ID 332

Furniture Design and Construction

MWF 11:30 AM – 1:20 PM
AAN Technical Shop and AAS 2nd floor studio

Instructors:
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“Learning is not the product of teaching. Learning is the product of the activity of learners.”
- John Holt

Course Overview and Content

Course Catalog Description
ID 332 Furniture Design and Construction (3 cr.): Theory and application of furniture design and construction emphasizing the continuing development of three-dimensional design skills and attention to physical detail; aspects of structure, ergonomics, and aesthetics are addressed in the process of designing and constructing furniture pieces.

Course Learning Outcomes
This course is anchored by an active learning philosophy. The University of Idaho’s Strategic Plan Teaching and Learning Goal, Strategy B-8 encourages us to, “Employ active learning pedagogies to enhance student learning where appropriate”. Kathleen McKinney states that, “Active Learning refers to techniques where students do more than simply listen to a lecture. Students are doing something including discovering, processing, and applying information” (Active Learning 2007).

A combination of lectures, discussions and studio/lab time creates an environment that facilitates experimentation and exploration of three-dimensional design and hands-on fabrication of projects at varying scales. In this course, students will learn how to:

- [Comfort] Understand and apply human factors data such as ergonomics, anthropometrics, and proxemics to furniture design (CIDA Professional Standards 2014: 3c).
- [Cadence] Develop design concepts that successfully combine functional and aesthetic perspectives into a three-dimensional design (CIDA Professional Standards 2014: 4c, 4e, 4g, 6d, 9a).
- [Context] Identify and evaluate key contextual factors that influence furniture design including historical and cultural precedents, materials development, fabrication techniques and technologies, budget and market considerations, and sustainability (CIDA Professional Standards 2014: 8d-e).
- [Converse] Utilize manual and computer-generated 2D and 3D drawing and modeling to effectively communicate a design at the schematic, design development and fabrication drawing stages (CIDA Professional Standards 2014: 5b, 6f, 10d).
- [Craft] Interpret fabrication drawings in order to construct a final furniture piece as a solution to given design criteria with an appropriate level of detail and craftsmanship (CIDA Professional Standards 2014: 9b, 11a-c, 13g).

University of Idaho Learning Outcomes
Course content addresses/highlights the following university-level learning outcomes:

1. Learn and Integrate - Through independent learning and collaborative study, attain, use, and develop knowledge in the arts, humanities, sciences, and social sciences, with disciplinary specialization and the ability to integrate information across disciplines.
2. Think and Create - Use multiple thinking strategies to examine real-world issues, explore creative avenues of expression, solve problems, and make consequential decisions.
3. Communicate - Acquire, articulate, create and convey intended meaning using verbal and non-verbal methods of communication that demonstrate respect and understanding in a complex society.
Course Format

The course will meet in both the technical shop and in the AAS studio and critique spaces. For project introductions as well as some of the pre-design phases and project reviews, the class will meet in the studio and/or critique spaces. The class will meet mostly in the technical shop for the remaining design and fabrication phases of projects as well as for workshops and demonstrations.

Design Competitions

Participation in local, regional and/or national design competitions is often integrated into the course curriculum. Such competitions and related events offer students opportunities for the exposure of their design work as well as networking with other students and design professionals. Course design projects are geared to assist students in achieving their goals for such competitions. With some competitions, it may become necessary to limit the number of entries from our school in which case a jury will be formed to assist in the selection of the finalists. Design competitions in which some or all of the class may participate include the following:

- **Interior Designers of Idaho’s CHAIR AFFAIR**
  Annual regional furniture design competition, student and professional entry categories
  [www.interiordesignersofidaho.org](http://www.interiordesignersofidaho.org)

- **AWFS Fresh Wood Student Design Competition**
  Biannual North American Student Furniture Design Competition (odd years)
  Finalists and pieces attend AWFS Fair in Las Vegas for exhibit and awards ceremony

- **IWF Design Emphasis Student Design Competition**
  Biannual National Student Furniture Design Competition (even years)
  Finalists and pieces attend IWF in Atlanta for exhibit and awards ceremony
  [www.iwfatlanta.com/Attendees/designemphasis](http://www.iwfatlanta.com/Attendees/designemphasis)

- **Groovystuff Design Challenge**
  Industry-Sponsored Student Furniture Design Competition
  Student design boards and models are exhibited at High Point Market in High Point, NC
  [www.groovystuff.com](http://www.groovystuff.com)

Course Requirements

Recommended Text


Additional References

Various readings, hand-outs and other materials will be made available on-line or on reserve throughout the semester. Additionally, some useful recommended references include:


Project Materials and Supplies

Students are expected to acquire their own design and construction materials for their furniture projects. This includes items such as newsprint, markers and AutoCAD print-outs, etc. for the design and documentation process as well as wood, metal, paints/stains, or other materials for the final project fabrication. Keep in mind our commitment to sustainability when making your product selections. The instructors and TA(s) can assist you with sourcing, as needed. The application of paints and stains is not allowed in the Technical Shop or Studio spaces. This must be done in designated spray booths, outdoors or in your own well-ventilated space (garage, etc.).

**Please Note:** It is important for students to always bring hardcopy prints of their latest plans into the shop with them. This will help the instructors to review drawing progress and to assist with the design/construction.
Sustainable Design Commitment
In 2007, the Department of Architecture and Interior Design supports the Architecture 2030 initiatives. Please keep sustainability in mind when selecting and sourcing materials for your furniture designs. It is also expected that only low- or no-VOC paints and stains will be used on projects in an effort to avoid adverse affects on indoor air quality. For this reason, spray paint is not allowed on projects, except in special cases where prior approval has been granted from instructors.

Project Documentation
In addition to completed projects, students will need to document and retain all aspects of their design and construction processes to include in a course portfolio or blog. This includes process sketches and drawings, construction documents, photographs, etc., for each project. Quality photographs will be taken of the final pieces for portfolios and design competition requirements at the UI Photolab services lab. Model-making will be used throughout the course in order to test and refine ideas at a smaller scale before building at full scale. Drawings and models are the property of the program and may be retained as a part of the accreditation archives.

Class Attendance and Participation
Attendance is required for both in-class lecture, workshop and lab times and role will be taken daily. In the case of illness or other circumstances preventing participation, written verifiable excuses should be provided. Attendance and participation are factored into the overall grade at the end of the semester.

Course Field Trips
Field trips are optional and at the students’ expense. The primary field trip to Boise, Idaho for the class to participate in the Interior Designers of Idaho’s (id) Lecture Series, trade show and Chair Affair Gala and design competition events. Please refer to the idi website and the course BbLearn site for more information regarding this trip. Although this is optional, we highly encourage all students to participate in these events, especially if you are entering the design competition. If you have a conflict with attending this trip, please notify the instructors as soon as possible in order to make other arrangements. Students attending field trips are required to complete and submit a University of Idaho waiver form before departure.

Accommodations
Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 306 in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course. Disability Support Services may also be reached at 885-6307, via e-mail at dss@uidaho.edu, or on their website at: www.access.uidaho.edu

Professional Conduct and Shop Safety
Please refer to the Faculty and Student Handbook 2300-Students Code of Conduct, Article II for University standards regarding Academic Honesty. Any form of academic dishonesty, such as copyright infringement or plagiarism, or misconduct is not condoned or tolerated at the U of I. Professional conduct is expected at all times. Shop safety is critical at all times. Students are required to follow Technical Design Studio safety and other policies/guidelines found at: http://www.caa.uidaho.edu/techstudio/

Evaluation Criteria

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1 (comprised of 5 exercises)</td>
<td>150 points</td>
</tr>
<tr>
<td>Project 2</td>
<td>50 points</td>
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<tr>
<td><strong>Total Points Available</strong></td>
<td><strong>200 Total Points Available</strong></td>
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</tbody>
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Late assignments and projects as well as mid-project deadlines will be given appropriate grade percentage deductions. Other factors influencing grades include the instructors’ evaluation of student class attendance, participation, motivation and improvement throughout the semester. Extra credit opportunities may also be made available for additional assignments, or portions thereof, given by the instructors. Questions regarding grades will need to be voiced within one week of grade distribution.

Consistent with our commitment to sustainability, this course utilizes a BbLearn website in order to minimize the use of paper for printing. Students may be required to download and upload assignments and reference materials via this site. If you have difficulties accessing the site or uploading or downloading materials, please contact the instructor via e-mail. In such cases, e-mailed assignments will be accepted if received prior to the due date and time.
Exercise Objectives:

In this exercise students will:

- Utilize manual and computer-generated 2D and 3D drawing and modeling to effectively communicate a design at the schematic, design development and fabrication drawing stages.
- Develop design concepts that successfully combine functional and aesthetic perspectives into a three-dimensional design.
- Enhance the ability to design and fabricate 3-dimensional scale models of furniture designs using various tools and fabrication techniques available.

Materials / Supplies:

- Drafting and/or modeling software (Rhino, AutoCAD, etc.) for creating fabrication drawings
- Wood, metal, textiles and/or other materials for model building
- Paint and/or stain for finishing

Exercise Outline:

1. Fabrication Proposal Package  
   **DUE: Wed., Feb. 11th 11:30 AM**
   *For the final documentation phase, you are required to have the following approved by the instructors PRIOR TO beginning construction:*

   a. COVER PAGE including:
      i. Project Title
      ii. Concept Statement (100 words or less)
      iii. Your name, class info., etc.
      iv. A high quality rendering/drawing of your design (hand or computer rendered) showing materials/colors of piece

   b. PROCESS PAGE(S) including (from earlier exercises):
      a. Concept/process drawings
      b. Case study
      c. Model photos

   c. CONSTRUCTION/FABRICATION DRAWINGS: printed to scale and with appropriate dimensions (noted in inches). 3”=1'-0” is preferred for drawing scale, but you may want to confirm your sizes/scales with instructors (based on your design). For sheet sizes, larger is better – 11”x17”, 12”x18” or 18”x24” sizes are preferred (8.5”x11” is not acceptable). Use the Fabrication Drawing Checklist provided to be sure that you’ve addressed all of the necessary information and formatting requirements.
d. **BILL OF MATERIALS AND BUDGET:** List all materials and quantities needed to construct your piece. Use the form provided to document this information and add initial budget ranges.

e. **FINISHES PROPOSAL:** You will need to plan for/propose what types of finishes that you would like to use on your piece. Don’t be afraid of using color in your pieces! We will be having a Finishing Workshop to assist you with proper application and options to achieve your desired results. Please note, however, that not all finishes may be allowed (no spray paint in most cases, for example), so check with your instructors before finalizing your purchases if you are unsure. Also, low or no VOC finishes are highly encouraged! Your finishes proposal will need to approved by instructors prior to installation, so start researching your options early.

f. **FINAL SCALE MODEL:** Complete a refined and detailed final model of your design for the Chair Affair project. Scale should still be 3" = 1'-0" (1/4 of FULL scale or 25%) and should include an accurate depiction of proposed materials, appropriate thicknesses, etc. If you did not make significant design changes since your last model, then you may choose instead to make a larger scale (1/2 of FULL scale or 50%; or even FULL scale) mock-up of a part of your design to study joinery, dimensions, or ergonomics at that larger scale. Discuss with the instructors which approach might be the most beneficial for your design.

**Submission Summary:**

- 11x17 (or other large size) fabrication drawings package – submitted in both in hardcopy and digitally to BbLearn
- Bill of materials and finishes proposal (may be included in package above, or separate)
- 3" = 1'-0" scale final model
"Wooden Cherry Table"

This piece represents the beauty and subtlety of nature. Its unique form and patterns are inspired by the husk of the Asian Ground cherry, commonly called Chinese Lantern. The primary material of the Wooden Cherry Table is walnut and the texture and finish of these wood elements reinforces the image of the ground cherry husk while creating a warm mood for the user. An additional lie to nature is achieved with the table's option to insert a potted plant at its center, adding greenery to any interior space.

Excerpts from a student’s construction documents set completed as part of Exercise 4 - CONVERSE - Communicating for Fabrication
Chair Affair Design Competition
Regional Award Winners

Excerpt of student projects clockwise from top left:

- a. Paige Goneau’s Honorable Mention Award (2014)
- b. Molly Pittman’s Most Creative Award (2015)
- c. Kevin Noble’s Best Craftsmanship Award (2013)
- d. Malachi Payne’s Most Functional Award (2013)
- e. Kelsey McCarrel’s Honorable Mention (2014)
International Woodworking Fair (IWF)
*Design Emphasis* Student Furniture Design Competition
National Finalists

From left to right:

a. *Faultline Chair* by Haley Wallace (2014)  
b. *Wooden Cherry Table* by Sumin Yoon (2014)  
c. *Typography Chair* by Nick Wolf (2014)
American Wood Furnishings Suppliers (AWFS) *Fresh Wood*
Student Furniture Design Competition
National Finalists

At Left: *Mocket* modular dresser by Hunter Van Bramer (2015)

At Right: *Textile Chair* by Amy Probert (2009)
Groovystuff Design Challenge
Student Furniture Design Competition

At Left: *Time Revealed* end table by Janice Kammler,
Popular Vote Award Winner at High Point Market (2012)
Photos show Janice with her first prototype at top,
to manufacture below, and at market exhibit and
product catalog adoption

At Right: *Branching Out* cabinet by Tessa Grundler (2012)
Photos show from scale model at top, to full size prototype
and in process of manufacture