

CEM 432 TEMPORARY CONSTRUCTION STRUCTURES

Instructor:

E-mail:

Phone:

Office:

Office Hours:

Learning Outcomes:

After completing this course, students will:

- Be able to explain the responsibilities that contractors have for the design of temporary construction works
- Be able to apply design codes and industry standards as they apply to the design of temporary structures covered in this course.
- Be able to design wood formwork for concrete walls, columns, beams and shoring.
- Be able to design non-shored and shored systems for earth excavations
- Be able to design and plan dewatering systems using various dewatering methods and equipment
- Be able to design guying and bracing systems
- Be able to select the proper temporary structures needed to construct a project.
- Understand the interrelationship between safety and temporary construction structures
- Be able to design heavy crane lifts and calculate safe working conditions for cranes and rigging
- Be able to specify pile driving equipment for different pile types and soil conditions

Required and/or Recommended Books and Material:

Required:

Ratay, Robert T. (2012) Handbook of Temporary Structures in Construction. 3rd Edition.
McGraw-Hill, Inc.

Oberlender, Garold and Peurifoy, Robert (2010). Formwork for Concrete Structures. 4th Edition,
McGraw-Hill

Peurifoy, Robert, Schexnayder, Clifford J., Shapira, Aavid, and Schmitt, Robert (2010). Construction Planning, Equipment, and Methods. 8th Edition, McGraw-Hill. (Same textbook you used in CEM 454)

Recommended References:

- ASCE (2002). Design Loads on Structures During Construction, SEI/ASCE 37-02 (ASCE Standard No. 37-02), American Society of Civil Engineers. (ISBN 978-0784406182)
- ACI (2011) Building Code Requirements for Structural Concrete and Commentary. ACI 318-11. American Concrete Institute
- ACI (2011). ACI Design Handbook. SP-17(09), American Concrete Institute
- ACI (2005). Guide for Shoring-Reshoring of Concrete Multistory Buildings. ACI 347.2R-05, American Concrete Institute
- ACI (2004). Guide to Formwork for Concrete. ACI 347-04, American Concrete Institute
- AISC (2011). Steel Construction Manual. 14th Edition, American Institute of Steel Construction
- AISC (2010), Code of Standard Practice for Steel Buildings and Bridges. 14th Edition, American Institute of Steel Construction
- AASHTO (2008). Construction Handbook for Bridge Temporary Works. 1st Edition with 2008 Interim Revisions, American Association State Highway and Transportation Officials.
- AASHTO (2008). Guide Design Specification for Bridge Temporary Works. 1st Edition with 2008 Interim Revisions, American Association State Highway and Transportation Officials.
- AASHTO (2011). AASHTO LRFD Bridge Construction Specifications, Guide Design, 3rd Edition with 2010 and 2011 Interim Revisions, American Association State Highway and Transportation Officials.
- AWS (2008). Structural Welding Code—Steel. AWS D1.1. 2008.
- CRSI (2008). CRSI Design Handbook. 10th Edition, Concrete Reinforcing Steel Institute.
- OSHA (2010). (Regulations (Standards - 29 CFR) Safety and Health Regulations for Construction. Part 1926. Occupational Safety and Health Administration
- USACE (2003). Safety and Health Requirements, Engineer Manual 385-1-1 U. S. Army Corps of Engineers, Department of Army

Library and Information Resources:

Students may consult <http://guides.library.unlv.edu/appointments> with a librarian on research needs. For this class, the subject librarian is Sue Wainscott. (https://www.library.unlv.edu/contact/librarians_by_subject). UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu>.

In Class and Out of Class Assignments:

Assignments:	Due Dates:
Fiduciary Responsibility	January 25
Load Types and Applications	February 1
Scaffolding Plank Design	February 10
Scaffolding Bearer Design	February 17
Lifeline Design	February 29
Shoring System Design	March 2
Mid Term Exam	March 16
Bridge Design for Construction	March 21
Ground Dewatering and Drainage Assignment	March 30
Formwork Column and Wall Loading Evaluation	April 11
Formwork Design for Two Story Buildings	April 13
Guying System Design	April 18

Relative Weight of Assignments in Calculating Course Grade:

Attendance	15% - Participation provides extra credits
Homework	25% - All homework is to be done individually.
Examinations	30%
Final examination	30%
Total	100%

Final Exam: May 11, 6-8 PM, CEB 214

Policies:

Academic Misconduct—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution.

An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>.

Copyright—The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Religious Holidays Policy—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Transparency in Learning and Teaching—The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

<https://www.unlv.edu/provost/teachingandlearning>

<https://www.unlv.edu/provost/transparency>

Incomplete Grades—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student’s control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring and Coaching—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call [702-895-3177](tel:702-895-3177). The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

UNLV Writing Center—One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student’s Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>.

Rebelmail—By policy, faculty and staff should e-mail students’ Rebelmail accounts only. Rebelmail is UNLV’s official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students’ e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. **Emailing within WebCampus is acceptable.**

Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.