Architectural Design and Drawing

Gropius once described architecture as a combination of "form, function, and delight." In this workshop, students are introduced to the experience of designing buildings. The first project explores the design process. Students develop diagrams and drawings, analyzing issues of form, function, technology, site, and environment in buildings by well known architects. Drafting techniques are also presented through preparation of plans, sections, elevations, and renderings. In the second project, students design residential lofts. They begin with a program and a basic design concept. Planning theories, such as function, circulation, massing, and spatial organization are discussed. Visual concepts, such as symmetry, axis, and proportion are also introduced. Methods for developing designs through models, perspectives, and isometric drawings are also presented. Prior drafting experience is helpful, but not required.

Major Projects

House Analysis

In this class, students are introduced to the major steps in the design process through an analysis of a house by a famous architect. The project begins with discussions of the concept or parti of a design and descriptions of the historical and environmental context in which various projects were built. Students create diagrams on the function, circulation, spatial organization, site planning, and materials and details. They also study relationships between environmental concepts, such as indoor and outdoor space, and planning concepts, such as public and private space, and service and served space. They also examine geometrical concepts, structural systems, and ordering systems, such as axis, symmetry, hierarchy, and massing through a sketchbook.

In developing the analysis, the class is also introduced to a basic vocabulary of design terms, taught how to read architectural plans, and create architectural drawings. Through in-depth studies of specific architects, students are also exposed to issues of history and theory in their projects, as well as in the presentations by other members of the class.

Loft Design

In the second project, students create their own designs for a loft space in New York or a country house. This project emphasizes the experience of creating a design by applying the theoretical issues examined in the house analysis. Each student begins with a concept or a parti that serves as a basis for their design. After identifying the parti, diagrams, architectural plans, and three dimensional images are developed as well as a study of materials and furnishings. Issues of sustainability are also discussed and included in some of the projects. As the design progresses, the class is also introduced to the techniques of creating plans, perspective drawings,

Required Reading: Ching, Francis, *Architecture: Form, Space, and Order*
**Recommended References:**  Bahamon, Alejandro, Small Lofts  
Ching, Francis, *Interior Design Illustrated*  
Clark, Roger H. and Pause, Michael, *Precedents in Architecture*  
Field, Marcus, and Irving, Mark, *Lofts*  
Frampton, Kenneth, and Larkin, David, *American Masterworks*  
Molnar, Felicia Eisenberg, *Lofts: New Designs for Urban Living*  
Weston, Richard, *Key Buildings of the Twentieth Century*

**Course Objectives:** This course will introduce the following experiences:

1. The design process: the steps that lead to the creation of an architectural design  
2. History and theory: an exploration of the designs of major 20th century houses  
3. Vocabulary of architectural terms and objectives: concepts used in design, planning, theory, and analysis  
4. Drawing techniques: hand drawing, spatial planning, and design systems  
5. Basic computer programs: Sketchup, used in design projects and presentations  
6. Critical analysis: critiques of both historical projects and student projects  
7. Basic issues of environment and sustainable design

**Materials:** Available at Blick Art Store, Pearl Paint, Utrecht, or most large art supply stores

- 12” roll of inexpensive white tracing paper (20 yds. or 50 yds.)  
- 24” T-square, metal is better than wood or a Parallel Ruler  
- House plan and Plumbing Template – Pickett 1150i or equivalent  
- Inexpensive Lead or Pencil Sharpener  
- Drafting Board (and board cover, if needed)  
- Design and Layout Kit or the following tools:
  - Lead holder and 2 Leads (H or 2H) or Pencils with H or 2H leads  
  - Pencil Eraser and Ink Eraser  
  - 12” Architectural Scale (triangular) or a Ruler (in inches)  
  - 2 Triangles (30, 60, 90 degrees and 45 degrees)

Ink Drawing Materials: 11” x 17” mylar sheets, about 6 sheets (cut from 2 larger sheets)  
Inexpensive technical pens, #0, #000, could also use a larger size like #2

Optional Materials: drafting brush, adjustable triangle, additional templates, erasing shield

**Criteria for Grading:** The two major projects, the House Analysis and Loft Design, will comprise about 85% of the grade. The project grades will be based on the depth of analysis of design issues, concepts, design development, and quality of visual and verbal presentations. The remaining 15% will be determined by class participation in discussions of texts and projects, short assignments, and individual improvement throughout the semester.
Academic Integrity

"As a Gallatin student you belong to an interdisciplinary community of artists and scholars who value honest and open intellectual inquiry. This relationship depends on mutual respect, responsibility, and integrity. Failure to uphold these values will be subject to severe sanction, which may include dismissal from the University. Examples of behaviors that compromise the academic integrity of the Gallatin School include plagiarism, illicit collaboration, doubling or recycling coursework, and cheating. Please consult the Gallatin Bulletin or Gallatin website (http://gallatin.nyu.edu/academics/policies/integrity.html)"

Policies on Plagiarism

Plagiarism is grounds for failure. Students are expected to be familiar with the School’s policy found at: https://cmsauthor.nyu.edu/cf#/gallatin/en/gateways/facultystaff/plagiarism.html.

Policies on Attendance, Late Projects, and Incompletes

Students are expected to arrive at class on time with complete assignments and are responsible for material covered during class, whether they are present or not. Excessive absences will affect not only class work, but also the final grade. Incompletes are possible in exceptional situations due to health, but must be arranged at least a week before the end of the semester. Late projects will be accepted for a week after the assignment is due with a slight reduction in the grade.

Architectural Design and Drawing: Outline of Topics

1. First Week: Introduction to the Basic Issues of Design

   a. Topics: Introduction to the process of creating a house, site planning, sustainable design
   b. Slide Lecture: Important Houses in the 20th Century Architecture, Other Historical Models
   c. Film: Sequence from Charles Rennie Mackintosh: A Modern Man
   d. Reading: Read about the architect and project you’ve chosen for the first assignment
   e. Assignment: Begin the Analysis Project

      Choose a house by an architect on the list and make copies of the plans, sections, elevations and site plan. Reduce or enlarge the plans so they fit on an 11” x 17” sheet of paper. Read additional information on the architect and history of the house to prepare a short presentation of the project background. Buy the tools, materials, and text for the course. Trace the main plan of the house on an 11” x 17” sheet of paper. Do not label the drawing.

2. Second Week: Identifying the Main Concept or Parti of a Project

   a. Topics: Developing a parti or design concept; expressing the concept throughout the design
b. Student Presentations: Each student will present a brief introduction to their project.
c. Film: Sequence from Sketches of Frank Gehry
d. Reading: Read about the architect and project you’ve chosen for the first assignment
e. Assignment: Develop a basic set of plans

Trace the additional floor plans and site plan of the building on 11” x 17” sheets of paper. Do not label the drawings. Identify the main concept or parti of the project.

3. Third Week: Spatial Organization

a. Topics: Introduction to basic aspects of design: program, circulation, spatial organization
b. Slide Lecture: Spatial Organizations: centralized, linear, radial, cluster, and the grid
c. Film: Sequence from First Person Singular: I.M. Pei
d. Reading: Ching, pp. 194-238 on spatial organization.
e. Assignment: Add the elevation and/or section to the plans.

Trace one elevation and one section of the house on 11” x 17” paper. Choose an elevation that shows an important view of the building. Do not label the drawings at this time.

4. Fourth Week: Rendering and Environmental Studies

a. Topics: Expressing the parti in the elevation and section, including nature in the design
b. Slide Lecture: Rendering and analysis
c. Film: Sequence from Frank Lloyd Wright Fallingwater: Conversation with Edgar Kaufmann, Jr.
d. Reading: Ching, pp. 337-365 on basic ordering systems.
e. Assignment: Create a rendering

Choose a photograph that shows the concept of the building. Create a rendering of the house based on class discussion. Experiment with a few drawing styles before choosing technique.

5. Fifth Week: Diagrammatic Studies

a. Lecture: Analyzing aspects of the plans to understand the process of design development
b. Discussion: Each issue of analysis will be discussed in relation to the planning of the house
c. Film: Powers of Ten, by Charles and Rae Eames or film on Meier design of Getty Museum Modern Living (on Michael Graves’ design of Graves House)
d. Reading: Ching, pp. x-31, the introduction to the book and point, line, plane, and volume.
e. Assignment: Reduce your drawings and create diagrams of the project as discussed in class.

and develop the following diagrammatic images:

<table>
<thead>
<tr>
<th>Parti and Historical References</th>
<th>Site Development, Arrival, and Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation and Movement</td>
<td>Function and Program Development</td>
</tr>
<tr>
<td>Geometry and Massing</td>
<td>Spatial Organization</td>
</tr>
<tr>
<td>Structure and Enclosure</td>
<td>Ordering Systems: Symmetry, Hierarchy, and Axis</td>
</tr>
<tr>
<td>Indoor and Outdoor Space</td>
<td>Public and Private Space or Service and Served Space</td>
</tr>
</tbody>
</table>
6. Sixth Week: Integrating Research, Diagrammatic Studies, and Project Analysis

   a. Lecture: Design of public and private space, circulation, structure and site
   b. Discussion: Evaluation of green design principles in historical buildings
   c. Film: The Colonial Era (on Thomas Jefferson’s design of Monticello)
   d. Reading: Read about the architect and project you’ve chosen to complete the written pages.
   e. Assignment: Complete the diagrams. Label the drawings as discussed in class. Develop the final presentation of the booklet as discussed in class.

7. Seventh Week: Program Writing and Initial Research for a Design Project

   a. Student Presentations: Final presentations of first assignment
   b. Discussion: Introduction to the new project: program writing and initial design decisions
   c. Film: Sequence from The Architecture of Gwathmy Siegal
   d. Reading: Ching pp. 44-79 on geometry and form.
   e. Assignment: Develop a concept of the client and basic program for the project. Develop a preliminary plan and parti based on discussion. Create two versions, if needed.

Background information: A young couple has decided to purchase and renovate a loft in Soho. It’s a raw space, except for the columns, windows, and architectural details. One member of the couple is an artist, who works in the loft. (You can choose the type of artist.) The other person works outside of the space, but needs a small office at home. The loft should be kept as open as possible. It can include a balcony over a maximum of 33% of the floor area.

Basic Program (should be refined and developed to suit the client you’ve created)

1. A large living and dining area
2. A kitchen
3. An artist’s studio
4. A master bedroom
5. A bathroom
6. A desk area for the person who works outside of the loft
7. A sleeping area for a guest
8. Closets and storage space, as needed

8. Eighth Week: Space Planning

   a. Discussion: Creating the spaces and circulation in a floor plan; Issues in sustainable design
   b. Slide Lecture: Loft Design
   c. Film: Sequence from the film, Objectified, on product and furniture design
   d. Reading: Ching, pp. 264-291 on circulation and pp. 185-193 on spatial relationships.
   e. Assignment: Continue developing floor plan, based on critique. Create an elevation

9. Ninth Week: Isometric Drawing and Selection of Sustainable Furnishings

   a. Discussion: Isometric drawing and the design process
b. Slide Lecture: Environmental Issues, Sustainable Materials and Eco Products

c. Film: Affordable Green Housing

d. Reading: Ching, pp. 239-263 on entrance & approach and pp.80-91 on corners & surfaces.

e. Assignment: Create an isometric drawing, based on class discussion. Begin looking for art, materials, and furnishings. Make copies of appropriate furniture and products.

10. Tenth Week: Project Analysis and Use of Alternative Materials

a. Student Presentations: Presentations of preliminary designs and isometric drawings
b. Discussion: Computer Images
c. Guest Speaker: Techniques of creating computer images
d. Reading: Study Sketchup; listen to tutorials and/or use textbook, if needed
e. Assignment: Redevelop drawings as discussed in Sketchup presentation. Create an elevation and plan. If possible, begin perspective and isometric drawings.

11. Eleventh Week: Perspective Drawing and Presentations

a. Discussion: Use of perspective drawings, computer images, architectural models
b. Slide Lecture: Integrating drawings and presentations with parti concept
c. Film: How Much Does Your Building Weigh, Mr. Foster?
d. Reading: Review parti and historical references; write statement on concept development
e. Assignment: Continue working on digital images; create perspectives and isometric images.

12. Twelfth Week: Sustainable Design in Emerging Countries

a. Discussion: Creation of small buildings in emerging areas, disaster relief
b. Slide Lecture: Refugees and low income housing
c. Film: The Architecture of Renzo Piano
d. Reading: Research loft neighborhoods; write a brief description of the history
e. Assignment: Complete introduction on Site, Client, and Program, Parti and Historical References, Function, and Spatial Organization. Revise drawings as needed.

13. Thirteenth Week: Completing a Final Presentation

a. Discussion: Final Presentation format
b. Critiques: Individual critiques; adjusted for Thanksgiving holiday
c. Reading: Research material for final text in projects, choices of art, materials and furniture
d. Assignment: Complete booklet. Add a page on materials, furniture, and sustainable design.

14. Fourteenth Week: Final Presentations

a. Discussion: Presentations and critiques of design projects
b. Film: Eames: the Architect and the Painter

Note: The schedule of film screenings may be changed based on availability.