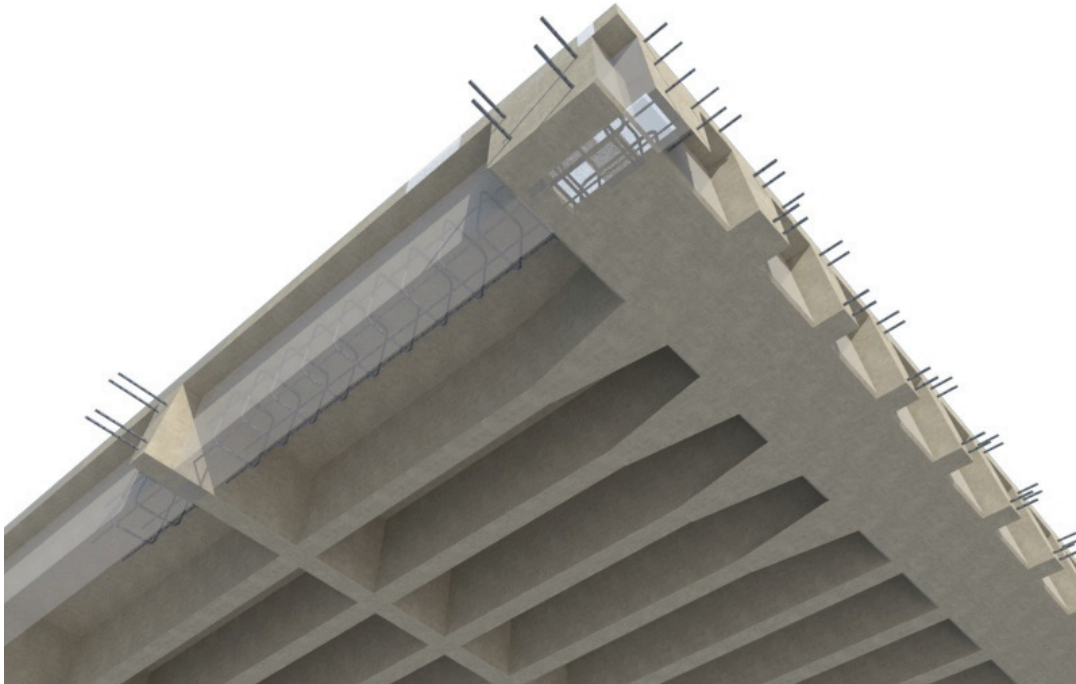


NEW YORK CITY COLLEGE OF TECHNOLOGY

*Fall 2017*



**ARCH 1230 BUILDING TECHNOLOGY II  
COURSE OUTLINE**

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COURSE COORDINATOR - PROFESSOR JASON MONTGOMERY

New York City College of Technology – City University of New York  
300 Jay Street, Brooklyn, New York 11201

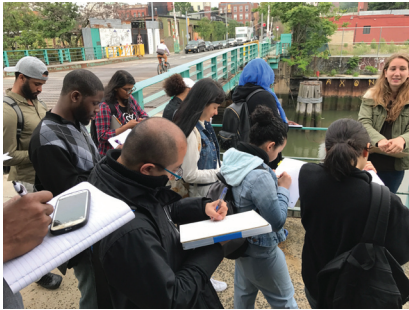
## DEPARTMENT OF ARCHITECTURAL TECHNOLOGY

### ARCH 1230

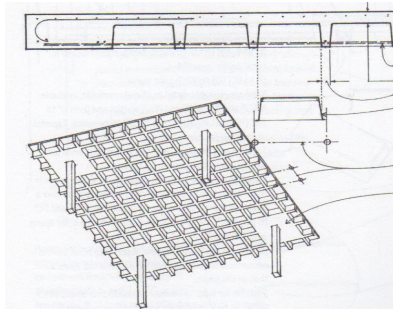
### BUILDING TECHNOLOGY II

1 classroom hour, 4 lab/studio hours, 3 credits

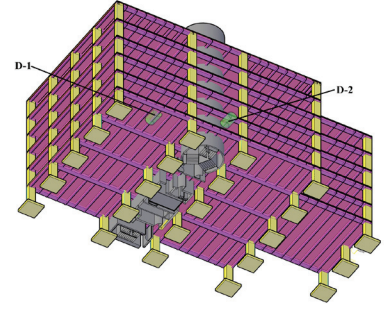
**Course Description:** This course will study the basic materials of construction as well as the theory and practice of building technology. The course will include investigation of the assembly of building components and methods of construction while developing proficiency in both analog and digital drawing techniques.



SITE VISITS



READING + NOTES



DRAWING ASSIGNMENTS

**Course Context:** This is the second course in the Building Technology sequence required for both the AAS and the BTech degrees offered by the Department of Architectural Technology. Each course in this sequence is a prerequisite for the following course. There are four Building Technology courses.

**Prerequisites:** ARCH 1130 Building Technology I with a grade of C or higher

#### **Required Texts:**

Allen, Edward and Joseph Iano. *Fundamentals of Building Construction: Materials and Methods, 5th Edition*. John Wiley and Sons, 2008.

Ching, Francis. *Building Construction Illustrated, 4th Edition*. John Wiley and Sons, 2008.

#### **Recommended Texts:**

Ramsey, Charles George, Harold Reeve Sleeper, and Bruce Bassler. *Architectural Graphic Standards: Student Edition (Ramsey/Sleeper Architectural Graphic Standards Series)*. John Wiley and Sons, 2008.

Ching, Francis. *Architectural Graphics, 5th Edition*. John Wiley and Sons, 2009.

**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.

**Course Structure:** This course will combine periodic site visits focused on particular materials and methods of construction and studio lab time to acquire hand drafting and digital drafting skills while developing a series of case drawing and modeling investigations of the materials and assemblies discussed in the lectures. Students are required to annotate required readings and develop a notebook/sketchbook that documents architectural and technical content from readings.

## **GRADE WEIGHTING**

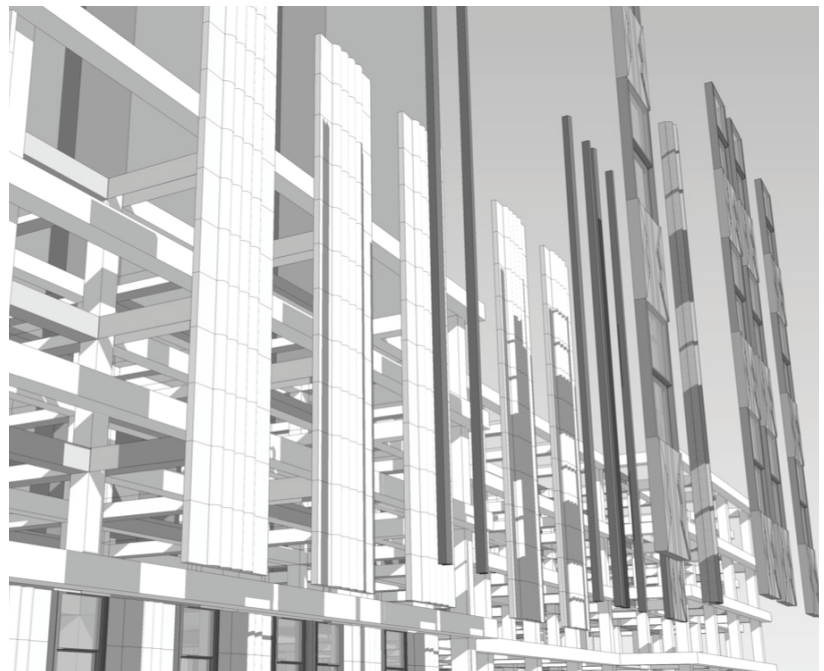
70% Modules 1-4

25% Sketchbook

5% Class Participation

**EXTRA CREDIT:**

Module 5: 10%



## LEARNING OBJECTIVES

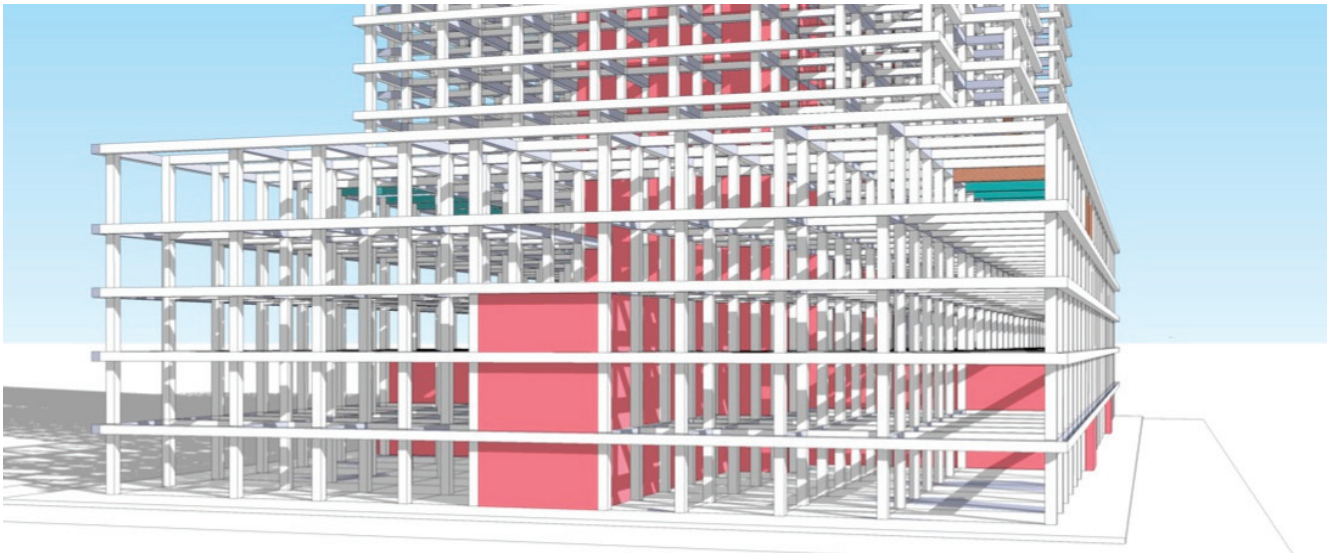
Upon successful completion of this course, the student will:

1. **Understand** the relationship of technology to tectonics and architectural character. (Knowledge)
2. **Recall and recite** the key terms and characteristics of the materials reviewed in the lectures and readings. (Gen Ed)
3. **Develop and apply** a professional vocabulary of architectural terminology. (Gen Ed)
4. **Understand and apply** professional etiquette to classroom situations. (Gen Ed)
5. **Define and compare** the environmental implications of specific materials and types of construction including embodied energy, sourcing, and the processing of materials. (Gen Ed)
6. **Generate** clear and concise talking points to guide oral presentations of lab assignment reviews. (Gen Ed)
7. **Manipulate and apply** geometric, proportional and scale systems. (Gen Ed)
8. **Apply** an understanding of the relationship of physiology and anatomy to building construction. (Gen Ed)
9. **Research, report on and apply** appropriate details of the selected materials and methods of construction through review of professional literature. (Gen Ed)
10. **Use and apply** procedural texts to supplement instruction on the use of hardware and software. (Gen Ed)
11. **Sketch and draft** details in orthographic and 3 dimensional views in analogue and digital media. (Skill)
12. **Develop** analog and digital models of construction assemblies. (Skill)
13. **Analyze** assemblies and details; demonstrate an understanding of fundamental construction types both by detailed research and visual observation. (Skill)
14. **Demonstrate** knowledge of building codes, professional construction drawing standards for composition, title blocks, annotation, and schedules. (Skill)
15. **Develop** a coordinated drawing set for the given building design(s) including plan diagrams, sections, and details of steel and concrete structures that illustrates and identifies the materials and construction types. (Skill)

## ASSESSMENT

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

1. Review research assignment focused on the analysis of assemblies and details and the relationship of technology to tectonics, human scale, and architectural character. (Los: 1, 8, 13)
2. Test the students' ability to recall and recite the key terms and material of the readings and site visits through reading annotations and notebook/sketchbook. (Los: 2, 5, 9)
3. Review students' drawing and modeling work where students must exhibit their visual representation skills (2-D and 3-D). (Los: 7, 10, 11, 12, 14, 15)
4. Assess the students' use of professional vocabulary and etiquette during discussions, studio work, and oral presentations. (Los: 3, 4, 6)
5. Inspect student submissions for quality of drafting including use of line weights, lettering, and proper use of scale. (Los: 7, 11, 14, 15)
6. Confirm the proper coordination of the students' submitted drawing sets. (Los: 14)
7. Review the quality and accuracy of the students' submitted analogue and digital models of construction assemblies. (Los: 11, 12)



# CLASS PLANNER

## CLASS MEETING SUMMARY:

Class Meeting	Date	Class Activity
1	2017-08-29	Course Introduction
		Module 1: Floor Plan Drawings + Analysis
2	2017-08-31	Module 1: Floor Plan Sketch Analysis
3	2017-09-05	Site Walk Structural Typologies: Bearing Wall + Point Load Structural Elements: Columns/Piers/Spanning Elements
4	2017-09-07	Module 1: Plan Underlay: Grid + Schema
5	2017-09-12	Module 1: Plan Overlays: Structure + Partition/Millwork
6	2017-09-14	Module 1: Plan Overlays: Transparency + Stairs
7	2017-09-19	Module 1: Final Floor Plans
8	2017-09-26	Module 1 Presentation
	2017-09-28	Module 1 SUBMISSION
9	2017-09-28	Module 2: AutoCAD Floor Plans
10	2017-10-03	Module 2: AutoCAD File Set Up
11	2017-10-05	Site Walk Structure: Concrete + Steel
12	2017-10-10	Module 2: Plan Grid + Schema
13	2017-10-12	Structure: Concrete + Steel
14	2017-10-17	Module 2: Plan Development: Structure + Partition/Millwork
15	2017-10-19	Module 2: Plans Transparency + Stairs
16	2017-10-24	Mid-Semester Review Modules 1 & 2

Class Meeting	Date	Class Activity
	2017-10-26	Module 2 SUBMISSION
17	2017-10-26	Module 3: Section Drawings + Analysis
18	2017-10-31	Site Walk Structure/Envelope: Exterior Walls + Roof
19	2017-11-02	Module 3: Section Grid + Levels + Schema
20	2017-11-07	Shallow Foundations + Geotechnical Investigation
21	2017-11-09	Module 3: Section Structure+Partition/Millwork
22	2017-11-14	Module 3: Section Stairs+Transparency
23	<b>2017-11-16</b>	<b>Module 3: Presentation (Include Plan Drawings)</b>
		THANKSGIVING
	2017-11-28	Module 3 SUBMISSION
24	2017-11-28	Module 4: AutoCAD Section Drawings Grids + Levels + Schema
25	2017-11-30	Site Walk Circulation: Stairs
26	2017-12-05	Module 4: Section Structure+Partition/Millwork
27	2017-12-07	Module 4: Section Stairs+Transparency
28	2017-12-12	Optional Module 5: Elevations
29	<b>2017-12-14</b>	<b>Final Presentation (Include All Drawings Modules 1-4)</b>
30	2017-12-19	FINAL SUBMISSION + Course Reflection

## READINGS:

### 1. Overview + Structural Typologies and Elements

1.1.Ching, Building Construction Illustrated: Chapter 1, pp. 1.02-1.06,  
Chapter 2, pp. 2.02-2.30, Chapter 12, pp. 12.02-12.05, 12.08-12.09

### 2. Structure: Concrete

2.1.Allen and Iano, Concrete Construction Chapter 13, pp. 515-551, Sitecast  
Concrete Framing Systems, Chapter 14, pp. 553-609

2.2.Ching, Building Construction Illustrated, Chapter 4, pp. 4.02-4.13  
Chapter 5, pp. 5.04-5.09, Chapter 12, pp. 12.04-12.05

### 3. Structure: Steel

3.1. Allen and Iano, Steel Frame Construction Chapter 11, pp. 411-487

3.2.Ching, Building Construction Illustrated, Chapter 4, pp. 4.14-4.22,  
Chapter 5, pp. 5.35-5.38, Chapter 6, pp. 6.06-6.14

### 4. Structure/Envelope: Exterior Walls + Roof

4.1. Allen and Iano, Designing Exterior Wall Systems Chapter 19, pp.783-807

4.2. Ching, Building Construction Illustrated, Chapter 6, pp. 6.02-6.30

4.3.Ching, Building Construction Illustrated, Chapter 5, pp. 5.02-5.03,  
Chapter 7, pp. 7.22-7.25, pp. 7.39-7.50

### 5. Structure: Shallow Foundations + Geotechnical Investigation

5.1. Allen and Iano, Foundations Chapter 2, pp. 29-38, pp. 56-71

5.2.Ching, Building Construction Illustrated, Chapter 3, pp. 3.02-3.26

### 6. Circulation: Egress + Stairs

6.1.Allen and Iano, Making Buildings Chapter 1, pp. 3-27

6.2.Ching, Building Construction Illustrated, Appendix, pp. A.10-A.13

6.3. Ching, Building Construction Illustrated, Chapter 9, pp. 9.02-9.17



## COURSE GRADING AND RUBRICS:

DRAWING MODULES: All **drawing assignments** will be graded on a 4 point scale for each rubric category. The final score will be the average of the sum of all points awarded divided by the number of categories applied to that module.

### POINT DESCRIPTIONS:

0 = No Submission

1 = Submitted Work shows minimal understanding of architectural content and drawing technique.

2 = Submission content is approaching expected level of achievement of rubric concept/skill. See below for more detail on expected level of achievement.

3 = Submission content is at expected level of achievement. Examples of expected level of achievement:

- Drawings are correctly **scaled** and **formatted**.
- Drawings show general understanding of **line weights** with some exceptions, showing the application of appropriate **layers** and use of correct **CTB** file when printing hard copies, pdfs, or jpegs
- **Drawing titles** and **annotations** are included, identifying some of the basic elements of construction
- Drawings are generally dimensionally and proportionally **accurate** but with some errors.
- Drawings and student discussions exhibit general understanding of **architectural** and **structural elements** and configuration of case study but includes some errors.
- Student work and oral presentations demonstrate general **understanding** of **architectural drawings** and the **significance of coordination of drawing sets**.

4 = Submission content exceeds expected level of achievement. Examples of exceeding expected level of achievement:

- **Line weights** are consistently applied and enhance legibility of drawings at multiple scales and outputs.
- **Layers** are correctly and consistently applied and show rigorous control of hand drawings and digital information in AutoCAD files.
- **Annotations** are extensive and exhibit deep understanding of technical elements of drawings.

- **Coordination** of drawings is consistent without errors and demonstrates rigorous examination and understanding of architectural and structural elements.

DRAWING RUBRIC CATEGORIES (NOT ALL CATEGORIES APPLY TO ALL MODULES):

1. Lineweight
2. Layout Lines
3. Grid
4. Scale
5. Dimensional Accuracy
6. Proportional Accuracy
7. Drawing Conventions (doors, stairs, notations, grid system...)
8. Lettering/Titles/Annotations
9. Drawing Coordination
10. Distinguishing Structure, Partitions, Transparency
11. Layers
12. CTB/Printing Method
13. Neatness/Organization
14. Correct Filename

Module 1: Rubrics 1-10, Module 2: Rubrics 1-13,  
Module 3: Rubrics 1-10, Module 4: Rubrics 1-13

NOTEBOOK ASSIGNMENTS: **Notes and Sketches** will be graded on a 4 point scale for each rubric category. The final score will be the average of the sum of all point awarded divided by the number of categories applied to that module.

POINT DESCRIPTIONS:

0 = No Submission

1 = Submitted Notes and Sketches show minimal examination of the reading material.

2 = Submitted Notes and Sketches are approaching course level in their demonstration of understanding of architectural and technical content in the readings but notes and sketches are poorly organized and lacking rigorous documentation.

3 = Submitted Notes and Sketches achieve course level in their demonstration of understanding of architectural and technical content in the readings. Notes and sketches are well organized.

4 = Submitted Notes and Sketches exceed course level in their demonstration of understanding of architectural and technical content in the readings. Notes and sketches are well organized and exhibit a rigorous level of documentation. Major and minor topics are indicated clearly. Sketches show engagement to the technical material and are clearly annotated.

NOTEBOOK RUBRIC CATEGORIES:

1. Neat Handwriting
2. Annotation Technique of Text (systematic, clear method)
3. Care and Clarity of Sketches
4. Note Organization
5. Coverage of Reading Material
6. Accuracy of Technical Concepts
7. Organization of Submitted Files
8. Correct Filename for Digital Submissions

## SUBMISSIONS:

ELECTRONIC FILE NAMING CONVENTION: All files submitted must follow the following format:

DRAWING SUBMISSIONS:

ARCH1230\_2017fa\_Montgomery\_lastname\_firstname\_module#\_submission date\_2017mmdd

SKETCHES AND NOTE SUBMISSIONS:

ARCH1230\_2017fa\_Montgomery\_lastname\_firstname\_reading #\_reading assignment title\_submission date\_2017mmdd

## ALL MODULE DRAWING ASSIGNMENTS MUST BE SUBMITTED AS FOLLOWS:

1. Hand Drawings Neatly Trimmed, submitted in class on due date.
2. Jpeg Scans of all Hand Drawings must be uploaded to student e-portfolio site on a new PAGE setup with the title ARCH 1230. Each image must include a caption describing the drawing. Post a hyperlink to scanned drawings on the Openlab Course Site.
3. AutoCAD drawings printed to Required Scale submitted in class on due date.
4. DWG files to be submitted on due date via email or shared cloud site:  
jmontgomery@citytech.cuny.edu
5. Jpegs of all AutoCAD drawings must be uploaded to student e-portfolio site on a new PAGE setup with the title ARCH 1230. Each image must include a caption describing the drawing. Post a hyperlink to scanned drawings on the Openlab Course Site.
6. Final Submission: Format All Modules as follows:
  1. Compile each module into 1 pdf file with multiple pages
  2. Reduce file size using Adobe Acrobat Pro or other software
  3. Name pdf file using required filename above

4. Submit via email or shared cloud site to:  
[jmontgomery@citytech.cuny.edu](mailto:jmontgomery@citytech.cuny.edu)

## ALL SKETCHES AND NOTE ASSIGNMENTS MUST BE SUBMITTED AS FOLLOWS:

1. Hard Copy or Electronic Copy of All Pages of Reading Assignment with Annotations
2. Hard Copy of All Pages of Notebook / Sketchbook Neatly Bound/Stapled and Labeled
3. Jpeg Scans of KEY Pages (3 min for each reading assignment) of Notebook/ Sketchbook must be uploaded to student e-portfolio site on a new PAGE setup with the title ARCH 1230. Each image must include a caption describing the drawing. Post a hyperlink to scanned drawings on the Openlab Course Site.

FILE SIZES: All submitted files must be less than 10mb.

All students are responsible for managing file sizes. Acrobat Pro offers a Reduce File Size function. All scans should be at a maximum of 150dpi.

## CLASS MEETING DETAILS AND ASSIGNMENTS

**1 Course Introduction****2017-08-29**

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- i. Pinterest Gallery Tour
- ii. Discussion of Building Technology + Drawing to Understand Buildings

**2 Module 1: Floor Plan Sketch Analysis****2017-08-31**

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- i. Analysis 1: Library in Context
  - 1. Trace Context Plan
  - 2. Hatch Library (light)
  - 3. Draw Axial Lines (Long and Short Axis)
  - 4. Identity Entrance to Library
- ii. Analysis 2: Figure Ground
  - 1. Trace Context Plan
  - 2. Hatch Built Space
- iii. Analysis 3: Library Structure
  - 1. Trace Floor Plans
  - 2. Hatch Structural Elements
- iv. Analysis 4: Library Circulation
  - 1. Trace Floor Plans
  - 2. Highlight Outline of Entrance, Lobby, Stair, Entrance to Main Reading Room
- v. Analysis 5: Library Function
  - 1. Trace Floor Plans
  - 2. Hatch Book Cases

### 3 Site Walk Structural Typologies: Bearing Wall + Point Load Structural Elements: Columns/Piers/Spanning Elements

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2017-09-05

- i. Structural Elements Site Walk Brooklyn:
  - a. Meet at Empire Stores 53-83 Water St, Brooklyn, NY 11201  
(Masonry Bearing Wall + Heavy Timber Posts)
  - b. Brooklyn Bridge (Masonry Pier + Tension Steel Cables)
  - c. Buildings in Brooklyn Bridge Park (Concrete Frames, Concrete Walls)
  - d. Cranberry Street (Masonry Bearing Walls + Timber Joists)

### 4 Module 1: Plan Underlay: Grid + Schema

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2017-09-07

- i. Plan Underlay
  - 1. Determine Scale and Sheet Size (1/8"=1'-0" recommended)
  - 2. Draw Centerlines of Primary Form
  - 3. Measure Carefully Grid Lines in Both Directions
  - 4. Labels Grids Following Convention (Circles 1" diameter, text 1/4" guidelines, letters left to right, numbers top to bottom)
  - 5. Measuring Off Gridlines, Draw Primary Geometry (Outside Face of Walls/Structure) Stay Schematic, Not too much detail.
  - 6. In lower right of drawing (2" away from sheet edges)
    - a. Use 1/4" high guidelines for Drawing Title (i.e. Bibliotheque S. Genevieve Plan Underlay)
    - b. Use 1/8" high guidelines for ARCH 1230\_Montgomery\_date + Last name + first name
    - c. graphic scale showing 1', 4', 8', 16', 32' marks.

**5 Module 1: Plan Overlays: Structure + Partition/Millwork****2017-09-12**

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- i. Structure Overlay
  - 1. Overlay New Drawing Sheet on Plan Underlay
  - 2. Carefully Trace Structural Grid Lines + Grid identification Tags
  - 3. Draw outline of each structural pier, column, and/or wall (only structural elements)
  - 4. Title following standards for Grid/Schema
- ii. Partition/Millwork Overlay
  - 1. Overlay New Drawing Sheet on Structural Overlay
  - 2. Carefully Trace Structural Grid Lines + Grid identification Tags
  - 3. Draw outline of each non-structural partition and millwork representing book cases.
  - 4. Title following standards for Grid/Schema

**6 Module 1: Plan Overlays: Transparency + Stairs****2017-09-14**

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- i. Transparency Overlay
  - 1. Overlay New Drawing Sheet on Structural Overlay
  - 2. Carefully Trace Structural Grid Lines + Grid identification Tags
  - 3. Draw outline of each window/door/cased opening in plan
  - 4. Title following standards for Grid/Schema
- ii. Stairs Overlay
  - 1. Overlay New Drawing Sheet on Structural Overlay
  - 2. Carefully Trace Structural Grid Lines + Grid identification Tags
  - 3. Draw riser lines for all stairs on each level. Follow conventions for stair cutline and "up" arrow at each stair.
  - 4. Title following standards for Grid/Schema



**7 Module 1: Final Floor Plans****2017-09-19**

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- i. Develop Final Floor Plans
  - 1. Overlay New Drawing Sheet on Underlay + Overlays
  - 2. Carefully Trace Structural Grid Lines + Grid identification Tags
  - 3. Using Careful Lineweights, draw each element from Overlays into final plan drawing
    - a. No hatching permitted, lineweights should clearly indicate element drawn.
  - 4. Title following standards for Grid/Schema

**8 Module 1 Presentation****2017-09-26**

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- i. **Pin-Up Review**
  - a. All Drawings from Module 1 required
  - b. First Group of Students Pinned Up by time of Class Start
  - c. Business Causal Dress Required

**ii. Module 1 Submission: 9/28/2017**

**9 Module 2: AutoCAD Floor Plans****2017-09-28**

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- i. Commands
  - i. line
  - ii. polyline
  - iii. x-line
  - iv. circle
  - v. ortho
  - vi. copy
  - vii. offset
  - viii. distance
  - ix. object snaps
  - x. properties
- ii. Practice: Geometry Assignment

**10 Module 2: AutoCAD File Set Up****2017-10-03**

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- i. AutoCAD File Set Up:
  - a. Layers
  - b. Units
  - c. CTB
  - d. Model Space
    - a. Coordinate System
  - e. Paper Space
  - f. Blocks
  - g. File Management (USB/CLOUD/HardDrive: 3 minimum storage locations)
    - a. Lost Files Not Acceptable

**11 Site Walk Structure: Concrete + Steel****2017-10-05**

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- i. Concrete+Steel Site Walk Hudson Yards
  - a. Meet at Entrance to 7 train at 34th and Hudson Blvd East
  - b. Javits Center (Steel Space Frame)
  - c. Hudson Yards (Concrete + Steel Frame Construction)

**12 Module 2: Plan Grid + Schema****2017-10-10**

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- 1. Draw Centerlines of Primary Form
- 2. Measure Carefully Grid Lines in Both Directions
- 3. Labels Grids Following Convention (Circles 1" diameter, text 1/4" guidelines, letters left to right, numbers top to bottom)
- 4. Measuring Off Gridlines, Draw Primary Geometry (Outside Face of Walls/Structure) Stay Schematic, Not too much detail.
- 5. Draw in model space graphic scale showing 1', 4', 8', 16', 32' marks.
- 6. Format to scale in paper space
- 7. In lower right of drawing (2" away from sheet edges)
  - a. Use 1/4" high guidelines for Drawing Title (i.e. Biliotheque S. Genevieve Plan Underlay)
  - b. Use 1/8" high guidelines for ARCH 1230\_Montgomery\_date + Last name + first name
- 8. Print using CTB file

**13 Structure: Concrete + Steel****2017-10-12**

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- i. In Class Presentations, Site Walk Sketches and Photos

#### 14 Module 2: Plan Development: Structure + Partition/ Millwork

2017-10-17

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- i. Structure
    - 1. Using Blocks and Layers, draw outline of each unique structural pier, column, and/or wall (only structural elements)
    - 2. Place the blocks in the correct position on the structural grid.
  - ii. Partition/Millwork Overlay
    - 1. Using Blocks and Layers, draw outline of each unique non-structural partition and millwork representing book cases.
    - 2. Place the blocks in the correct position on the structural grid.

#### 15 Module 2: Plans Transparency + Stairs

2017-10-19

- 
- i. Transparency
    - 1. Using Blocks and Layers, draw outline of each unique window, door, cased opening.
    - 2. Place the blocks in the correct position on the structural grid.
  - ii. Stairs
    - 1. Using correct layers, draw riser lines for all stairs on each level. Follow conventions for stair cutline and "up" arrow at each stair.

#### 16 Mid-Semester Review Modules 1 & 2

2017-10-24

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- i. **Pin-Up Review**
    - a. All Drawings from Module 1 & 2 required
    - b. First Group of Students Pinned Up by time of Class Start
    - c. Business Casual Dress Required
  - ii. **Module 2 Submission: 10/26/2017**

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- i. Section Analysis I Palazzo Farnese
    - 1. Study Plan and Section to discover section cut line and view
    - 2. Align Plan and Section on drawing board with Section above plan.  
Overlay with Drawing Sheet.
    - 3. Draw Horizontal Level Lines for each floor level. Use drawing conventions for elevation tag and annotation (1/4" circles with cross hairs and diagonal hatch, 1/8" guidelines for level name (above) and height above datum (below) xx'-xx")
    - 4. Draw Structural Grid Lines thru Plan and Section. Label using conventions used in Module 1.
    - 5. Trace a-sect-mcut line on section. Poche to be continuous.
    - 6. Trace trusses on section.
    - 7. Trace structural walls, columns, piers on plan.
    - 8. In lower right of drawing (2" away from sheet edges)
      - a. Use 1/4" high guidelines for Drawing Title
      - b. Use 1/8" high guidelines for ARCH 1230\_Montgomery\_date + Last name + first name
  - ii. Section Analysis Labrouste Cantonal Asylum
    - 1. Set up Section on Drawing Board and Overlay Drawing Sheet
    - 2. Draw Horizontal Level Lines for each floor level. Use drawing conventions for elevation tag and annotation.
    - 3. Draw Structural Grid Lines thru Section. Label using conventions used in Module 1.
    - 4. Trace a-sect-mcut line on section. Poche to be continuous.
    - 5. Using 1/8" Guidelines, Label all Windows and Skylights
    - 6. In lower right of drawing (2" away from sheet edges)
      - a. Use 1/4" high guidelines for Drawing Title
      - b. Use 1/8" high guidelines for ARCH 1230\_Montgomery\_date +

**18 Site Walk Structure/Envelope: Exterior Walls + Roof****2017-10-31**

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- i. Structure/Envelope Site Walk Brooklyn
    - a. Meet at Lobby Voorhees Hall
    - b. 203 Jay Street
    - c. New City Tech Building (Tillary and Jay)
    - d. NYU Polytechnic Facade, Jay Street @ Metrotech
    - e. Federal Courthouse Johnson Street @ Cadman Plaza

**19 Module 3: Section Grid + Levels + Schema****2017-11-02**

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- i. Section Underlays (2 Sections Required, Short and Long Section)
    - 1. For each section, use same scale and sheet size from Module 1
    - 2. Align Floor Plans from Module 1 as base for Section Projection.  
Establish Section Cut Line and View
    - 3. Draw Centerlines of Primary Form for Section based on Plan Centerline
    - 4. Draw the Floor Levels + Top of Cornice + Roof Ridge Line. Label following Conventions from Section Analysis
    - 5. Measure Carefully Grid Lines in Both Directions, Using Plan as Guide
    - 6. Labels Grids Following Convention (Circles 1" diameter, text 1/4" guidelines, letters left to right, numbers top to bottom)
    - 7. Measuring Off Gridlines, Draw Primary Geometry (Outside Face of Walls/Structure) Stay Schematic, Not too much detail.
    - 8. In lower right of drawing (2" away from sheet edges)
      - a. Use 1/4" high guidelines for Drawing Title (i.e. Bibliotheque S. Genevieve Section Underlay)
      - b. Use 1/8" high guidelines for ARCH 1230\_Montgomery\_date + Last name + first name
      - c. graphic scale showing 1', 4', 8', 16', 32' marks.

**20 Shallow Foundations + Geotechnical Investigation****2017-11-07**

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- i. Geotechnical Investigation
- ii. Foundation Principles

**21 Module 3: Section Structure+Partition/Millwork****2017-11-09**

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- i. Structure Overlay
  - 1. Overlay New Drawing Sheet on Section Underlay
  - 2. Carefully Level + Trace Structural Grid Lines + Identification Tags
  - 3. Draw each structural pier, column, wall, truss (only structural elements). Distinguish line weights for elements cut in section or in distance beyond section cut.
  - 4. Title following standards for Grid/Schema
- ii. Partition/Millwork Overlay
  - 1. Overlay New Drawing Sheet on Structural Overlay
  - 2. Carefully Level + Trace Structural Grid Lines + Identification Tags
  - 3. Draw each non-structural partition and millwork representing book cases. Distinguish line weights for elements cut in section or in distance beyond section cut.
  - 4. Title following standards for Grid/Schema

**22 Module 3: Section Stairs+Transparency****2017-11-14**

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- i. Transparency Overlay
  - 1. Overlay New Drawing Sheet on Structural Overlay
  - 2. Carefully Trace Level + Structural Grid Lines + Identification Tags
  - 3. Draw each window/door/cased opening in section
  - 4. Title following standards for Grid/Schema
- ii. Stairs Overlay
  - 1. Overlay New Drawing Sheet on Structural Overlay
  - 2. Carefully Trace Level + Structural Grid Lines + Identification Tags
  - 3. Draw riser and tread lines for all stairs on each level. For risers and treads not visible in section use dashed lines.
  - 4. Draw hand rails and guard rails.
  - 5. Annotate Riser Count, Tread Count, Riser Size, Dimension Rise Between Landings, Total Rise
  - 6. Title following standards for Grid/Schema

**23 Module 3: Presentation (Include Plan Drawings)****2017-11-16**

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- i. **Pin-Up Review**
  - a. All Drawings from Module 1 and Module 3 required
  - b. First Group of Students Pinned Up by time of Class Start
  - c. Business Causal Dress Required

**ii. Module 3 Submission: 11/28/2017**



**24 Module 4: AutoCAD****2017-11-28****Section Drawings Grids + Levels + Schema**

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1. Align Floor Plans in model space for each Section View (use plan as block loaded into new dwg file. Rotate plan block as necessary)
2. Draw Section Cut Line through each Plan block
3. Establish Centerlines of Primary Form
4. Measure Carefully Grid Lines in Both Directions
5. Measure Carefully Level Lines
6. Labels Grids and Levels Following Conventions from Previous Modules
7. Measuring Off Gridlines, Draw Primary Geometry (Outside Face of Walls/Structure) Stay Schematic, Not too much detail.
8. Draw in model space graphic scale showing 1', 4', 8', 16', 32' marks.
9. Format to scale in paper space
10. In lower right of drawing (2" away from sheet edges)
  - a. Use 1/4" high guidelines for Drawing Title (i.e. Bibliotheque S. Genevieve Plan Underlay)
  - b. Use 1/8" high guidelines for ARCH 1230\_Montgomery\_date + Last name + first name
11. Print using CTB file

**25 Site Walk Circulation: Stairs****2017-11-30**

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- i. Circulation Egress Stairs Site Walk New York Public Library
  - a. Meet at Front Steps New York Public Library  
476 5th Ave, New York, NY 10018

**26 Module 4: Section Structure+Partition/Millwork****2017-12-05**

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- i. Structure Overlay
  - 1. Draw each unique structural pier, column, wall, truss (only structural elements). Use blocks for repeating elements. Distinguish layers for elements cut in section (a-sect-mcut) or in distance beyond section cut (a-elev-0, a-elev-1, a-elev-2)
- ii. Partition/Millwork Overlay
  - 1. Draw each unique non-structural partition and millwork representing book cases. Use blocks for repeating elements. Distinguish layers for elements cut in section (a-sect-mcut) or in distance beyond section cut (a-elev-0, a-elev-1, a-elev-2)

**27 Module 4: Section Stairs+Transparency****2017-12-07**

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- i. Transparency Overlay
  - 1. Draw each unique window/door/cased opening in section
  - 2. Title following standards for Grid/Schema
- ii. Stairs Overlay
  - 1. Draw riser and tread lines for all stairs on each level. For risers and treads not visible in section use dashed lines.
  - 2. Draw hand rails and guard rails.
  - 3. Annotate Riser Count, Tread Count, Riser Size, Dimension Rise Between Landings, Total Rise
  - 4. Title following standards for Grid/Schema

**28 Optional Module 5: Elevations****2017-12-12**

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- i. Develop Hand Drawn or AutoCAD Elevation(s) to same scale as Sections.
- ii. Coordinate carefully with Sections and Plans, all elements to coordinate.
- iii. Use Blocks for Repeating Elements.

**29 Final Presentation (Include All Drawings Modules 1-4)****2017-12-14**

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**i. Final Review**

- a. All Drawings from Modules 1-4 required.
- b. First Group of Students Pinned Up by time of Class Start
- c. Business Casual Dress Required

**30 FINAL SUBMISSION + Course Reflection****2017-12-19**

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- i. Submit Hard Copies of Module 4+5
- ii. Format All Modules as follows:
  1. Compile each module into 1 pdf file with multiple pages
  2. Reduce file size using Adobe Acrobat Pro or other software
  3. Name pdf file using required filename above
  4. Submit via email or shard cloud site to:  
[jmontgomery@citytech.cuny.edu](mailto:jmontgomery@citytech.cuny.edu)
- iii. Post a 100 word reflection on your learning during the semester to the Openlab Course Site. What aspects of the course worked best for you to learn and succeed? What aspects created the greatest challenge?

## AutoCAD Required Layers

Layer Name	Color	Other
x-guid-line	magenta	Non-print
s-grid	Grey 8	Centerline 2
s-cols	Cyan	
s-grid-iden	Red	
s-grid-iden-circ	Grey 8	
s-grid-dims	Green	
a-cntr-line	Grey 8	Centerline
a-anno-levl	Grey 8	
a-anno-levl-note	Red	
a-anno-mark	Red	(stair cutline)
a-anno-note	Green	
a-anno-dims	Green	
a-anno-titl	Green	
a-wall-part-mcut	Cyan	
a-wall-part-half	Red	
a-flor-case-mcut	Cyan	
a-flor-case	Red	
a-flor-abov	Red	Dashed 2
a-flor-risr	Red	
a-flor-hral	Red	
a-door	Red	
a-glaz	Red	
a-glaz-sill	Grey 8	
a-glaz-fram-mcut	Cyan	
a-glaz-fram	Grey 8	
a-furn	Red	

Layer Name	Color	Other
<b>LAYERS FOR SECTIONS + ELEVs</b>		
a-sect-mcut	Cyan	
a-elev-0	Grey 8	
a-elev-1	Red	
a-elev-2	Green	