadlines for all assignments and projects will be specified when they are given. There will be no late turn in of assignments unless specifically approved. If approval is given, points will still be deducted for the late submission. In-class activities may only be made up if you are absent for a valid reason. The instructor reserves the right to change the dates and modify assignments as necessary, with advanced notification. Students will submit the majority of assignments in person in class and/or online. I understand that there may be some unexpected situations which may make it difficult to submit an assignment on time. In such a case, please reach out to me as soon as possible to arrange accommodations.

## **Approved Late submission:**

If approval is given for a late submission 3 points will be deducted on the assignment for the first 24 hours the assignment is late and additional 3 points for every 24 hours after that. If you have not submitted the assignment within 72 hours and have not discussed a farther extension in both person and writing, you will receive zero points for the assignment. For example, If the assignment is due at 12:30pm on Monday if you submit it at 12:31pm on Monday you will lose 3 points. If you submit at 12:31pm on Tuesday, you will lose 6 points. If you submit at 12:31pm on Wednesday, you will lose 9 points. And if you submit at 12:31pm on Thursday you will receive a zero for the assignment.

## **Lab Policies / Personal Safety Equipment:**

Much of this class will take place in lab and shop environments. During that time students will follow the dress code and policies of those spaces. This course will make use of support facilities such as the COA Design Shop, computing lab, Laser Cutters, 3D print lab, and other resources. The College of Design Shop (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 orientation and /or have been checked out in the proper use of the equipment by lab personnel. Failure to adhere to these policies will result in failure of this course. Students are encouraged to wear face coverings and are strongly encouraged to wash their hands both before and after entering the workspace.

If at any point in the semester you are diagnosed with Covid-19 please report it to the Stamps Health Center and they will initiate proper contact tracing procedures.

## **Academic Honesty**

All students in the class are expected to know and abide by the Georgia Tech Academic Honor Code. Specifically, for us, the following academic honesty policies are binding for this class:

In this course plagiarism is defined as “passing off (the ideas or words of another) as one's own: use (another's production) without crediting the source.” Ideas or words can consist of models, CAD files, Images, etc.

Some specific examples might include:

- Having someone else draw sketches for you
- Having someone else make physical models for you
- Having someone else sand physical models for you
- Having someone else model parts in CAD for you
- Downloading models from the internet when not specifically approved
- Not crediting downloaded assets (models, code, images) when used

All work in this course is to be done Individually. If someone else is making changes to your work, that is considered unauthorized collaboration. That being said, feel free to seek out feedback about designs and approaches from your classmates.

Some specific examples might include:

- OK: Asking a fellow student to check the hand fit of a model
- OK: Discussing with a fellow student if you should secure a housing with snap-fits or screws
- OK: Having a fellow student hold a part as you glue it in place
- NOT OK: Having a fellow student model a part on your CAD model
- NOT OK: Having a fellow student laser cut parts for you
- NOT OK: Having someone write and upload code for you

You may not, under any circumstances, copy any code from any current or former student in the class or any projects. You are permitted to utilize example code from libraries or APIs found online. If you acquire code from online include a link to the original source of the code and clearly note where the copied code begins and ends (for example, with `/* BEGIN CODE FROM (source link) */` before and `/* END CODE FROM (source link) */` after the copied code). This is partially to emphasize what your unique project and deliverable is, and partially to protect against instances where you and a classmate both borrowed a function from the same external repository.

These policies are binding for the class. Any violations of this policy will be subject to the institute's Academic Integrity procedures, which may include a 0 grade on assignments found to contain violations; additional grade penalties; and academic probation or dismissal.

Note that if you are accused of academic misconduct, you are not permitted to withdraw from the class until the accusation is resolved; if you are found to have participated in misconduct, you will not be allowed to withdraw for the duration of the semester. If you do so anyway, you will be forcibly re-enrolled without any opportunity to make up work you may have missed while illegally withdrawn.

For any questions involving these or any other Academic Honor Code issues, please consult me or [www.honor.gatech.edu](http://www.honor.gatech.edu).

## Evaluation Criteria:

Projects and assignments will be evaluated based on relevance to assignment criteria. Each project will have a certain number of points available which are allocated to different criteria.

## Grading:

Grading will be based on the Georgia Institute of Technology system. No plus or minuses will be applied to the final grade. Each project will contain a certain number of points. A student's final grade will be determined from the points they earn out of the total possible points. Students will have one week after each project grade submission to discuss any grading matters with the instructor. The possibility of extra credit projects exists but do not rely on them to save your grade. The opportunity for extra credit will be made available to all students. The

grade ranges are defined as follows:

A = 90-100%

B = 80-89%

C = 70-79%

D = 60-69%

F= 0-59%

## **Grading Distribution:**

**Cool Thing of the Week:** 10%

**Project 1:** 10% Interactive Molecule Concept Pitch

**Individual Labs:** 25% Introduction to TouchDesigner

**Project 2:** 50% Interactive Installation in the College of Design

**Participation:** 5% discussions, attendance

Note that the final presentation for this class may be during the posted exam period during the final exam period. Attendance and on time arrival for this presentation is mandatory. This is extremely subject to change.

## **General Deadlines:**

The following dates are for major deliverables for the projects in the course. These are subject to change.

### **Project 1**

1. Team formation
2. Final Presentation

### **Individual Labs (TouchDesigner Introduction)**

1. Lab 1 - Introduction to TouchDesigner and Designing a VideoSwitcher
2. Lab 2 - Creating Generative and Custom Visual Effects
3. Lab 3 - Adding Interaction to Content
4. Lab 4 - Introduction to Projection and Previs Mapping

### **Project 2**

1. Project Kickoff and Team Formation
2. Team Initial Pitch
3. Final Concept and Plan
4. Midpoint Presentation
5. 80% Project Check-in
6. "Final project "Dress Rehearsal"
7. Final Presentation - during final exam period

## **General Notes (policies and procedures):**

### **Special Needs:**

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.

### **Contacting the Instructor for an Appointment:**

If you would like to arrange a meeting or appointment, please speak with the instructor after class, while wandering around campus, on MS teams, or contact the instructor via email ([davidhoward@gatech.edu](mailto:davidhoward@gatech.edu)). Please allow 24 hours for a response, perhaps longer on weekends.

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***This syllabus may be subject to change during the course of the semester. If so, the syllabus will be updated online and you will be informed of the changes.***