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Teaching Assistant: Guillermo Juarez
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Office Hours: During studio/lecture hours or by appointment.

Time and Location: Please refer to Carleton Central under Student Services – Registration – Search Schedule: https://admissions.carleton.ca/faqs/where-can-i-find-the-class-schedule/

Course Description:
Principles of design sketching used in the industrial design process. Topics include: sketching as a tool for problem definition; idea exploration and form development; rendering techniques and the communication of design concepts; basic physical prototyping and modeling-making techniques. Includes: Experiential Learning Activity. Prerequisite(s): IDES 1001 and IDES 1301, or permission of the School of Industrial Design. Studio and lectures six hours a week.
Learning Outcomes:

By the end of this course, students will be able to:

1. Apply freehand orthographic and perspective sketching competency including construction, line weight management, shading and shadows to effectively demonstrate a working knowledge of design sketch.

2. Describe theoretical foundations behind design sketching conventions such as perspective, foreshortening, light and shade, orthographic projection, ground figure relationships, viewpoint and orientation, intentional ambiguity.

3. Explore and identify material selection through the rendering conventions including matt vs. glossy plastic finishes, metals, wood, glass and transparency.

4. Execute group ideation process through sketches and prototypes as a channel for an effective communication and visualization.

5. Analyze product components and user interaction to find design opportunity.

6. Explore formal issues in regards to composition and proportion through explorative hand sketching and model making in low fidelity materials simultaneously.

7. Use sketches as a tool to facilitate iterative design process to develop multiple design alternatives and successive ideas and proposals.

8. Explain how drawing fidelity evolves through explorative, explanatory and persuasive sketching for design concept development and specification.

9. Perform ideation and critical thinking simultaneously for design process.

10. Show contextual information (e.g. people and environments) through hand sketching as well as electronic means.

11. Import and manipulate hand sketches in Photoshop.

12. Use professional terminology in regard to sketching and drawing conventions.

Required Materials:

Materials required for the course are listed below. You may be asked by your instructor to refer to cuLearn and ARES for a more comprehensive list of required materials.

Drawing Materials
This is an initial list of supplies you will need for this course. We will update and add to this list when necessary.

1. **Sketchbook**: Mobile size to carry with you everywhere! (e.g., Moleskin A (5”x8 ¼”), B (7 ½” x 10”), and hardcover (8 ½” x 12”, larger is preferred) or sketchbooks available from the lab). Sketchbook will be used to support work progress every week and reviewed during in-class consultations.
2. **Newsprint pads** (18” x 24”)
3. **Paper**: Standard Letter sized (11” x 8.5”) white copy, inkjet, and LaserJet paper
4. **Maker Pad**: Bienfang Graphics 360 paper
5. **Pens**: Black ballpoint (fine), Fine liner pens, Sharpie, Verithin pencils
6. **Prismacolor pencils
7. **Markers**: a set of Cool Gray markers, plus 2 or 3 colour markers. Suggest multi-tip professional brands such as Shinhan, Alpha, Prismacolor, Zig, Touch or Copic.
8. **Extra**: Template (Circle, Ellipse), Steel ruler, Cutting mat, etc.

**Required textbook**


**Recommended supplemental textbooks**


**Computer Requirements:**

Please refer to the computer requirements on the School of Industrial Design Website:

[http://www.id.carleton.ca/undergraduate/about-the-bid-program/computer-requirements](http://www.id.carleton.ca/undergraduate/about-the-bid-program/computer-requirements)

**Course Deliverables:**

These are the deliverables for this course. Please see Appendix A Course Schedule for more detailed information.

<table>
<thead>
<tr>
<th>Weekly assignments</th>
<th>20</th>
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</thead>
<tbody>
<tr>
<td>Project 1 – Studio Project</td>
<td>15</td>
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<tr>
<td>Course</td>
<td>Weighting</td>
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<tr>
<td>Project 2- Individual Project</td>
<td>30</td>
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<tr>
<td>Project 3- Team Project</td>
<td>25</td>
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<tr>
<td>Pop up Quiz/Test</td>
<td>10</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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</tbody>
</table>

Type here to list course deliverables and weighting of these deliverables (e.g. Projects, Assignments and Exams).

**Individual/Group Work**

Courses may include individual and group work. It is important in collaborative work that students clearly demonstrate their individual contribution.

**Studio Review Attendance**

Attendance at scheduled SID Reviews is mandatory. These are equivalent to exams when indicated in the course outline. Failure to attend the Review without reasonable cause, will result in a grade of F. Students arriving late for the Review or not remaining for the complete session without approval from the instructor, will be addressed on a case-by-case basis at the discretion of the instructor.

If you are not able to attend a Review, foresee arriving late or need to leave before it is complete, please email your instructor in advance explaining the reason for the situation. It is important that you provide a reasonable rationale for your absence, late arrival or early departure. In the event of an illness or death in the family, you will be required to sign a form verifying your claim and this form is available through the SID administration office.

**Late Submission of Lecture & Studio Deliverables**

Students who do not hand in deliverables on time will have their earned grade reduced by 10% per day up to a maximum of 3 days.

**Participation and Professionalism**
Active participation and professional conduct (e.g. class discussion, consultations with instructors, work ethic, etc.) are important in lecture and studio courses and may be formally evaluated by a grade.

Student Access to Quiz, Test and Exam Papers

Choose an item

Requests for Academic Accommodation

You may require special arrangements to meet your academic obligations during the term. For an accommodation request for any of the following topics below, refer to the link provided for more information: https://students.carleton.ca/course-outline/

- Parental Leave
- Religious/Spiritual Obligation
- Academic Accommodations for Students with Disabilities
- Survivors of Sexual Violence
- Accommodations for Student Activities

Academic Integrity

Carleton's Policy on Academic Integrity is available at: https://carleton.ca/registrar/academic-integrity/ and covers the following topics:

Plagiarism (e.g. submitting work in whole or in part by someone else, failing to acknowledge sources through the use of proper citations when using another's work).

Test and Exam Rules (e.g. attempting to read another student's exam paper, speaking to another student even if the subject matter is irrelevant to the text, using material not authorized by the examiner).

Other Violations (e.g. improper access to confidential information, disruption in classroom activities, misrepresentation of facts for any academic purpose).
The policy governs the academic behavior of students. In industrial design, ideas and concepts come from a multitude of sources and may be modified and utilized in the design and development process. The student should reference such sources appropriately and it is strongly advised that you read Carleton's Policy on Academic Integrity prior to conducting any work at the University.

Student Responsibility

The student is responsible for knowing the content of this course outline; the schedule of classes, assignments, and/or Reviews; and the material that was covered when absent. The studio is a professional environment and students should be working during the scheduled hours.

Unless otherwise arranged, the class will meet during scheduled class hours. Please note that attendance is important since issues and questions may be raised in class, and announcements made, along with information disseminated through cuLearn. As external professionals are often involved in our work, scheduling changes for guest lectures, presentations, and Reviews may occur at short notice, requiring students to stay informed.

Changes to the Course Outline

The course outline may be subject to change in the event of extenuating circumstances.

Appendix A - Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics /Morning</th>
<th>Studio exercises/Afternoon</th>
<th>Reading assigned in class for next week</th>
<th>Homework Assignment</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Week 0</td>
<td>Sept. 3</td>
<td></td>
<td>Introduction and Ch.1 (pg. 8~43)</td>
<td>Assemble all your supplies (and the book) and be ready to draw in class.</td>
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<tr>
<td>Week 1</td>
<td>Sept. 10</td>
<td>Course Introduction Quality of Lines (Long &amp; straight, Thin &amp; thick) Shapes (Circles, Ellipse, Squares) on newsprint.</td>
<td>Drawing Boot Camp Lines, Ortho, and perspective</td>
<td>Due next week: 10 pages of lines 5 pages of circles 5 pages of squares Letter sized</td>
<td>5</td>
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</tbody>
</table>
| Week 2  | Sept. 17 | Sketching | Design your personal Logo & Symbol, illustrate in 1pt perspective  
|         |          | Guideline, Types of Design sketches, Rectilinear Forms, one-point perspective  
|         |          |          | 2-point perspective lesson (pg. 64-67)  
|         |          |          | Drawing Boot Camp  
|         |          |          | Curvilinear form, arrows, ellipses  
|         |          |          | Ch.2 (pg.72~97)  
|         |          |          | Due next week: 3 pages of cubes in space. large sheets newsprint. Emphasis on line quality and accuracy.  
|          |          |          | **5**  

| Week 3  | Sept. 24 | Ellipses exercises. What to draw? -viewpoints Ortho Projections pg. 70 Ortho and 3D sketch exercise.pdf done in class and submitted.  
|         |          | Rotational forms examples exercise: Ortho to perspective drawings (pg. 92-94) Hand in at end of class, 2 sheets, draw rotational profiles in elevation, then translate them to perspective. Curvilinear form, Arrows  
|         |          | Human Figures 2.4 (pg.98~115)  
|         |          | Due next week: 2 sheets Orthographic Projection of a household object in ortho then perspective with directional arrows indicating use, or aspects of the product.  
|          |          | **5**  

| Week 4  | Oct. 1   | Discuss and review reading: Human Figures and Hand interactions  
|         |          | Human Figures drawing, Hand interaction Humanoid sketching.  
|         |          | 1: Understanding proportion and structure.  
|         |          | 2: Developing a style.  
|         |          | Rendering Forms 2.6. (pg.116~135)  
|         |          | Notational Sketches Ch.3 (pg.136~171)  
|         |          | Due next week: 2 sheets: Humanoid drawing. User engaged by objects/in environments. Standing and seated.  
|         |          | 2 sheets: Hands holding objects.  
|         |          | Demonstrate proportions and style.  
|          |          | **5**  

| Week 5  | Oct. 8   | Presentation drawing Marker use: Rendering, Shading  
|         |          | P1 Wacky Vending Machine  
|         |          | 45 mins of group brainstorming then individual sketching  
|         |          | Explanatory Sketching (pg.172~212)  
|         |          | None  
|          |          | **5**  


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<tr>
<th>Exercise: shading and shadows cubes and cylinders</th>
<th><strong>Handed in at the end of class</strong>: 5 pages of explanatory and notational sketches clearly describing the concept so it can be graded by someone who has never seen the idea (the TA)</th>
<th>15</th>
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<tbody>
<tr>
<td><strong>Week 6 Oct. 15</strong></td>
<td><strong>In class review of Project 1 deliverables</strong></td>
<td><strong>Assign: P2 Individual Project</strong> Iteration in design, transitioning sketches to models, and testing concepts. Thinking process for ideation</td>
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<td>Pin up and discuss</td>
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<td><strong>Oct. 22</strong></td>
<td>Fall break</td>
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<tr>
<td><strong>Week 7 Oct. 29</strong></td>
<td>Idea generation through drawing and prototyping Sketches in Photoshop</td>
<td>Work on P2 Individual consultations</td>
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<td><strong>Week 8 Nov. 5</strong></td>
<td>Narrative sketches and visual story telling, and more digital sketch manipulation</td>
<td>Work on P2 Individual consultations</td>
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<td><strong>Week 9 Nov. 12</strong></td>
<td><strong>Presentation of P2</strong></td>
<td><strong>Presentation of P2 &amp; Assign: P3 Team project</strong> Form giving, semantics and styling. Group work: collaborative drawing</td>
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<td><strong>Week 10 Nov. 19</strong></td>
<td><strong>Presentation of roll drawings</strong></td>
<td>Work on P3</td>
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<td>Week 11</td>
<td>Team Design Consultation</td>
<td>Work on P3 Explanatory sketch</td>
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<td>Nov. 26</td>
<td>P3 Final Team presentation</td>
<td>P3 Final Team presentation</td>
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<td>Dec. 03</td>
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Appendix A – Course Schedule IDES 2300 B • PROJECTS IIA • FALL (2019).