Department of Architectural Technology

ARCH 1210 **ARCHITECTURAL DESIGN II: FOUNDATIONS**
6 lab/studio hours, 3 credits

Course Description: Architectural Design II: Foundations is the second course in the one year foundation sequence which increases the student's ability to perceive visual cues, create visual design, formulate concepts, and render ideas in two or three dimensions. Students will use a combination of hand and digital skills to aid in the creation and interpretation of three dimensional objects and space, and the delineation of the same using standard projection systems

Course context: This is a required course in the design sequence.

Prerequisites: ARCH 1110 Architectural Design I: Foundations and ARCH 1191 Visual Studies I both with grades of C or higher

Co-requisites: ARCH 1291 Visual Studies II

Required Texts:

In following articles will be available in a reader:

1. Theil, Philip. Visual Awareness and Design: An Introductory Program in Conceptual Awareness, Perceptual Sensitivity, and Basic Design Skills. pp. 56-67.

2.Hannah, Gail Greet. Elements of Design: Rowena Reed Kostellow and the Structure of Visual Relationships, pp.58-65.

3. Theil, Philip. Visual Awareness and Design: An Introductory Program in Conceptual Awareness, Perceptual Sensitivity, and Basic Design Skills. pp. 168-175.

4. Lupton, Ellen and Jennifer Cole Phillips. Graphic Design: The New Basics, pp. 70-83.

5. Theil, Philip. Visual Awareness and Design: An Introductory Program in Conceptual Awareness, Perceptual Sensitivity, and Basic Design Skills. pp. 204-213.

6. Hannah, Gail Greet. Elements of Design: Rowena Reed Kostellow and the Structure of Visual Relationships, pp.96-117.

7. Twombly, Robert ed. Louis Kahn: Essential Texts, pp. 266-280.

Attendance Policy: No more than 10% absences are permitted during the semester. For the purposes of record, two lateness are considered as one absence. Exceeding this limit will expose the student to failing at the discretion of the instructor.

Course Structure: This course is a design studio which will include lectures, student presentations, guest critics, in-class workshops, and charrettes. The students will be given sequential weeks. Each problem will involve a cyclical iteration of the design process in which new skills in a variety of media will be acquired. Students will give verbal and graphic presentations of their designs which will demonstrate agility with vocabulary, concepts, and result in a critical class discussion to assess quality of the work. Work will be completed both in and outside of class. Written evaluation for each week will be provided by the professor and fellow classmates. Students should keep record of their own progress in a spreadsheet.

Grading:

Weekly Sketches	15%
Projects	80%
Class Participation	5%

Academic Integrity: Students and all others who work with information, ideas, texts, images, music, inventions and other intellectual property owe their audience and sources accuracy and honesty in using, crediting and citation of sources. As a community of intellectual and professional workers, the college recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension and expulsion.

Learning Objectives

Upon successful completion of this course, the student will:

1. **Implement** an iterative design process from problem identification, information gathering, solution generation and evaluation, implementation, presentation, and overall project evaluation. (Knowledge)
2. **Incorporate** design concepts and vocabulary into design process and presentations.(Knowledge)
3. **Distinguish** between media and **determine** the appropriate method and media required to complete a drawing or model. (Gen Ed)
4. **Communicate** ideas and information both verbally and through writing. (Gen Ed)
5. **Develop** and **apply** professional vocabulary. (Gen Ed)
6. **Produce** orthographic, axonometric, perspective, and architectural vignette drawings. (Skill)
7. **Utilize** analogue and digital media to create drawings and models. (Skill)
8. **Incorporate** color and materials into designs and presentations. (Skill)
9. **Represent** human scale and proportion in design drawings. (Skill)

Assessment

To evaluate the students' achievement of the learning objectives, the professor will do the following:

1. **Review** students' creative process (initial sketches through to the final project) by means of frequent pin-ups. (Los: 1, 2, 3, 6, 7, 9)
2. **Assess** the students' use of professional vocabulary during oral presentations. (Los: 2, 4, 5)
3. **Review** students' written descriptions of design work and feedback. (Los: 4, 5)

Course Outline:

WEEKLY SKETCHES

A total of 10 weekly sketches will be completed per semester as homework. Each sketch has a clearly defined focus and method such as blind contour form study, positive and negative space, shade and shadow, texture, light, depth, perspective, and scale. Sketches will explore a variety of paper and drawing media. Thumbnail study sketches should be completed in a sketchbook prior to preparing the final sketch on 8½"x11" paper. Hand letter on the back of each sketch the intention, time it took to complete, and the location.

1210 WEEK 1:

LECTURE: **HUMAN PERCEPTION:** Discuss how humans perceive form, and how we can intentionally distort this perception by showing images of works of art that defy reality or questions how a form should be understood.

OBJECTIVE:
Students will learn how to manipulate how to manipulate three-dimensional form so that it can appear to be a shape other than what it is. This understanding will be reinforced both in three dimensions and two dimensions.

DESCRIPTION:
Through a series iterative attempts to defy the reality of the construct, students will learn how to manipulate human perception. Accuracy will also be stressed by testing each cube through a die with a tolerance of +/- 1/32".

The process of creating multiple versions, and using media, which allows for easy manipulation and testing is also crucial to the learning objectives of this project. It's not just what you do, but how you do it. A design process is always iterative, and designer always tests and evaluates many options and decisions. As you work through this project, think about ways to document and test your ideas quickly. (hand sketching, photographs, Adobe Photoshop.)

The final composition will be documented in isometric views. This project will emphasize the ability to hand render. It will be important for each student to explain their process using some form of documentation that supports why changes were made.

Lab & Homework: **EXERCISE 1 CUBE/SUPER CUBE/ UNCUBE**

PROCESS:
1. Construct a minimum of three (3) 4" cube out of modeling clay and museum/chip board.
2. Using only paint, treat one cube so that it visually disappears as a form or becomes unrecognizeable as a cube, UNCUBE.
3. Using only paint, treat another cube so that it appears to be a cube, SUPER CUBE.
4. Draw an isometric of your SUPER CUBE and UNCUBE and render by hand.

READING: Theil, Philip. Visual Awareness and Design: An Introductory Program in Conceptual Awareness, Perceptual Sensitivity, and Basic Design Skills. pp. 56-67.

SKILLS: Modeling planar material with accuracy, painting

1210 WEEK 2:

*LECTURE:***DYNAMIC BALANCE:** Identify axis in dynamic and complex groupings of curvilinear volumes and recognize hierarchy, proportion, and dominance of volumes while achieving structural stability. Group forms to create a visually pleasing unified object.

OBJECTIVE: Students will learn to identify an axis in curvilinear forms and to recognize hierarch between volumes based on proportion. This identification and understanding will then be reinforced and demonstrated through 2-D and 3-D drawings. Drawings should communicate depth and the relationship between parts.

DESCRIPTION: Through a series of 3-D "sketches" made in clay, you will practice the art of generating form. However, form creation should not be a random and unevaluated act. The process of creating, testing, and revising form will be used to train the eye to recognize successful proportions and relationships between objects. A successful grouping will create both interesting positive and negative space and will be lively.

In this exercise, vocabulary will become increasingly important as you are now producing geometric form and then evaluating and describing its' properties. Through this process you will learn to identify primary and secondary axis; **dominant, subdominant,** and **subordinate** forms; and articulate proportional relationships within a single volume and between objects.

Lab & Homework: **PRESENTATION OF EXERCISE 1**
EXERCISE 2: CURVILINEAR FORM

PROCESS:

1. Using white clay, make 12 curvilinear volumes (sphere, cone, cylinder, ovoid, and slices of any of these) no larger than 6" in any dimension.
2. These volumes should be brought together to create visually balanced, harmonious, and compelling groupings of three. A total of four groupings should be completed in clay. Within each grouping, the dominant, subdominant, and subordinate part should be identified as described in Elements of Design by Gail Greet Hannah.
3. Take a digital photograph against a black background. Print each photograph to fit on an 8 ½" x 11" sheet of paper. On tracing paper, outline the grouping and identify the axis and hierarchy. Also identify the inherent, comparative, and overall proportions as a ratio length to width. This should be a diagram explaining the underlying geometric structure of your groupings.
4. Assemble groupings of 3 curvilinear volumes (a total of 4 groupings) and secure to a ½" thick foam-core base.

Reading: Hannah, Gail Greet. Elements of Design: Rowena Reed Kostellow and the Structure of Visual Relationships, pp.58-65.

SKILLS: Modeling in clay, measuring with ruler, composition, cutting sheet material (foam core), introduce sketching assignments

1210 WEEK 3:
Lecture: **DELINEATING DYNAMIC BALANCE.** Represent 3-D form in 2-D drawings which communicate depth and relationships between parts. **Present and Exercise 2.**

Lab & Homework: **EXERCISE 2**

5. Select the most successful grouping and hand draft on 11x17 vellum six **orthographic** views (top, bottom, and 4 sides). If the grouping needs revision use this opportunity to remake the parts and fine-tune the composition. Ask yourself if you can improve the grouping with small changes to the proportions or relationships.
6. Indicate the **dominant, subdominant,** and **subordinate** forms. Label and dimension the axis of each volume. Indicate the ratio of length to width.

READING: Same as Exercise 2

SKILLS: Analysis, hand drafting, formatting, composition, labeling, lettering.

WEEK 4:

1210 WEEK 4:

*Lecture**:*** **COLOR BASICS:** Discuss basic color concepts (hue, value, chroma) and their relationships. Discuss psychological impact of different colors.

OBJECTIVE: Students will learn how to work with color models.

DESCIPTION: Up to this point, students have worked primarily in a either a duotone or grayscale mode in their analog work. It is important for students to learn how to handle color and create a pleasing palette.

Lab & Homework: **EXERCISE 4**
PROCESS:
Using a Munsell Color chart and a corresponding envelope of color chips, arrange the chips so that the values and chromas are arranged in the proper order.

1. From the list of words describing colors, choose twelve and pick the colors from the Munsell charts that correspond.
2. Start a color collage on one wall of the studio to be added to throughout the semester where different color samples (paper, cloth, metal, foil, tree bark, cardboard, paint samples, leather, and others are all cut to the same size) are assembled according to Munsell's chart.
3. Duplicate one of the Munsell Color charts digitally (Adobe Photoshop) in RGB and CMYK.
4. Creat 11x17 layout for Munsell Color chart in Adobe InDesign.

***READING**:* Theil, Philip. Visual Awareness and Design: An Introductory Program in Conceptual Awareness, Perceptual Sensitivity, and Basic Design Skills. pp. 168-175.

SKILLS: color vocabulary, using digital color model
1210 WEEK 5 & 6:
*Lecture**:*** **ARCHITECTURAL PALEONTOLOGY, THE BIG PICTURE:** Discuss how research is the basis for design.

OBJECTIVE: The goal of this project is to introduce students to research as an integral part of the design process, which catalyzes creativity. This research will be communicated through 2-D graphic presentations prepared digitally, and eventually in the crafting of a 3-D model of the existing building. Students will be introduced to architectural theory and history through this process and will begin to understand how architecture represents technology, philosophy, materials, and social issues of its time.

DESCRIPTION: This project requires the design of an *architectural object* that identifies a personal interpretation of an existing building and its place in history. An effective method of approaching design is to begin with a period of research. Accordingly, we will begin our process by researching and analyzing a building, its' architect, and its' moment in time.

Research: Select a house to document, analyze, and build from the following list. Your research will include thematically associated artists, as well as furniture and designed objects from the same era. These forces will help to shape your point of departure for choosing an appropriate manner in which to render the final model and its context:

Lab & Homework: **PRESENTATION OF EXERCISE 4**
EXERCISE 5

PROCESS:

Research a renowned architect's work and philosophy. In parallel research the context of their work in terms of art, culture, technology, zeitgeist, and other design fields. Create a compelling 2-D presentation of your findings.

1. Choose an architect from a list provided by the professor. The list will also make suggestions for other related areas of research in culture, technology, social issues, engineering, and industrial design.
2. Purchase 1 book on your architect and/or use the City Tech Library and internet to find writing and images.
3. Write 500 words, in your own words, with cited references on your research.
4. Create four (4) 11"x17" plates in an image editing software (Adobe Photoshop) to clearly and concisely communicate your research in images. Include excerpts from your writing. Organize your plates into the following: Architect, Art & Artist, Design of the Era, Socio-Political Themes.

SKILLS: Reading, Research (Information Literacy), scanning, analysis, composition, Adobe InDesign.

1210 WEEK 7

Lecture: **ARCHITECTURAL PALEONTOLOGY, A CLOSER LOOK:** Discuss how research is the basis for design continued.

OBJECTIVE: Students will learn how to use various sources: books, online websites, images, to create a set of plans, elevations, and sections.

Research: Select a house to document, analyze, and build from the following list. Your research will include thematically associated artists, as well as furniture and designed objects from the same era. These forces will help to shape your point of departure for choosing an appropriate manner in which to render the final model and its context:

Description: Having chosen a particular house by their chosen architect, will find images, plans, elevations in either books or on-line. By scanning or downloading the images, the student will re-create the plans, elevations, and sections by looking at photos and tracing over images in Autocad. Student should the images so that in model space they are to actual scale, i.e. 1:1.

Lab & Homework: **REVIEW EXCERCISE 5**

EXERCISE 6 PALEONTOLOGY CONTINUES

PROCESS:

Focusing on one house designed by your architect from the previous exercise, prepare scaled multi-view drawings and paraline drawings of the work. Consider your previous research as input for how you choose to portray the work.

1. Find plans, elevations, and sections of your architect's house design. Scale these plans, elevation, and sections and draw over them in 2-D vector drafting software (AutoCad).
2. Refine your drawings to include doors, windows, and furniture. Use line weights, poche, and hatching to enhance the drawings.
3. Create two 2-D diagrams of the plan or elevation which extract the underlying geometry and program arrangement.
4. Produce 11x17 plates of all drawings and diagrams with titleblock in Autocad paper space. Discuss ease of layout differences between Adobe InDesign and Autocad.

SKILLS: Raster image in Autocad (Scaling, tracing); layer management, line weight management, Paper Space layout

1210 WEEK 8:

Lecture: **ARCHITECTURAL PALEONTOLOGY, EXPRESSED:** Discuss how research is the basis for design continued.

OBJECTIVE: Students will learn how to create a physical model that reflects the actual form of a building while expressing the zeitgeist of the era and its architect.

DESCRIPTION: Students will learn how to use fabrication tools that ease modeling but require advance planning. Students will learn how to strategize in order to achieve a desired outcome.

Lab & Homework: **PRESENTATION OF EXERCISE 7**
EXERCISE 8: ARCHITECTURAL PALEONTOLOGY, EXPRESSED

Build a physical model of an existing building which uses expressive materials and modifications to the architecture in order to emphasize the building's conceptual intent.

1. Print your plans, sections, and elevations from the previous exercise at 1/8"-1'-0" scale.
2. Determine a size and method for constructing your model base. Use this as an opportunity to exaggerate site attributes, or to integrate graphics in the model. Construct the base.
3. Determine the attributes of the architecture which are fundamental and then determine a creative method of building which highlights them. This is the concept for your model.
4. Select materials, color, textures, entourage, and foliage in relation to your concept. At least one element of the model should be laser cut.
5. Import 2-D drawings and extrude your plan to create a digital 3-D massing model.
6. Construct a plan oblique drawing of your house by printing your digital 3-D massing model and drawing over it on tracing paper. Add detail, line weights, and shading by hand.
7. Use the same graphic style as the previous exercise, and format your digital and hand drawings onto a series of 11"x17" plates.
8. Verbally present the model and your presentation boards from the previous two exercises to a jury.

WEEK 9:

Lecture: **ARCHITECTURAL PALEONTOLOGY, THE BIG PICTURE CONTINUED:** Discuss how research is the basis for design.

Lab & Homework: **EXERCISE 6**

Research a renowned architect's work and philosophy. In parallel research the context of their work in terms of art, culture, technology, zeitgeist, and other design fields. Create a compelling 2-D presentation of your findings.

1. Choose an architect from a list provided by the professor. The list will also make suggestions for other related areas of research in culture, technology, social issues, engineering, and industrial design.
2. Purchase 1 book on your architect and/or use the City Tech Library and internet to find writing and images.
3. Write 500 words, in your own words, with cited references on your research.
4. Create four (4) 11"x17" plates in an image editing software (Adobe Photoshop) to clearly and concisely communicate your research in images. Include excerpts from your writing. Organize your plates into the following: Architect, Art & Artist, Design of the Era, Socio-Political Themes.

PRESENTATION OF EXERCISE 6

WEEK 10: MULTI-PAGE LAYOUT (portfolio)

Demonstrate multi-page layout software (InDesign) and present examples of printed, projected, and bound documents. Discuss page layout and composition for various types of output. Show examples of graphic communication techniques including information visualization, and architecture specific examples of presentation boards, magazines, books, and lecture series posters. Create master pages, and set-up styles for document consistency.
Design Concepts & Vocabulary: Hierarchy, Alignment, Balance in Page Composition; Master Pages; Text Design Integration, Kerning, and Justification
Digital Skills: Text Tools, Master Pages
Assignment: Presentation layouts

WEEK 11 & 12:

Lecture: **ADDITIVE AND SUBTRACTIVE:** Discuss additive and subtractive methods of creating form.

OBJECTIVE: The goal of this project is to expose students to two techniques for defining volumes and space. The first technique is additively assembling cut sheet material. The second is the subtractive process of removing material from a solid. Students will also learn how to manipulate contours and how the site plays an integral role in the design of place.

DESCRIPTION: This project will challenge students to create relationships between objects of various sizes and materials in a landscape. A total of 5 cubes will be conceptualized, designed, and crafted using both additive and subtractive modeling techniques. In order to develop a conceptual catalyst for the cubes, students will use language to define complimentary and/or contradictory sets. The topographic site will then be modified/designed in order to enhance relationships between the various cubes, and to further reinforce overall ideas.

Lab & Homework: **EXERCISE 10**
Construct a series of cubes using both additive and subtractive methods and thoughtfully place them in a landscape. The design of each cube should be intentional and contribute to an overall narrative.

1. Working with chip board or card board, create one 3" and one 1 ¾" cube study model. One of the cubes should be "in-the-manner" of your architect from the previous exercise. The other cube should be defined by you.
2. Working with blue foam or Styrofoam, create the inverse of your 3" and 1 ¾" study models.
3. Working with chip board/cardboard and blue foam/Styrofoam create a 3" and 1 ¾" hybrid study model.
4. You will be given a 9" square contoured site. Roughly cut the contours out of cardboard. Site five (5) of your study models. Modify the contours to enhance the design.
5. Draft your modified contours in a vector drafting software (Rhino) and laser cut. Remake your 5 models out of bass wood and plaster of Paris. You may laser cut your bass wood as appropriate. Attach securely to your site.
6. Using a photograph of your model as an underlay, sketch two perspective views. Add entourage, shade, and color.
7. Scan your sketch and format an 11"x17" presentation board in page layout software (Adobe InDesign).

Reading: Hannah, Gail Greet. Elements of Design: Rowena Reed Kostellow and the Structure of Visual Relationships, pp.96-117.

WEEK 13:

Lecture: **FORM AND LIGHT:** Discuss how architects use light to shape their designs.

Objective:

Description:

Lab & Homework: **EXERCISE 10**
Design and build a working lamp based on additive and subtractive formal studies.

1. Choose two of your cubes from the previous exercise as a reference point. Sketch with charcoal the way that light interacts with these objects. Refine your sketches to define a clear light effect.
2. Create a study model out of chip board/cardboard and tracing paper to simulate with 3-D materials your light effect.
3. Refine your design through models and sketches.
4. Your final lamp must consist of a subtractive component made of wood or plaster, and an additive component made of an opaque sheet material of your choice, and a translucent/transparent sheet material of your choice.
5. The final lamp must have an integral light source and power supply.
6. Prepare 11"x17" presentation plates with your original charcoal sketches, photos of the process, multi-view drawings, and a final illustration of the design. Present your lamp and presentation plates to a jury.

PRESENTATION OF EXERCISE 11

AAAAAAAA WEEK 14:

Lecture: **ADDITIVE AND SUBTRACTIVE CONTINUED:** Discuss additive and subtractive methods of creating form.

Lab & Homework: **EXERCISE 9: ADDITIVE AND SUBTRACTIVE**
Construct a series of cubes using both additive and subtractive methods and thoughtfully place them in a landscape. The design of each cube should be intentional and contribute to an overall narrative.

1. Working with chip board or card board, create one 3" and one 1 ¾" cube study model. One of the cubes should be "in-the-manner" of your architect from the previous exercise. The other cube should be defined by you.
2. Working with blue foam or Styrofoam, create the inverse of your 3" and 1 ¾" study models.
3. Working with chip board/cardboard and blue foam/Styrofoam create a 3" and 1 ¾" hybrid study model.
4. You will be given a 9" square contoured site. Roughly cut the contours out of cardboard. Site five (5) of your study models. Modify the contours to enhance the design.
5. Draft your modified contours in a vector drafting software (Rhino) and laser cut. Remake your 5 models out of bass wood and plaster of Paris. You may laser cut your bass wood as appropriate. Attach securely to your site.
6. Using a photograph of your model as an underlay, sketch two perspective views. Add entourage, shade, and color.
7. Scan your sketch and format an 11"x17" presentation board in page layout software (Adobe InDesign).

PRESENTATION OF EXERCISE 9

Reading: Twombly, Robert ed. Louis Kahn: Essential Texts, pp. 266-280

WEEK 15:

Lecture: **FINAL PRESENTATION:** Final pin-up and presentation of Exercise 10 and all weekly sketches. Verbal presentations by students with a review jury of at least one outside critic. Written feedback on student performance completed and distributed.
SKILLS: Presentation: PowerPoint Portfolio presentation pre-requisite for 2310 and co-requisite for 1210. Formatting Presentations, Oral Presentation, Written Reflective Piece.