

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

## **Department of Architectural Technology**

**ARCH 1121                      HISTORY OF ARCHITECTURAL TECHNOLOGY (W)**  
2 Classroom hours, 2 credits

**Barbara Smith Mishara**

[bmishara@citytech.cuny.edu](mailto:bmishara@citytech.cuny.edu)

Office: V207

Phone: 718 260 5267

Fax: 718 254 8547

Office Hours: Tuesdays 12 noon–1 pm and Thursdays 2:30- 3:30 pm and by appointment.

I'm also available after class.

**Course Description:** The study of architectural technology from prehistoric times to the present, stressing the development of structural systems and the exploration of materials. This course will also explore the interaction of building design and historic socio-economic determinants. This is a writing intensive course.

**Prerequisite:** CUNY proficiency in reading and writing

**Required Text:**        *A World History of Architecture* by Michael Fazio, Marian Moffett, and Lawrence Wodehouse (2<sup>nd</sup> Edition) London: Laurence King Publishing Ltd., 2004 & 2008. Print

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

**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 the successful completion of this course, the students shall be able to:

1. Explain the progression of key elements of architectural technology from pre-history to contemporary times.
2. Define the major differences between the technology of Egypt and Mesopotamia, Crete, Greece and Rome, early and late European Architecture of the Middle Ages, the Renaissance, 18th and 19th Century design and the modern movement.
3. Define Eclectic Architecture.
4. Compare and explain empirical knowledge and calculated structural design.
5. Will be able to begin to explain and analyze the impact of the past on architecture of the city, and the neighborhood.

### **Assessment:**

Students will be given exams and writing assignments that test their ability to:

1. Explain the progression of key elements of architectural technology from pre-history to contemporary times.

2. Describe the major differences between the technology of Egypt and Mesopotamia, Crete, Greece and Rome, early and late European Architecture of the Middle Ages, the Renaissance, 18th and 19th Century design and the modern movement.
3. Define Eclectic Architecture.
4. Compare and explain empirical knowledge and calculated structural design.
5. Will be able to begin to explain and analyze the impact of the past on architecture of the city, and the neighborhood.

**Grading:** There will be a series of quizzes, homework assignments and short writing exercises throughout the semester. Students will maintain a glossary of architectural terms. A final project will be assigned during the mid-term period.

- Homework assignments/ quizzes. 25%
- Writing assignments 20%
- Mid-term and final examinations 20%
- Final project 30%
- Vocabulary list 5%

Work submitted late will be down-graded based on the amount of time delayed.

For the final project, the class will participate in a program offered by the Brooklyn Historical Society. We will have the opportunity to study historical photographs and original documents. At the conclusion, we will post work on the project web site. I'll be talking more about the assignment as the semester progresses.

### Course Outline:

#### **Week 1 Course Introduction September 1**

*Lecture:* What is architecture? Discuss meaning of history, architecture, technology, shelter, timeline, shelter, and ecology. Introduce key architectural terms such as form, scale, proportion, volume, rhythm, color, weight, texture, and light.

*Week 1 Homework Assignment:*

1. Answer questions #1 "Introduction"
2. Write 1 page essay-How would you define architecture? Why do you want to study architecture?
3. Add definitions to vocabulary list

*Week 1 Reading:* Fazio, et al. A World History of Architecture, pp. 1-7.

#### **Week 2 The Beginnings of Architecture September 8**

**Post and Lintel**  
 Topics: Post and Lintel Construction (trabeation) and illustrate with the example of the Stonehenge and other Megalithic structures. Corbelled construction and illustrate the use of masonry coursing, battered walls and using examples from the Western Hemisphere.

#### **Three Great Rivers: Mesopotamian and Egyptian Architecture**

Topics: Origins of writing; Mesopotamian religion, politics, and agricultural life style; Ziggurat. The historical periods of Egypt; Egyptian religion, politics, and agricultural life style; architecture of the dead: mastaba, stepped pyramid, and pyramid; mortuary temple of Hatshepsut; pylon temple plan.

Origin of the pyramid and contrast to the Ziggurat. Available technology and materials of both regions. Empirical knowledge of structures.

*Week 2 Homework Assignment:*

1. Answer questions #2 "The Beginnings of Architecture"
2. Write 1 page essay- Early civilizations were limited by available materials and technology.

Describe the circumstances of one such civilization. Is our architecture limited today? Explain your view.

3. Add definitions to vocabulary list

*Week 2 Reading:* Fazio, et al. *A World History of Architecture*, pp. 9-33.

### **Week 3 The Greek World**

**September 15**

#### **Minoan and Mycenaean Architecture:**

Topics: The Aegean world; Crete; the advantages of living on an island for trade and safety; origins of term Minoan; palace of Minos; the term labyrinth. Mycenae; disadvantages of living inland; the Loin Gate; Treasury of Atreus

#### **Classical Greece**

Topics: social, scientific, philosophical, planning and architectural refinements of Greek city states; Origins and development of classical orders; temple architecture; the Acropolis and the importance of procession; the Parthenon, the Temple of Athena Nike, the Propylaea, and the Erectheion; agora; comparison the Acropolis and Agora as two concepts of space planning and social organization

#### **Hellenistic Period**

Topic: Alexander the Great; Corinthian Order; the Theater at Epidaurus.

*Week 3 Homework Assignment:*

1. Answer questions #3 "The Greek World"
2. Write short essay
3. Add definitions to vocabulary list

*Week 3 Reading:* Fazio, et al. *A World History of Architecture*, pp. 35-61.

<http://www.history.com/topics/ancient-greece/>

### **Week 4 The Roman World**

**September 22**

Topics: social, technology, planning and architecture; stone construction and the development of the Roman Arch, barrel vault, the groined vault and the dome; development of concrete and its impact on Roman building technology; building/ planning types- forum, baths, markets, aqueducts and the Pantheon; effect of classicism on architecture styles.

*Week 4 Homework Assignment*

1. Answer questions #4 "The Roman World"
2. Write a short essay- Compare and contrast two buildings, one from Greece and one from Rome.
3. Add definitions to vocabulary list.

*Week 4 Reading:* Fazio, et al. *A World History of Architecture*, pp.104-132.

**No class Thursday September 29**

Any late work will not be penalized if submitted by Wednesday October 6. I will not offer this opportunity again.

**NB Tuesday October 4 follows a Friday schedule.**

This does not affect this class. It is a “heads-up” for a confusing schedule.

**Week 5 Early Christian Architecture**

**October 6**

**Byzantine architecture**

Topics: division of Roman Empire into East and West; dual development of the dome on squinches and pendentives; basilica plan versus centralized plan; Hagia Sophia and St. Mark’s in Venice.

**Romanesque Architecture**

Topics: fall of the Roman Empire; rise of the church and the monasteries; elements of the church cruciform plan of the Christian churches and ribbed vaulting; histrionic architecture and illiteracy; comparison of variations during the Romanesque period.

*Week 5 Homework Assignment:*

1. Answer questions #5 “Byzantine and Romanesque Architecture”
2. Write a short essay- Select one building and analyze it using our list of characteristics.
3. Add definitions to vocabulary list.

*Week 5 Reading:* Fazio, et al. A World History of Architecture, pp. 133-151;176-211.

**Week 6 Gothic Architecture**

**October 13**

Topics: Evolution of the cathedral plan, types of vaulting; pointed arch; flying buttress, stained glass and its implementation in the skeleton stone framing

Visit by Professor Smale, architectural librarian, to discuss research methods.

Introduction of final project; assign groups and building

*Week 6 Homework Assignment:*

1. Answer questions #6 “Gothic Architecture” due next class during visit to BHS
2. Add definitions to vocabulary list
3. Start final project; plan visit to photograph your assigned church

*Week 6 Reading:* Fazio, et al. A World History of Architecture, pp. 213-249 and 410-413.

**Week 7 Visit to Brooklyn Historical Society**

**October 20**

**Week 8 Gothic Architecture (continued)**

**October 27**

Discussion of final project; coordination of groups

*Week 8 Homework Assignment:*

1. Study for mid term
2. Work on final project part 1 due Wednesday, November 9 at 6 pm

**Week 9 Mid-term Exam****November 3****Islamic Architecture**

Topics: Islam; vocabulary of a mosque; the development of the mosque,

*Week 9 Homework Assignment:*

1. Answer questions # 7 "Islamic Architecture"
2. Part 1 of final project due Wednesday, November 9 at 6 pm
3. Add definitions to vocabulary list

*Week 9 Reading:* Fazio, et al. A World History of Architecture, pp. 152-175.

**Week 10 Renaissance Architecture****November 10**

Topics: nature of this rebirth; Early Renaissance in Florence and the High Renaissance in Rome;. Florence Cathedral's Dome and Brunelleschi's solution; works of Brunelleschi, Alberti, Bramante, Michelangelo and Palladio and Vicenza; St. Peter's in Rome; influence European and colonial architecture.

*Week 10 Homework Assignment:*

1. Answer questions # 8 "Renaissance Architecture"
2. Continue work on part 2 of final project draft due Wednesday, November 30 by 6 pm
3. Add definitions to vocabulary list

*Week 10 Reading:* Fazio, et al. A World History of Architecture, Introduction, pp. 284-337.

**NB Time available for research at BHS extends from November 10-23. They are closed for the Thanksgiving holiday. Draft due Wednesday, November 30 by 6 pm**

**Week 11 Renaissance Architecture (continued)****November 17****Week 12 Baroque Architecture****TUESDAY, November 22**

Topics: characteristics of Baroque & Rocco architecture; Bernini, Borromini, Christopher Wren and St. Paul's Cathedral; East Wing of the Louvre and Versailles.

*Week 12 Homework Assignment:*

1. Answer questions #9 "Baroque and Rocco Architecture"
2. Add definitions to vocabulary list
3. **Draft of final project due Wednesday, November 30 by 6 pm**

*Week 12 Reading:* Fazio, et al. A World History of Architecture, Introduction, pp. 338-377.

**No class Thursday November 24 Happy Thanksgiving!**

**Week 13 Return draft of final project**  
Discuss projects

**December 1**

**The Industrial Revolution and Historicism, 19<sup>th</sup> c. Architecture**

Topics: Industrial Revolution, development of structural iron, and steel accompanied by new forms of energy and power; rise of the engineer; historicism; revival styles.

*Week 13 Homework Assignment:*

1. Answer questions #10 "The Industrial Revolution and Historicism"
2. Add definitions to vocabulary list.
3. **Revise final project due Wednesday December 7 by 6 pm**

*Week 13 Reading:* Fazio, et al. A World History of Architecture, Introduction, pp. 400-449.

**Week 14 Return revised final project**

**December 8**

Schedule appointment to upload project to web site. The last day is Thursday December 15.

**Reform Movements**

Topics: Arts and Crafts, Chicago School, Art Nouveau, Werkbund and Destijl, Bauhaus; advent of structural steel, modern plumbing and heating, vertical transportation, and the building industry; Morris and Ruskin, Sullivan and Adler, Burnham & Root.

*Week 14 Homework Assignment:*

1. Study for Final Exam
2. Up-load project to web site

*Week 14 Reading:* Fazio, et al. A World History of Architecture, Introduction, pp. 450-505.

**Week 15 Final exam**

**December 15**

**You will fail the course if you do not submit the final project.**

**Enjoy the holidays! Get some rest- you deserve it.**