Spring 2024

Arch 156: Tools and Techniques II

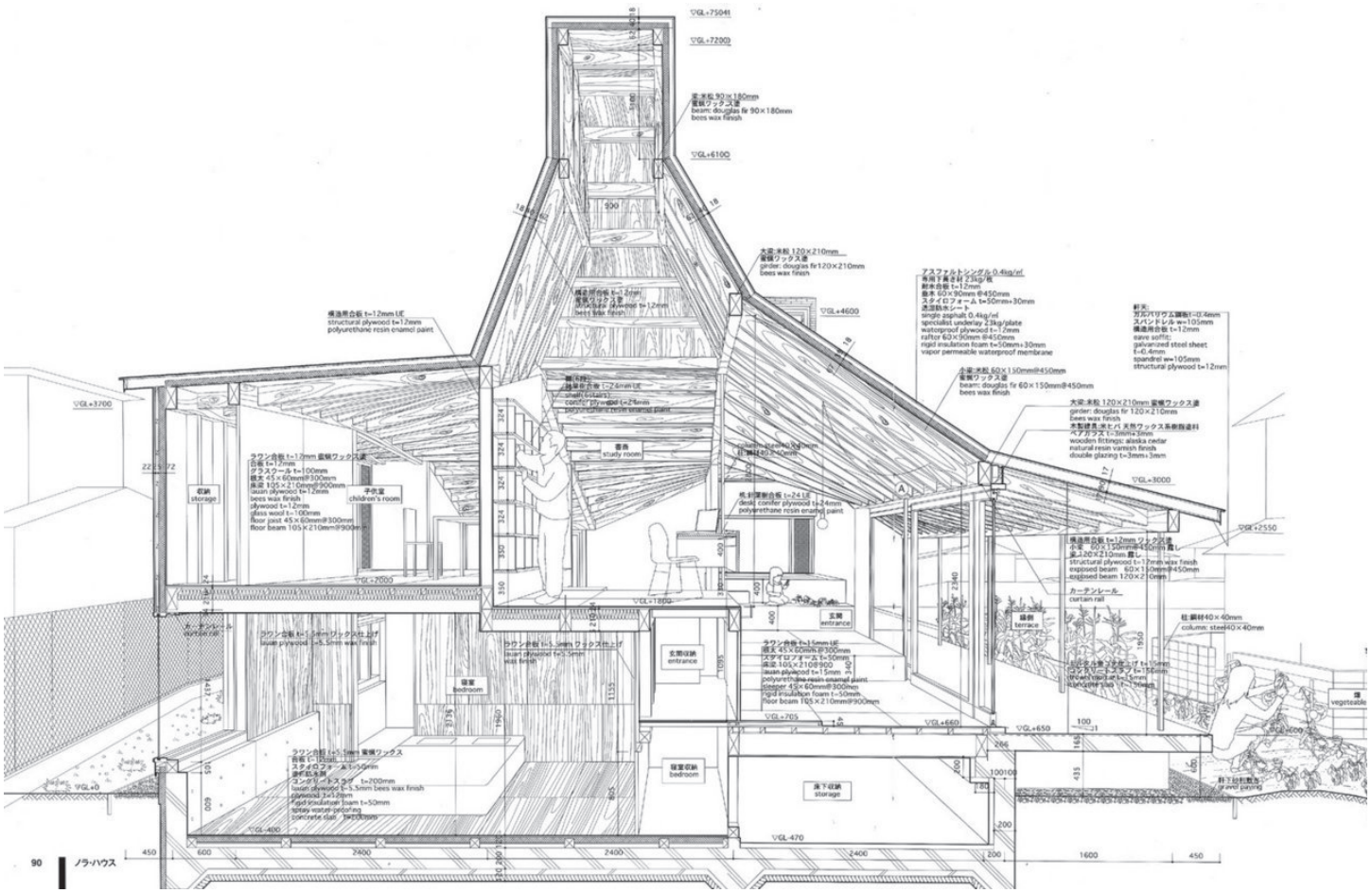
Architecture Department Staff

ARCH156: TOOLS & TECHNIQUES II

New Jersey Institute of Technology, Spring 2024
Tue-Thu — 8:30-9:50
10:00-11:20

Instructors:

Raquel Richter (c)
Cameron Clark
Matteo Ferraro
Ashley Griffith
Kevin Rogan
Daniel Rogers
Arie Salomon



Atelier Bow Wow, Nora House (2008

COURSE DESCRIPTION

Tools and Techniques is a course that runs parallel to the first year design studio. It is an opportunity to focus on communicating design intent through drawing. As designers we communicate through drawings, images, text, and speech; this is not merely a means of depicting space but also integral to the process of designing and understanding spatial conditions. For the next fifteen weeks we will explore what (tools) is available to us for this purpose and how to utilize what is available (techniques).

Additionally, Tools and Techniques provides students with an introduction to the history of architectural drawing tools and how innovation in means of representational techniques has propagated conceptual shifts in architectural thinking.

SEMESTER OVERVIEW

The semester is divided into 3 major units, each of which contains several exercises. Students will be given a new exercise each week, which will be due in physical and digital form at the start of the next class. Most assignments will be accompanied by a sketch element that will require you to practice observation and develop manual drawing techniques. These assignments will cultivate technical skill alongside conceptual thinking.

Unit 1 - Descriptive Geometry
We first examine architectural drawing through the lens of descriptive geometry, which allows for the representation of three-dimensional objects in two dimensions through a specific set of procedures. Freeing ourselves from the burden of architecture and its spatial, social, and political implications, we focus simply on the creation of complex geometries, and the generation of drawings to describe them.

- *1.A- Isometric*
- *1.B - Diagram*
- *1.C - GH Iteration I*
- *1.D - Elevation*
- *1.E - GH Iteration II*
- *1.F - Vertical Section*
- *1.G - Horizontal Section*

Unit 2 - Rendering
After learning the rigorous principles of paraline representation, we experiment with narrative and visual phenomenology through rendering. This is our opportunity to create a world in which our architecture exists. We learn the basics of VRay for Rhino, as well as post-processing in Adobe Photoshop, to give our work texture, light, shadow, scale, and context.

- *2A- Exterior Rendering*
- *2B - Interior Rendering*

Unit 3 - Hybridizing
We will be combing techniques of method and representation to create richly layered drawings that convey space, dimension, and atmosphere. We encourage using studio work for these two assignments.

- *3A- Exploded Isometric*
- *3B - Rendered Section Perspective*

Portfolio
We will close the semester by reflecting on all work completed during the prior year and create a concise digital portfolio.

GRADING

Many assignments include sketches in addition to the digital work; sketches contribute to the overall grade and completeness of each assignment. Note that class participation contributes to final grades (being prepared for desk critiques, using free class time to work on assignments for this course, and vocal participation during pin-ups) and is a critical part of learning.

- *1.A(Isometric) ~ 6.5%*
- *1.B (Diagram) ~ 6.5%*
- *1.C (GH Iteration I) ~ 6.5%*
- *1.D (Elevation) ~ 6.5%*
- *1.E (GH Iteration II) ~ 6.5%*
- *1.F (Vertical Section) ~ 6.5%*
- *1.G (Section Perspective) ~ 6.5%*
- *1.H (Plan) ~ 6.5%*
- *2.A (Rendering I) ~ 6.5%*
- *2.B (Rendering II) ~ 6.5%*
- *3.A (Hybrid I) ~ 6.5%*
- *3.B (Hybrid II) ~ 6.5%*
- *Portfolio ~ 6.5%*
- *Class participation~ 15%*

COURSE REQUIREMENTS AND FORMAT

Learning objectives and evaluation criteria will be listed in each assignment. This course will be taught through a combination of face-to-face lessons and asynchronous pre-recorded tutorials. Students are expected to attend weekly classes. All assignments must be completed and archived in order to receive a grade for this course.

NAAB PROGRAM CRITERIA: The National Architectural Accrediting Board accredits NJIT's architecture program. The NAAB has Program and Student Criteria that must be covered by any architectural curriculum to attain their approval. Arch 156 satisfies the following criteria:

- *PC7 (Learning and Teaching Culture): How the program fosters and ensures a positive and respectful environment that encourages optimism, respect, sharing, engagement, and innovation among its faculty, students, administration, and staff.*

- *PC8 (Social Equity & Inclusion): How the program furthers and deepens students' understanding of diverse cultural and social contexts and helps them translate that understanding into built environments that equitably support and include people of different backgrounds, resources and abilities.*

RECOMMENDED READING

The following books were utilized in the creation of the lectures given this semester. Many are available in the library, you are encouraged to take some time to browse them to supplement and advance the work we are doing in class.

Allen, Stan. Practice: Architecture, Technique + Representation. London: Routledge, 2009.

Ching, Francis. Architectural Graphics. Hoboken: J. Wiley, 2009.

Ching, Francis. Design Drawing. New York: J. Wiley, 1998.
Clark, Roger H., and Michael Pause. Precedents in Architecture Analytic Diagrams, Formative Ideas, and Partis. New York: Wiley, 2004.

Evans, Robin. Translations From Drawing to Buildings and Other Essays. London: Architectural Association Publications, 1997

Fraser, Iaian. Envisioning Architecture: An Analysis of Drawing. New York: J. Wiley, 1994.

Robbins, Edward. Why Architects Draw. Cambridge: MIT Press, 1994

Tufte, Edward. Envisioning Information. Cheshire, Conn: Graphics Press, 1994.

Yee, Rendow. Architectural Drawing: a Visual Compendium of Types and Methods. Hoboken: John Wiley & Sons, 2007.

RECOMMENDED INSTAGRAM FEEDS

@alice.rawsthorn
@arch_grap
@arhitektuurimuuseum
@columbiagsapp
@critday
@fantasticoffense
@hidden_architecture
@log_grams
@mitarchitecture
@njitsoa
@nycurbanism
@prattsoa
@sciarc
@syh_design
@the_best_new_architects
@theopenworkshop
@visualizing_architecture
@yalearchitecture

SOFTWARE

In this course we will be using Rhino, V-Ray for Rhino, Adobe Illustrator, Adobe Photoshop and Adobe InDesign. It is your responsibility to have access to these programs in order to complete the coursework. If you are working on a Mac, you will need a way of running a PC on a split hard drive or through Parallels to run V-Ray for Rhino. Your instructor is not required to provide instruction on alternative methods of completing assignments using other software programs.

ATTENDANCE AND TARDINESS POLICY

1) Excused Absences:
Are for medical and religious reasons or pre-approved for student-athletes only. An absence due to illness can be excused if the student has filed official documentation (licensed medical practitioner including NJIT Health Services) with the Office of the Dean of Students. The Office of the Dean of Students will, in turn, notify the instructor(s) that appropriate documentation has been received and confirmed, and detail what accommodation is warranted. These accommodations may range from identified dates for excused absences (normally for temporary illness) to extra time for projects and assignments (for ongoing medical issues). Students who expect to miss classes or exams because of religious observance must submit to their instructors, by the end of the second week of classes, a written list of dates that will be missed. Students are expected to make up missed work. Faculty are expected to make reasonable attempts to accommodate students who are appropriately following this policy.

For conflicts for student-athletes see Missed Class Policy at:
http://www.njithighlanders.com/documents/2014/8/7/2014_Book_08_7_14.pdf?tab=2014-15sahandboo

2) Unexcused Absences:
All undergraduates are expected to attend all regularly scheduled classes. Unexcused absences may result in a grade reduction due to a lack of participation in class workshops and assignments. Three or more unexcused absences will require a meeting with the instructor, coordinator, and advisor.
The instructor is under no obligation to repeat any missed information or provide access to lecture notes or presentation materials to students who arrive late. It remains the responsibility of the student to learn the material presented.

University Attendance Policy for Undergraduate Students can be found at:
https://catalog.njit.edu/undergraduate/academic-policies-procedures/

ARCHIVING WORK ON KEPLER

All students are required to post a selection of images of each exercise on Canvas and to the on-line archive, Kepler. Kepler is now part of Canvas. Students should upload to folders that parallel the assignments page of Canvas in pdf format at the file size used for presentation. This is a fundamental part of the program and failure to post work could result in not receiving credit for the course. Your instructor will provide detailed information about this process.

File name: Student'sFirstName_ Student'sLastName
Please login at: canvas.njit.edu/ Additional Instructions will be forthcoming.

ACADEMIC INTEGRITY

Academic integrity and honesty are of paramount importance. Cheating and plagiarism will not be tolerated. The NJIT Honor Code will be upheld, and any violations will be brought to the immediate attention of the Dean of Students. All students are responsible for upholding the integrity of NJIT by reporting any violation of academic integrity to the Office of the Dean of Students. The identity of the student filing the report will remain anonymous. All students are expected to adhere to the University Code on Academic Integrity and to the Code of Student Conduct.
Dean of Students: www.njit.edu/doss
Code of Academic Integrity: http://www.njit.edu/academics/pdf/academic-integrity-code.pdf
Code of Student Conduct: http://www.njit.edu/doss/policies/conductcode/

PLAGIARISM

It is extremely important that students and faculty familiarize themselves with a proper way to cite visual and intellectual sources. Plagiarism weather deliberate or inadvertent simply cannot be tolerated. Simply put, plagiarism is the use of visual or intellectual material created by others without proper attribution. Even the use of ones own material for more than one assignment can also be considered plagiarism. Students should not do so without the expressed consent of all instructors involved.

Our librarian Maya Gervits has assembled excellent resources on copyright, plagiarism citing, and avoiding plagiarism: http://researchguides.njit.edu/c.php?g=671665&p=4727920

STUDENTS WITH DISABILITIES

It is the school's moral, ethical, and legal obligation to provide appropriate accommodations for all students with physical and/or learning disabilities. If students need an accommodation related to disabilities, all official documentation must be filed with the Dean of Students and the Disability Support Service Office. It is the responsibility of the student to notify the instructor at the beginning of the semester if accommodations are warranted.

Dean of Students: https://www.njit.edu/doss/
Disability Support Service: http://www.njit.edu/studentsuccess/disability-support-services-0/

GRADING

A (Superior)
Work demonstrates advanced understanding of learning objectives and a high level of execution in terms of production abilities. Work is reflective of an intensive process of development that goes above and beyond expectations. Work is connected to larger architectural discussions and pursuant of specific architectural aims. Products demonstrate a high level of sophistication, craft, attention to detail, and willingness to explore a wide range of production techniques. Work is further supported by advanced levels of independent initiative and library research. It is very hard to get an A but does not require previous experience or skills.

B+ (Excellent) /B (Very Good)
Work demonstrates good understanding of learning objectives and a good level of production abilities. Work is reflective of a process of development that generates multiple alternatives, assesses, selects, refines, and so on. Products demonstrate a high level of sophistication, craft, attention to detail, and willingness to explore a wide range of production techniques. Work is further supported by independent initiative and investigation as well as active participation in the studio and consistent engagement of course material (e.g. readings, lectures, etc.). It is hard to get a B but does not require previous experience or skills.

C+ (Good) / C (Acceptable)
Work fulfills the requirements of each exercise in terms of conceptual understanding and technical ability. Work takes few risks and has some engagement with an iterative design process. Products demonstrate a good level of craft and are carefully made. Work demonstrates basic level of independent initiative. Work improves over the course of the semester and reflects a genuine effort to improve in ability and understanding.

D (Minimum)
Work barely fulfills the requirements of each exercise in terms of conceptual understanding and technical ability. Work process is not evident. Products demonstrate poor development of craft and / or do not demonstrate improvement over the course of the semester. Work demonstrates no additional initiative or engagement.

F (Failing)
Work is incomplete and does not demonstrate an understanding of the course content or abilities related to required skills.

Incompletes are only granted in the event of a documented medical or family emergency, and must be approved by the instructor, coordinator, and advisor.

NJIT issues mid-term warnings for students who are not performing at a satisfactory level. Any student issued a warning will be required to have a conference with the instructor to evaluate satisfactory completion of the work for the semester. At any point during the semester students can arrange to meet with the instructor to inquire how their performance is progressing and how they may improve.

Final grades will be discussed in person at the end of the semester.

SCHEDULE

January

I	Tue	01/16	Introduction lecture to course: goals, expectations, methodology, etc....
			Handout / Tutorial released for **Assignment 1.A - ISOMETRIC**
	Thu	01/18	Pinup / Workshop for Assignment 1.A
II	Tue	01/23	Pinup / Workshop for Assignment 1.A
	Thu	01/25	Assignment 1.A due
			Handout /Tutorial released for **Assignment 1.B - DIAGRAM**
III	Tue	01/30	Pinup / Workshop for Assignment 1.B

February

	Thu	02/01	Assignment 1.B due
			Handout /Tutorial released for **Assignment 1.C - GH ITERATION I**
IV	Tue	02/06	Pinup / Workshop for Assignment 1.C
	Thu	02/08	Assignment 1.C due
			Handout /Tutorial released for **Assignment 1.D - ELEVATION**
V	Tue	02/13	Pinup / Workshop for Assignment 1.D
	Thu	02/15	Assignment 1.D due
			Handout /Tutorial released for Assignment **1.E - GH ITERATION II**
VI	Tue	02/20	Pinup / Workshop for Assignment 1.E
	Thu	02/22	Assignment 1.E due
			Handout /Tutorial released for Assignment **1.F - VERTICAL SECTION**
VII	Tue	02/27	Pinup / Workshop for Assignment 1.F
	Thu	02/29	Assignment 1.F due
			Handout /Tutorial released for **1.G - SECTION PERSPECTIVE**

March

VIII	Tue	03/05	Pinup / Workshop for Assignment 1.G
	Thu	03/07	Assignment 1.G due
			Handout /Tutorial released for Assignment **1.H - PLAN**

IX 11-15 - Spring Recesss - No Class

X	Tue	03/19	Pinup / Workshop for Assignment 1.H
	Thu	03/21	Assignment 1.H due
			Handout /Tutorial released for Assignment **2.A - RENDERING I - EXTERIOR**
XI	Tue	03/26	Pinup / Workshop for Assignment 2.A
	Thu	03/28	Assignment 2.A due
			Handout /Tutorial released for Assignment **2.B - RENDERING II - INTERIOR**

April

XII	Tue	04/02	Pinup / Workshop for Assignment 2.B
	Thu	04/04	Assignment 2.B due
			Hand out / tutorial of Assignment **3.A - HYBRID I - EXPLODED ISOMETRIC**
XIII	Tue	04/09	Pinup / Workshop for Assignment 3.A
	Thu	04/11	Assignment 3.A due
			Hand out / tutorial of Assignment **3.B - HYBRID II - RENDERED SECTION PERSPECTIVE**
XIV	Tue	04/16	Workshop for studio presentations
	Thu	04/18	Workshop for studio presentations

XV **Studio Week**

	Tue	04/23	Assignment 3.B due
			Hand out/tutorial for **PORTFOLIO**
	Thu	04/25	Pinup / Workshop for Portfolio work (last day of class)
	Tue	4/30	Portfolio due (no class)