ID 6106 A Syllabus

3D Design Methods, 2 Credits

ID 6106 1 – T/Th 12:30 – 2:20 pm, Room 359, West Architecture Building

Instructor Information

Contact Info

Instructor	Email	Office Hours & Location
Tim Purdy	tim.purdy@design.gatech.edu	Office hours: Tuesday/Thursday 11 - 12 pm (Please email me to setup a meeting) Office: Room 366 A (In the breezeway between the buildings)

General Information

Welcome to the 3D Design Methods course!

This course investigates how computer aided industrial design (CAID) or 3D digital modeling fits into the product design process. Industrial designers have a lot of tools available to conceptualize, model and present their designs. The tool that will be used this semester is Fusion 360 and KeyShot. For designers, these are great tools since they have a lot of features and are easy to learn. Learning how to effectively use these tools will be the first emphasis of this course.

The second emphasis of this course is how to use a traditional CAD program in the product design process. We will look at the designing of a product concept from five perspectives: ideation, development, exploration, documentation & presentation. Some of these perspectives include using sketches (ideation) from CAD underlay, working with scan data to sculpt forms to fit it (exploration) and creating shop drawings to build parts (documentation).

The third emphasis is creating a high quality models from the CAD data by using different construction techniques. Although we will be designing a product, the CAD modeling will focus on how to best use the data to build models for design verification, functional testing and appearance. Each method impacts the CAD model in different ways.

Pre/Co Requisites

There are no specific pre/co requisites for the course. If you do have 3D knowledge from other CAD or rendering programs, it can be very helpful. I am teaching you how to use these programs in the design process, which will have a different emphasis from traditional instructions of these programs.

Course Goals and Learning Outcomes

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

- Understand how computer aided industrial design (CAID) fits into the overall design process and how to use it with traditional methods
- Understand how modeling and rendering can help you explore and refine your designs
- Ability to create parts that contain solid, surface or t-spline forms
- Know how to apply different materials, textures, decals and environments to render a scene
- Learn how to document a design through drawings, interactive PDFs and animations

Course Requirements & Grading

Assignment	Date	Weight (Percentage, points, etc)
Assignments 1 - 5	See Schedule	65% (13 points each)
Homework (8 total, top 7 count)	See Schedule	21% (3 points each)
Physical Model	See Schedule	14%
Total		100%

Late, Past Due or Regrade Assignments & Homework

Assignments are due by midnight on the date indicated in Canvas. To help manage the course workload with your other courses, one of the first four assignments can be submitted past-due or as a regrade assignment. This assignment is not due until the due date of the final assignment (usually during finals week). If submitting an assignment for a regrade, re-submit all the required files even if they have not been updated.

There is a 48 hour grace period when assignments are due. You can use this on all assignments except the last assignment. After the 48 hour grace period, students will loose 5 points per additional 24 hours.

Please let me know by email when you are using either one of these options. Homework assignments cannot be submitted late or for a regrade. A total of eight homework will be given but only the top seven grades will count.

NOTE: *Only one assignment can be used as a late or re-grade assignment. Use these options wisely to help balance your work-load during the semester.*

Final Submission Deadline

Assignment 5, Past Due/Regrade Assignment, and the Physical Model are due by midnight, Tuesday May 5. Make sure that all the required files are submitted in Canvas and have uploaded completely. A submission box/location will be posted for the physical model. Make sure your name is on the model and the required

files/images are uploaded in canvas.

Extra Credit and Grade Dispute Policies and Procedures

Extra credit is not given during the semester. However, students do have the ability to submit late an assignment without a penalty or resubmit one assignment for a re-grade. This applies only to assignments 1 thru 4.

Description of Graded Components

Each assignment and homework has its own description and rubrics for grading. All of them are posted in Canvas. After an assignment or homework is graded and returned, students can review comments either attached to the assignment and homework or attached to the rubrics.

Grading Scale

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

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F 0-59%

Course Materials

Course Text

No book is required for this course.

Additional Materials/Resources

An extensive set of learning tutorials is available in Canvas (Modules & Media Gallery). There are additional resources at:

LinkedIn Learning - **https://linkedinlearning.gatech.edu (https://linkedinlearning.gatech.edu)**

Specific Tutorials - **http://purdy.gatech.edu/all-tutorials/ (http://purdy.gatech.edu/all-tutorials/)**

Artificial Intelligence (AI) Policy

Please review the **Georgia Tech's AI Standards and Guidance (https://oit.gatech.edu/ai/guidance)** page for important information about the proper use of AI tools. Please note that some AI tools such as "DeepSeek should not be used for Institute-related work, research, or any activities involving Georgia Tech data."
The policy for the use of artificial intelligence (AI) tools, programs, techniques, etc. in this course is the following. The original work for assignments, homework and in class exercise should be your own work. Generating content (images, 3D models, code, etc.) for your work can be created using AI tools but must be properly cited. Include the tool used and any prompts used to generate the content. This should be included in the submission

PDF or submission note.

Course Website and Other Classroom Management Tools

Canvas will be used throughout the semester as a way to communicate the syllabus, assignments, exercises, grading, course resources, etc. and as a way to submit material for assignments and exercises.

Submission Requirements

All assignment files are to be turned in electronically through the Canvas system. File and folders can be comprised and submitted in a zip format for easier submissions. If a PDF is required for submission, submit it separately in Canvas so it can easily be reviewed.

Attendance and/or Participation

I do not keep attendance for this course so it is your own prerogative to attend or not. If you miss a class, it is your own responsibility to learn the material you have missed by using other resources such as videos, other student notes, the Course Resource pages or other tutorials. If you have been attending class and are still struggling with the material, I will be glad to meet with you to go over it further.

To make the most out of the learning experience for yourself and your fellow students, please sure to be in class on time, login and have started the software.

Collaboration & Group Work

All work is to be student's own work. No group work is allowed for any assignments or in-class assignments. However, asking for help from other students is encourage since it is a great way for both students to learn. In addition, students are to create their own content for assignments unless otherwise noted. Students are not allowed to use content from in-class demo files unless specific permission is given.

Additional Course Policies

Got a question? Ask it! I believe it helps make the class more engaging and easier to pay attention. Questions also help me understand if I did not present the material properly or maybe need to go into something deeper.

Please make every effort to be on time. I know sometimes this cannot be avoided but making a habit of being late usually leads to a student falling behind and struggling to catchup.

Be present and attentive in class. I know this one is tough, Setting behind a computer while in a class can easily lead to distractions. Work on things for this class and not other classes.

Teaching Philosophy

I have a philosophy that even in failing, you are learning. I can sum up this course with this phrase “Failing to Learn.”

Students will bring in a lump of plastic because the 3d printer failed. Just because the 3d printer failed, it does not mean you did not learn about the process. Or, your interface prototype works great when testing and developing it, but start acting up during the testing phase. Maybe the user does something unexpected and

causes the interface prototype to mess up. That is why you create an interface prototype. You are learning what the user really does, not what you want them to do.

I believe that ever time a course is taught, it should evolve. The subject of interface prototyping is especially true. The concepts, techniques and tools are changing at a rapid pace. To help bring in relevant information to the class, each student is expected to present during the semester. It gives you an opportunity to learn something new and share it with your fellow students and me.

Software

Please see the **Software (https://gatech.instructure.com/courses/499126/pages/software)** page that is available under the Introduction Module or under the Pages tab. It provides a comprehensive list of software that will be used for the course. It also has a section called "Access to the Software". All software used for this course are free although you may have to access them through the College of Design license, lab computers or virtual desktop computer. If you are having any issues accessing the software, please let me know so we can get you setup properly and not fall behind in the course.

Course Expectations & Guidelines

Health-Related Considerations

Effective July 15, 2020, University System of Georgia (USG) institutions will require all faculty, staff, students, and visitors to wear an appropriate face covering while inside campus facilities/buildings where six feet social distancing may not always be possible. All members of the campus community will be provided reusable cloth face coverings.

Face covering use will be in addition to and is **not** a substitute for social distancing. Anyone not using a face covering when required will be asked to wear one or must leave the area. Refusal to comply with the requirement may result in discipline through the applicable conduct code for faculty, staff or students.

There are a few exemptions. Reasonable accommodations may also be made for those who are unable to wear a face covering for documented health reasons.

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/ (http://www.catalog.gatech.edu/policies/honor-code/)** or **http://www.catalog.gatech.edu/rules/18/ (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 Individuals 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/ (http://disabilityservices.gatech.edu/)** , as

letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Modified Operations Policies

With developments and improvements to digital instruction over the past few years, the Institute has developed policies to leverage digital learning as much as reasonably possible. The policy sets forth requirements, procedures, and responsibilities related to the scheduling of digital instruction and/or make-up classes due to the modification of campus operations, closing of campus, or the necessary closing of instructional spaces for any reason (including but not limited to emergencies, such as inclement weather, power outages, or other infrastructure failures). Students should await communications from their instructors regarding delivery of their classes during that period based upon the **Digital Learning Days for Modified Campus Operations Policy (https://policylibrary.gatech.edu/academic-affairs/digital-learning-days-modified-campus-operations)** . Students should follow guidance and/or directions provided by the Office of the Vice President for Student Engagement and Well-Being regarding student activities, events, programs and services.

Student-Faculty Expectations

At Georgia Tech we believe that it is important to continually strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See **http://www.catalog.gatech.edu/rules/21/ (https://catalog.gatech.edu/rules/21/)** for an articulation of some basic expectations – 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. Therefore, I encourage you to remain committed to the ideals of Georgia Tech, while in this class.