

# Temporary Structures

BCN 4423C

Prerequisite: BCN 3431C

Class Information: Website: <https://ufl.instructure.com>  
Room: Rinker 140  
Time: 11:45 A.M. – 1:40 P.M.  
Days: Monday

Instructor: Dr. Damon Allen,  
Email: [mvbdt@ufl.edu](mailto:mvbdt@ufl.edu) and [damontallen@gmail.com](mailto:damontallen@gmail.com)  
Phone number: 352-234-3266 (cell number - it can receive texts)  
Physical Office: Rinker 344  
Online Office: [FAQ Discussion Page](#)

Office Hours: 2:00 – 4:50 P.M. Monday  
11:45 – 1:40 P.M. Wednesday  
Or by appointment (or if I am in my office)

Teaching Assistant: Ali Komeily  
Email: [komeily@ufl.edu](mailto:komeily@ufl.edu)  
Office: Rinker 328

## Required Text

1. National Design Specifications for Wood Construction (NDS), by American Forest and Paper Association (2015 edition). The NDS and Supplement are available as free “view only” pdf downloads at <http://www.awc.org/standards/nds.php>.
2. Johnston, David W. “Formwork for Concrete” 8<sup>th</sup> edition: ISBN: 9780870319129  
There maybe paperback versions available that may be cheaper.
3. Additional reference material will linked in the notes and on the class website.

The **2015 NDS** will be required by the second week of class. If you are interested in worked examples the 2005 version of the NDS is sold as a package with several other free documents including worked examples. These worked examples will not be necessary for our class but if you think you might be using the Timber Design code in the future I recommend that you purchase it while you still are a student. See the AWS requirements for student discounts below.

“For students the approach we use is to have them purchase the 2005 Wood Design Package at the student rate of \$75. They will then receive a complementary membership with the American Wood Council. Students must use their university email address as their primary email when they order so that we can verify their status as a full time student and give them the student rate. If their student status cannot be verified they will be charged the full price of \$150.”

## Additional Text:

1. Design of Wood Structures 6<sup>th</sup> edition, ISBN: 0071379320
2. Forest Products Laboratory, “Wood Handbook: Wood as an Engineering Material”  
[http://www.fpl.fs.fed.us/documnts/fplgtr/fpl\\_gtr190.pdf](http://www.fpl.fs.fed.us/documnts/fplgtr/fpl_gtr190.pdf) (509 pages)
3. [Temporary Structure Design](#) by Chris Souder, ISBN-13: 978-1118905586
4. APA The Engineered Wood Association, “Design/Construction Guide: Concrete Forming”

5. APA The Engineered Wood Association, “Plywood Design Specification”
6. Select [Lynda.com](http://Lynda.com) Tutorials on Excel (free for students)

**Description of Course:**

To study the temporary structures that contractors have to build in order to construct the primary structure. This includes form work, scaffolding, support excavation systems, and equipment for hoisting materials, personnel, and erecting structures.

**Subject Aims:**

This course is intended to teach temporary construction methods and design principles to ensure stability of structures during all phases of the construction process. This includes: concrete form work, scaffolding, hoisting personnel and materials, and erecting structures.

**Course Learning Outcomes (CLO):**

1. Recognize that temporary structures (TS) have a major impact on schedule, cost and quality of construction projects and have been responsible for hundreds of deaths on construction sites (SACS 1, ACCE SLO 3).
2. Analyze and design wood beams, columns, and trusses using NDS for Wood Construction (SACS 1, ACCE SLO 19).
3. Analyze and design form work for concrete walls, beams, slabs, and columns (SACS 1, ACCE SLO 19).
4. Identify alternative form work systems and select the most appropriate one (SACS 1, ACCE SLO 8).
5. Review alternative scaffolding systems and discuss their standard of practice (SACS 1, ACCE SLO 8).
6. Discuss options for the support of excavation systems (SACS 1, ACCE SLO 8).
7. Identify erection equipment to select the most suitable equipment for hoisting materials, personnel, and erecting structures (SACS 1, ACCE SLO 8).

ACCE - American Council for Construction Education  
 SLO - Student Learning Outcome  
 SACS - Southern Association of Colleges and Schools

ACCE SLO 3. Create construction safety plan - Reinforce  
 ACCE SLO 8. Analyze methods, materials, and equipment used into construct projects - Direct Assessment  
 ACCE SLO 19. Understand the basic principles of structural behavior. - Direct Assessment

SACS 1. Apply knowledge of engineering, materials, methods, equipment, and processes to safely construct buildings and structures.

Assessment	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5	CLO 6	CLO 7	Target
Module 5 Discussion	X							At least 80% receive a B or better
Test 2 (or equivalent)		X						At least 80% receive a C or better
Test 4 (or equivalent)			X					At least 80% receive a C or better
Module 1 Quiz				X				At least 80% receive a C or better
Module 10 Quiz					X			At least 80% receive a C or better
Module 11 Quiz						X		At least 80% receive a C or better
Final Project							X	At least 80% receive a B or better

Table 1: Assessment Matrix

## Course Activities:

- Lectures in the form of on line presentations,
- In-class problem sessions,
- Team and individual assignments involving designing elements of form work for a concrete structure,
- Field trip(s) as scheduling permits (you will need protective equipment),
- Guest Lectures,
- Laboratory work in the Perry Yard,
- In-class discussions

## Assessment:

The assessment will be based on individual student's demonstration of fulfilling the course objectives as set out in the syllabus and there will be no leniency based on previous accomplishment in other classes. The course will be examined using:

- Individual Assignments,
- Team Assignments,
- Class Discussion Participation,
- Lab and Guest Lecture Participation,
- Quizzes,
- Tests,
- Final Project

The course instructor reserves the right to grade assigned problems either on detailed checking or based on attempt as well as the right to not grade work that does not satisfy mandatory specifications.

Make up assignments, quizzes, and tests will only be given upon proof of extenuating circumstances or prior arrangements. Please pay close attention to the deadlines on [Syllabus page](#), and turn your work in before it is due.

## Grading System:

Individual Assignments:	20%
Team Assignments:	20%
Participation in Class Discussions:	10%
Participation in Lab and Guest Lectures:	10%
Quizzes:	10%
Tests:	20%
Final Project:	10%
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Total:	100%

## Grading Scale:

A-: 90% - 92.9%	A: 93% - 100%	
B-: 80% - 82.9%	B: 83% - 86.9%	B+: 87% - 89.9%
C-: 70% - 72.9%	C: 73% - 76.9%	C+: 77% - 79.9%
D-: 60% - 62.9%	D: 63% - 66.9%	D+: 67% - 69.9%
E: < 60%		

**Homework:**

Assignments will be accepted up to the established time. Any Assignment turned in after the deadline will be graded at 50% of the original credit. Any assignment turned in more than 24 hours late will not be accepted and the student will receive a “0” (zero) on the assignment. All work turned in for this course is expected to be of professional quality in content and presentation.

**Participation:**

Participation is mandatory. Class discussions, Laboratory meetings, Guest Lectures, and Field Trips will be announced in advance so it will be your responsibility to get permission ahead of time for an absence if you will not be available.

Students are expected to act with integrity and composure at all times and there will be zero tolerance for unbecoming conduct which includes, but is not restricted to rude comments and disruptive behavior.

**Attendance Policy:**

I am using the Flipped Classroom methodology to teach this course. That means that most of the course content will be presented on-line allowing the class period to be a discussion period or homework activity session. I will not generally be taking attendance during regular lecture periods, however I will be keeping track of attendance during scheduled events such as guest lectures, the lab, and any field trip.

**Honor Code:**

Be aware of the Honor System of University of Florida. All students in this course are subject to the requirements of the University of Florida's Honor Code. Although joint work on assignments may be acceptable in some cases, duplication of an assignment either manually or electronically will be dealt with as an act of academic dishonesty. We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

**Remedies:**

Students who fail to comply with the listed behavior will be excused from the class and advised to seek readmission through the School's Director of Undergraduate Studies.

**University Policy on Accommodating Students with Disabilities:**

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

**Topical Outline:**

<b>Module</b>	<b>Assessment</b>
Start Here Section/Course Introduction	Syllabus/Handbook Quiz
Module 1: Introduction to Timber	Quiz
Module 2: Timber Beam	Team Assignment
	Test 1
Module 3: Timber Column	Team Assignment
	Test 2
Module 4: Bracing	Quiz
	Individual Assignment
Module 5: Span Limit Derivations and Form Work Safety	Quiz
	Discussion
Module 6: Wall Form	Individual Assignment
	Team Assignment
	Test 3
Module 7: Column Form	Quiz
Module 8: Slab Form	Individual Assignment
	Team Assignment
	Test 4
Module 9: Re-shoring	Quiz
Module 10: Scaffolding	Quiz
Module 11: Excavation	Quiz
Module 12: Equipment	Final Project