

UNIVERSITY of NOTRE DAME
School of Architecture

BUILDING TECHNOLOGY 1/ ARCH 20411
Course Syllabus
Fall 2013

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Office Hours: Tuesday 2:00-3:45pm or by appointment

Meetings: Tuesdays 12:30 – 1:45 pm, Room: 104
Thursdays 12:30 – 1:45 pm, Room: 104 & Assigned Studios

Course Status: Required for B. Arch Degree

Course Credit: 3 hours

Drafting Supplies: Architectural Scale, Engineering Scale, 11x17 vellum sheets, large format vellum, drafting lead, and black ink pens (i.e., the Sakura Pigma Micron series, Rapidograph series, or similar), from ultra-fine to medium weight.

Introduction:

The arrangement of a building's component parts – in plan, section and elevation – and equally, its method of construction – or the proper assembly of its parts – is central to the design of a beautiful, durable, and therefore sustainable building.

The principal aim of this introductory course is to develop a practical knowledge and understanding of primary methods of construction and principles of assembly, with specific focus on the evolution of traditional building techniques, many of which remain examples of customary and standard building practices today.

Through the exploration of fundamental principles of design *and* the craft of building (both the theory *and* the practice of it), you will gain essential ability to think critically about the materials and methods used in the construction of buildings and elemental building performance. By the end of the course, you should be able to demonstrate your understanding of the primary methods of construction and materials surveyed in this course, and specifically in your studio design projects, through the generation of building and wall sections and technical details.

Lastly, and in preparation for your studies abroad, your study of the fundamental principles of tectonics and traditional construction materials and methodologies will enable you to apply in your own designs what you see when you study important works of architecture. In this way, your understanding of materials and methods will become a valuable way of seeing, understanding, and ultimately creating architecture.

Course Content:

1. **Projects:** You will be assigned a series of small projects this semester which are intended to enhance your *understanding* of the principle methods of construction presented in the course and to support your application of these concepts in your studio design projects. The final project for this course will correspond directly with your design studio (ARCH 244) project requirements.

Your grade for the project(s) assigned in this course will be based upon your clear and thorough graphic (and in some cases, oral) presentation of the required project deliverables. The exercises are focused on the materials and methods you have studied and, in the case of the final project, the ways in which you have employed fundamental principles of construction in your studio design project.

With few exceptions, you will work in small groups to execute the project deliverables for this course. Individual effort in group work *will* be recognized in your final grade for the course, as well as your ability to execute, individually, your final project for the course.

2. **Readings:** Your understanding of the material covered in lecture will be greatly enhanced by the readings assigned from the texts required for this course and referenced in the course calendar. All readings should be completed **prior** to the topical lecture that week.
3. **Quizzes & Assignments:** We will routinely review the topics presented in lecture and in the supporting literature in the form of a short in-class quiz or assignment. Quizzes or assignments missed due to an excused absence from class *may* be made-up, at the instructor's discretion.

Grading:

Comportment:	10%
Attendance & Class Participation	
Quizzes and Assignments:	10%
Projects:	
Detail #1	10%
Detail #2	10%
Detail #3	20%
Masonry Day	10%
<u>Final Project</u>	<u>30%</u>
TOTAL:	100%

Grading Scale¹:

100-90:	A	
89-80:	B	
79-70:	C	
69-60	D	
A	4.00	Truly exceptional: work meets or exceeds the highest expectations for the project/ course
A-	3.667	Outstanding: Superior work in <i>all</i> areas of the project/ course
B+	3.333	Very good: Superior work in <i>most</i> areas of the project/ course
B	3.000	Good: Solid work across the board
B-	2.667	More than acceptable, but falls short of solid work
C+	2.333	Acceptable: meets <i>all</i> basic standards for the project/ course
C	2.000	Acceptable: meets <i>most</i> of the basic standards for the project/ course
C-	1.667	Acceptable: meets <i>some</i> basic standards; work falls short of meeting basic standards in several areas
D	1.000	Minimally passing; work just over the threshold of acceptability
F	0	Unacceptable performance

¹ Refer to page 17 of The University of Notre Dame Undergraduate Studies *Bulletin of Information 2013-2014*

Class and Studio Conduct:

1. **Attendance is required in class, in studio, and on all field trips and hands-on exercises.** Three unexcused absences will result in a lowered grade for the course; 1 grade point per 3 absences. Please refer to page A-9, section 13.2 in *du Lac* for the University's policy on absences. Absences due to illness or personal and family emergencies will be evaluated *by the instructor* on an individual basis.
2. **Participation in class** is integral to learning (and will be counted as part of your grade for this course).
3. Project requirements are due on the dates stipulated in the course calendar and project briefs. **Late work will not be accepted.**
4. The instructor will indicate permission to use laptops and/or cell phones during class, in support of specific coursework. Otherwise, the following electronic devices ARE NOT permitted during class (lecture, studio, field trips): laptops, cell phones, PDA's, visual or audio storage or playing devices.
5. It is strongly recommended that notes for this course be taken by hand and kept with your process drawings and sketches for your projects. If you are unable to take notes by hand for any reason and instead require a laptop, you must alert the instructor at the beginning of class. **Instructor may re-evaluate (and revoke) a student's permission to use a laptop in class at any time** (see #5 above).
6. In order to limit disruption and distraction in class (not fair to your peers or your instructor) please refrain from eating in class. If you must eat in class, please do so with the utmost respect for your classmates, University property, and your instructor.
7. All students entering the School of Architecture were invited to sign a form giving the School permission to hold their work for exhibition and to publish it. If you signed that form, work done in this course may be retained. It will, of course, be available to the author to digitize, and the originals will be returned. Because work held for exhibition may be held beyond graduation, be sure that it is labeled on the back with your name and an address to which it can be returned. The School routinely retains work for the National Architectural Accrediting Board's review of the program, so work representing the range of accomplishment in the course may be retained for this purpose, as well.
8. Please check your Notre Dame e-mail account regularly. Any communication from the instructor about this course outside of regular class hours will be directed to your University account. *You are responsible for knowing all course communication in a timely manner.*
9. Finally, **academic integrity is required.** The University's Honor Code (which can be found at: <http://honorcode.nd.edu>) reminds our community of our shared purpose both within the institute of academia and as members of a broader humanity; the statement also outlines policy violation procedures. Any questions regarding academic integrity, particularly regarding assignments in this course, should be directed to the instructor or TA's.

Required Reading (Copies on Reserve in Bond Hall Library, and on-line via E-Reserves and Google Books):

1. Leon Battista Alberti, *On The Art of Building in Ten Books*, MIT Press, 1988
Translated by Joseph Rykwert, Neil Leach, Robert Tavernor
(see calendar for reading assignments)
2. Vitruvius, *Ten Books on Architecture*, Dover (1960) or Cambridge Edition (1914)
(see calendar for reading assignments)

Required Texts:

1. Edward Allen, *Fundamentals of Building Construction, Materials & Methods*, 5th Edition
John Wiley & Sons, 2004
2. Francis Ching, *Building Construction Illustrated*, Fourth Edition, Van Nostrand Reinhold,
New York, 1991
3. University of Notre Dame, School of Architecture: Studio Companion

Reference Texts (1 Copy of each on Reserve in Bond Hall Library):

1. Albert G. H. Dietz, *Dwelling House Construction*, Fifth Edition, MIT Press, 1991
2. Edward Allen & Patrick Rand, *Architectural Detailing*, 2nd Ed.
3. James Ambrose, *Construction Revisited: An Illustrated Guide of Construction Details from the Early 20th Century*
4. James Ambrose, *Simplified Engineering for Architects and Builder*
5. Bjorn Berge, *Ecology of Building Materials*
6. G. Z. Brown, *Sun, Wind and Light: Architectural Design Strategies*
7. Francis Ching, *Building Construction Illustrated*, 2nd Ed. and *Architecture: Form, Space, and Order*, 2nd Ed.
8. Philip G. Knobloch, AIA, *Good Practice in Construction*
9. Fuller Moore, *Understanding Structures*
10. Ramsay, Sleeper, *Architectural Graphic Standards/ Student Edition*
11. ICC/ AMSI A117.1-03 "Accessible & Usable Buildings and Facilities" (available on-line)
12. Givoni, *Man, Climate, and Architecture*, 2nd Ed.