ARCH156: TOOLS & TECHNIQUES II



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	@hidden_architecture	@sciarc
@arch_grap	@log_grams	@syh_design
@arhitektuurimuuseum	@mitarchitecture	<pre>@the_best_new_architects</pre>
@columbiagsapp	@njitsoa	@theopenworkshop
(a)critday	@nycurbanism	@visualizing_architecture
@fantasticoffense	@prattsoa	@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:Students requesting an excused absence for religious, athletic or other acceptable scheduled reasonsMUST notify their studio instructor via email no later than ONE WEEK before the absence will occur. Anabsence due to illness can be excused if the student has filed official documentation (licensed medicalpractitioner) with the Office of the Dean of Students. The Office of the Dean of Students will, in turn, notifythe instructor(s) that appropriate documentation has been received and confirmed, and detail whataccommodation is warranted (i.e. extra time to complete assignments). Visit the Dean of Students website for more information. DOS FAQs https://www.njit.edu/dos/faq.phpDOS Request for Absence Verification https://www.njit.edu/dos/student-absence-verificationAbsences 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:Unexcused absences can result in the lowering of assignment grades or failure due to missed classworkshops and instruction. The instructor is under no obligation to repeat any missed information orprovide access to lecture notes or presentation materials to students who arrive late. It remains theresponsibility 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 each assignment to CANVAS and Kepler, on a regular basis. NJSOAstudents are required to upload all graded work to CANVAS and Kepler in order for students to receive apassing grade. Detailed information about this process will be provided on Canvas. Kepler will beaccessed through CANVAS in the course modules.

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/

AI POLICY

The use of artifical intelligence (AI) is not permitted in this course.

PLAGIARISM

It is extremely important that students and faculty familiarize themselves with a proper way to cite visualand intellectual sources. Plagiarism weather deliberate or inadvertent simply cannot be tolerated. Simplyput, 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, andavoiding 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 allstudents with physical and/or learning disabilities. If students need an accommodation related todisabilities, all official documentation must be filed with the Dean of Students and the Disability SupportService Office. It is the responsibility of the student to notify the instructor at the beginning of thesemester if accommodations are warranted.

Dean of Students: https://www.njit.edu/doss/Office of Accessibility Resources and Services: https://www.njit.edu/ accessibility/

EVALUATION & GRADING CRITERIA

NJIT Undergraduate grading scale: A 4.0 90-100 Superior B+ 3.5 86-89 Excellent B 3.0 80-85 Very Good C+ 2.5 76-79 Good C 2.0 70-75 Acceptable D 1.0 60-69 Minimum F 0.0 0-59 Inadequate

Evaluation is based on a number of factors including overall work quality, improvement, effort, ambition, initiative, and enthusiasm. Within the goals of the first year course, the exercises in studio are designed toallow you to demonstrate your understanding and your ability related to the objectives described in eachexercise sheet. In almost every case, dramatic improvement of both understanding and ability throughhard work, commitment, and initiative with be positively supported in terms of assessment. In other words, there are multiple routes to success.

In an effort to further clarify the grading policy, below are brief summaries of the kind of work appropriate each grade, based on the NJIT undergraduate grading scale:

A (Superior)

Work demonstrates advanced understanding of learning objectives and a high level of execution in termsof production abilities. Work is reflective of an intensive process of development that goes above andbeyond expectations. Work is connected to larger architectural discussions and pursuant of specificarchitectural aims. Deliverables demonstrate a high level of sophistication, craft, attention to detail, andwillingness to explore a wide range of production techniques. Work is further supported by advancedlevels of independent initiative and library research. It is very hard to get an A but does not requireprevious 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. Deliverables 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 independentinitiative and investigation as well as active participation in the studio and consistent engagement of course material (i.e. readings, lectures, site visits, 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 technicalability. Work takes few risks and has some engagement with an iterative design process.Deliverables demonstrate a good level of craft and are carefully made (i.e. drawings are legible andcorrect, models are carefully cut and cleanly assembled). Work demonstrates basic level of independentinitiative. Work improves over the course of the semester and reflects a genuine effort to improve inability and understanding.

D (Minimum)

Work barely fulfills the requirements of each exercise in terms of conceptual understanding andtechnical ability. Work process is not evident. Deliverables demonstrate poor development of craftand / or do not demonstrate improvement over the course of the semester. Work demonstrates noadditional initiative or engagement.

F (Failing)

Work is incomplete and does not demonstrate an understanding of the course content or abilitiesrelated to required skills.

Incompletes are only granted in the event of a documented medical or family emergency, and must beapproved by the instructor, coordinator, and advisor. NJIT issues mid-term warnings for students whoare not performing at a satisfactory level. Any student issued a warning will be required to have aconference with the instructor to evaluate satisfactory completion of the work for the semester. Atany point during the semester students can arrange to meet with the instructor to inquire how theirperformance is progressing and how they may improve. Final grades will be discussed in person at theend of the semester. All students are expected to adhere to the University Code on Academic Integrityand to the Code of Student Conduct. Please take the time to read and understand both of these documents (see links are provided above). Any violations will be brought to the attention of the Dean ofStudents.

SCHEDULE

Januai	r y		
	Tue	01/21	Introduction lecture to course: goals, expectations, methodology, etc
	Thu	01/23	Handout / Tutorial released for Assignment 1.A - ISOMETRIC
	Tue	01/28	Pinup / Workshop for Assignment 1.A
	Thu	01/30	Assignment 1.A due
			Handout /Tutorial released for Assignment 1.B - DIAGRAM
Februa	ary	00/04	Dinum (Markahan far Assimption 1 D
111	Tue	02/04	Pinup / Workshop for Assignment T.B
	mu	02/00	Assignment T.D. due
1\/	Τυρ	02/11	Pinun / Workshon for Assignment 1 C
IV	Thu	02/11 02/13	Assignment 1 C due
	ma	02/10	Handout /Tutorial released for Assignment 1.D - ELEVATION
V	Tue	02/18	Pinup / Workshop for Assignment 1.D
	Thu	02/20	Assignment 1.D due
			Handout /Tutorial released for Assignment 1.E - GH ITERATION II
VI	Tue	02/25	Pinup / Workshop for Assignment 1.E
	Thu	02/27	Assignment 1.E due
			Handout /Tutorial released for Assignment 1.F - VERTICAL SECTION
March	T	00/04	
VII	Tue	03/04	Pinup / Workshop for Assignment T.F
	Inu	03/06	Assignment T.F. due
\/!!!	Тие	03/11	Pinun / Workshon for Assignment 1 G
VIII	Thu	03/13	Assignment 1 G due
	111G	00,10	Handout /Tutorial released for Assignment 1.H - PLAN
IX	17-21 -	- Spring	Recess - No Class
V	Tue	02/25	Dinum / Workshop for Assignment 1 1
^	Tue	03/23 03/27	
	mu	00/2/	Handout /Tutorial released for Assignment 2 A - RENDERING I - EXTERIOR
XI	Tue	04/01	Pinup / Workshop for Assignment 2.A
	Thu	04/03	No Class - Wellness Day
	Fri	04/04	Assignment 2.A due
			Handout /Tutorial released for Assignment 2.B - RENDERING II - INTERIOR
	–	04/00	
XII	Thue	04/08	Pinup / Workshop for Assignment 2.B
	Inu	04/10	Assignment 2.8 due
XIII			
AIII	Τυρ	04/15	Pinun / Workshon for Assignment 3 A
	Tue Thu	04/15 04/17	Pinup / Workshop for Assignment 3.A Assignment 3 A due
	Tue Thu	04/15 04/17	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE
XIV	Tue Thu Tue	04/15 04/17 04/22	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations
XIV	Tue Thu Tue Thu	04/15 04/17 04/22 04/24	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations Workshop for studio presentations
XIV	Tue Thu Tue Thu	04/15 04/17 04/22 04/24	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations Workshop for studio presentations
XIV XV	Tue Thu Tue Thu Studio	04/15 04/17 04/22 04/24 Week	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations Workshop for studio presentations
XIV XV	Tue Thu Tue Thu Studio Tue	04/15 04/17 04/22 04/24 Week 04/29	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations Workshop for studio presentations
XIV XV	Tue Thu Tue Thu Studio Tue	04/15 04/17 04/22 04/24 Week 04/29	Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations Workshop for studio presentations Assignment 3.B due Hand out/tutorial for PORTFOLIO Pinun / Workshop for Portfolio work (last day of class)
XIV XV	Tue Thu Tue Thu Studio Tue Thu	04/15 04/17 04/22 04/24 Week 04/29 05/01	 Pinup / Workshop for Assignment 3.A Assignment 3.A due Hand out / tutorial of Assignment 3.B - HYBRID II - RENDERED SECTION PERSPECTIVE Workshop for studio presentations Workshop for studio presentations Assignment 3.B due Hand out/tutorial for PORTFOLIO Pinup / Workshop for Portfolio work (last day of class)