ID 3051- Interactive Product ID Studio I

Course Basics:

Time and Place: MW 12:30pm – 4:20pm Arch west 264, Studio next to IPDL

Final: Finals matrix not released yet. (Launchpad Setup), Launchpad December 17th

Instructor: Noah Posner (noah.posner@ipat.gatech.edu)

Learning Assistant: TBA

Credit Value: 4 Credit Hours

Noah's Office Hours: Thursday 2:00-3:00pm in IPDL or by appointment.

LA Office Hours: TBD

Catalog Description:

This course aims to equip students with the skills and knowledge to apply systematic design methods to projects with a focus on sensor based technology. Students will apply a variety of user and technology centered research methodologies, generate concepts, develop detailed designs, and perform tests on fabricated prototypes to address open ended problems. Focusing on incorporating sensor based technologies, students will specify appropriate components, integrate technology, and fabricate functional hardware and software based on desired experiential outcomes. Students will work as both individuals and as part of a team to produce cohesive work but also champion their ideas in a group setting through the use of written, 2D, and 3D design artifacts. They will also present, explain, and justify concepts, designs, and decisions through writings and visuals 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 research findings into design outcomes
    - Generate a diverse set of concepts
    - Develop detailed designs which represent finished products
    - Perform tests on fabricated prototypes

- Refine the details of design to consider use, materials, manufacturer, sustainability and accessibility
- Develop product designs that are convincing, compelling and characterful.

Technology

- Specify appropriate components for the experienced outcome
- Integrating components into functional designs
- Fabricate functional hardware and software for testing and evaluation with the intended experience

Management

- Plan a project through to completion encompassing research, design, fabrication, and testing.
- Produce work as a team that is cohesive
- Champion your ideas in a team setting through the use of written, 2D, and 3D design artifacts

Communication

- Generate written proposals for projects and concepts
- Present, explain, and justify concepts, designs, and decisions through writings and visuals in a professional manner
- 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
- Field Trips to relevant locations.

Online Resources/Delivery:

The course will utilize Canvas (https://gatech.instructure.com/) for the distribution of class materials (such as lecture slides or supplemental readings), announcements, calendar/schedule, and for turning in class assignments. Microsoft Teams will be utilized as a collaborative digital environment where students can share progress for feedback, post work, and hold group meetings. Teams will also be used for holding class

sessions. Students will need to have an online portfolio or other online work documentation such as behance.

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 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 doctors's office, other instructor, coach, Dean of Students, etc.

Participation:

Students are expected to be active and engaged in all in class discussions and activities. Participation will be recorded and factor 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 vast majority of assignments in person in class and online. I understand that there may be some unexpected situations which may make it difficult to submit an assignment on time. Please reach out to me as soon as possible to make 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 further 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 space. This course will make use of support facilities such as the CoD 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 a work space.

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, ect.

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 get 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 snapfits 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 found in the arduino IDE. 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.eduLinks to an external site.](www.honor.gatech.edu)..

Policy for Prompt Derived Content

In this course prompt derived content is considered any product of a computing system in which the user specifies a desired result and it is provided.

Some examples of prompt derived content are

- Image from a google image search
- Image generated from Chat GPT
- Image based off a drawn image fed to mid journey
- List of concept names from Microsoft Copilot
- Code generated using Claude
- Background of a beach extending an image with Adobe Firefly

Any instance where prompt derived content is utilized be it for process, ideation, inspiration, or end results, it must be cited appropriately. In many cases, conversational systems, such as Copilot or Chat GPT, can provide you with the correct citation for the item generated.

Prompt generated content can be utilized only in cases where it does not impact the intent of the design and is not the primary focus of the communication method. A good approach is to only use it for things in the background, and for people that do not interact directly with your design.

A good use of prompt generated content might be.

- create a background environment to put your model in
- Generate a city landscape where you are placing a person holding your new camera design.
- Coming up with fake breakfast cereal brand names to add to your sketches so that the items on the shelf of your grocery store concept are varied .

Bad uses of prompt generated content might be.

- Having a system creates a colored render of your linework sketch.
- Having a a system makes a storyboard of a user interacting with your product.
- Generating a person at a breakfast table eating a bowl of cereal with the spoon that you designed.

When leveraging prompt generated code, sometimes called “vibe coding”, you will need to be able to explain what the vast majority of your code is doing and how it is accomplishing it. This does not mean “do not use prompt generated code”. If you are unfamiliar with the functions the system is selecting, go look them up and understand why it is making those decisions. Make sure you are explicit in the citation that you generated the code, and you may want to clear it with the professor first to avoid any issues with it being considered plagiarism or unauthorized collaboration.

As prompt derived work cannot be legally copywritten or patented, in no way are you able to claim prompt derived work as your own and therefore it must be cited and not convey the intent of your design.

If prompt derived content is considered to convey the intent of your design and is properly cited you will receive a zero for that portion of the assignment. You will be given the opportunity to redo the work, if possible, on a reduced timeline for the recovery of a portion of the points.

If uncited prompt derived content is used it will be considered plagiarism or unauthorized collaboration under the academic honor code and will be subject to the institute’s Academic Integrity procedures.

If you have any questions about the use of prompt derived content do not hesitate to contact the professor. **This is a situation where you want to ask permission as there will be little forgiveness.**

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 submissions 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%

Grades will be based according to the following grading distribution:

Grading Distribution:

Project 1	190	Interactive Expressive Wearable
Project 2	1203	Details of Interaction
Participation	25	Peer Grading, discussions, attendance, cool thing of the

General Deadlines:

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

Project 1		
1.	Concept Ideation	August 31
2.	Component Specification	September 9
3.	Concept Specification	September 9
4.	Breadboard Modeling	September 14
5.	Integrated Model Creation	September 16
6.	Final Improved Model	September 23
7.	Portfolio Page	September 28
Project 2		
1.	Team Formation	September 28
2.	Project Scaffold	September 30
3.	Understanding Your Market Segment	October 7
4.	Concept Development	October 21
5.	Design Refinement	November 2
6.	Fully Developed CAD	November 11
7.	Final Presentation	December 7
7.	Portfolio Page	TBD (Finals Matrix Needed)
8.	Studio Cleanup (Part of your partition grade, must arrive on time)	TBD (Finals Matrix Needed)
9.	Launch Pad Presentation	December 17

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 (*noah.posner@ipat.gatech.edu*). Please allow 24 hours for a response, perhaps longer on weekends.

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.