



IAT437 – Representation and Fabrication Syllabus – Spring 2017

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Office Hour	TBA
Prerequisites:	48 Units and IAT336
Recommended:	Desire to immerse yourself in the tools and techniques of realizing design work.

The Official Course Description:

Introduces computer-based tools for representing and fabricating designs. Covers the representation of work within a design process, the use of visualization techniques to communicate with clients, and the use of digital fabrication technology to build prototypes. Projects are chosen to highlight key representational issues in contemporary design practice.

The Real Course Description:

This course aims to help you discover your own personal “joy of making” physical things, as an integral part of your professional development.

Learning Outcomes:

By fulfilling the requirements, students will be better prepared to:

- Represent designs digitally.
- Make, that is, fabricate design prototypes.
- Combine representation and fabrication in a design project.
- Continue to develop interest in and ability to pursue new ways to realize designs.

Learning Activities

The course is built around interrelated conceptual and hands-on learning activities. Beside the content presented in the lecture, students will complete the following activities during the labs:

1. **Assignments:** For the first nine weeks of the course, there will be weekly assignments, one focused on representation, the other on fabrication.
2. **Project:** The project aims to combine what you have learned about representation and fabrication into a project that requires both.
3. **Quiz:** The final quiz (for bonus marks) will test for concepts learned.

Evaluation:

Representation Assignments	36 % (individual)
Fabrication Assignments	36 % (individual)
Course Project	28 % (individual or group of two)
Bonus Quiz	5% (individual)

Yes, it all adds up to 105%, but the mark you earn will be your mark in the course.

Course material and submissions

We use the website www.sfu.ca/~robw/IAT437 for all material we will make available to you during the course. In particular, this includes all assignment handouts.

You will submit all of your digital work through assignments set up on Canvas.

Announcements will be made through the Canvas announcement system. Make sure that you have your Canvas set up to forward these to you as emails.

Plagiarism

This is a design course. In design it is impossible not to use sources – design is an irretrievably historical and derivative discipline. You want to use sources as starting points – we call these *points of departure*. But you must not plagiarize.

Repeat, you must not plagiarize. (sorry to shout 😊)

If you are caught in an act of plagiarism, you will fail this course.

The penalty is so harsh because the remedy is so easy, honest and enabling. Cite your sources. Joyfully show them. And show how you have moved on from them. In almost all design, the “magic” is in what you do with your starting points, not the starting point itself.

When you cite properly you gain from showing what you have done. Your peers gain from knowing the work from which you began. Your instructors gain because we can see your unique contributions.

If you have any doubt about how to cite sources, talk to your instructors.

Training Requirements and Lab Fee:

Students are required to complete SFU Lab Safety Orientation offered by EHS, pass a test, and complete an in-lab orientation session to use the SolidSpace Lab.

A course materials lab fee of \$70.00 will be collected from all students taking this course to cover the costs of consumable materials and machine use in the prototyping lab.

Text, Resources & Materials:

Recommended and Reference Texts. There are more good texts than you can possibly read. You should come to know your own favourites. Here are some your instructors think are useful.

James D. Bethune. *Engineering design and graphics with SolidWorks*. Peachpit Press, [015. (Available through SFU Library as digital book)

Geoffrey Boothroyd, Peter Dewhurst, and Winston A. Knight. *Product Design for Manufacture and Assembly*, CRC Press 2001, Second Edition, Revised and Expanded (Available through SFU Library as digital book)

Bjarki Hallgrímsson. *Prototyping and modelmaking for product design*. London : Laurence King Publisher. 2012. (Available through SFU Library as digital book)

Alex Milton and Paul Rodgers. *Product Design*. Laurence King Publisher. 2011. (Available through SFU Library as digital book)

Donald Norman. *The Design of Future Things*. Basic Books Publisher. 2009.(Available through SFU Library as digital book)

Daniel Shodek, Martin Bechthold, Kimo Griggs, Kenneth Martin Kao and Marco Steinberg. *Digital Design and Manufacturing: CAD/CAM Applications in Architecture and Design* (2006).

Robert Woodbury. *Elements of Parametric Design*, Routledge. 2010.

Ibrahim Zeid. *Mastering SolidWorks: the design approach*. Peachpit. [2015]. (Available through SFU Library as digital book)

Yi Zhang with Susan Finger and Stephannie Behrens. *Rapid Design through Virtual and Physical Prototyping*. Carnegie Mellon University.

Other readings will be posted throughout the term.

