FITCHBURG STATE UNIVERSITY

These top fields will be completed by the SGOCE office.

Academic Year: * 2021-2022 SGOCE#: * 35

New Graduate Course Proposal

Form Procedure
To share the form with others prior to Submitting choose the **Save Progress** option at the bottom.
Create a PDF of the saved form go to Print and choose Save as PDF copy rather than print.
To access the saved form for editing or to finalize submission visit forms.fitchburgstate.edu to log in and view your Pending/Drafts under My Forms.

Course Title

Course Title: * Temporary Structures

Proposed Banner Abbreviation: * Temporary Structures

Banner limit of 30 characters, including punctuation, spaces, and special characters.

Department/Committee Information

The main contact person for the Graduate Curriculum Committee should fill out this form.

Requestor Name: * Nirajan Mani

Members of the Graduate Curriculum Committee: Dr. Nirajan Mani, Dr. Wayne Whitfield, Dr. Soumitra Basu, Dr. Abdel Gabar Mustafa, Dr. Hong Yu

Department / Unit Developing: * Engineering Technology

Chair of Department for Program: * Nirajan Mani Chair Email: * Nirajan Mani nmani@fitchburg

Academic Dean of Department or Program: * Margaret Hoey Academic Dean E-mail: * <Dr. Hoey> mhoey@fitchburgs

Program Chair: The Program Chair for this request is among the people listed above.

* (•) Yes
( ) No

Course Information

Course Description

* This course focuses on a study of structural design and analysis concepts of temporary structures used in the construction process. It includes formwork design, scaffolding, support excavation systems, equipment for hoisting materials, personnel, and erecting structures, and other material handling equipment and staging.

Rationale and expected outcomes of offering the Course

* This course will focus on a temporary construction methods and design principles to ensure stability of structures during all phases of the construction process. It will provide construction and design professionals the skills to understand construction loads and their combinations, wind loads, and their impacts, timber design, bracing, and guying design, vertical forming systems, and shoring analysis for vertical construction.

Expected Outcomes:
1. Recognize temporary structures' major impact on schedule, cost, and quality of construction projects and impact on safety of construction workers
2. Analyze and design wood beams and columns using NDS for wood construction
3. Analyze and design formwork for concrete walls and slabs
4. Review alternative scaffolding systems and discuss their standard of practice
5. Discuss options for the support of excavation systems
6. Identify erection equipment to select the most suitable equipment for hoisting materials, personnel, and erecting structures.

Number of Credits: * 3

Discipline Prefix or Prefixes: * CMGT

Brief rationale if more than one prefix:

Level of Course: * 7000 / 8000 / 9000

Brief rationale for level choice:: * Graduate level course

The course will be: Requirement / Elective

Elective or Requirement Note/Special:

Is there a similar undergraduate course? * Yes / No

Does this course affect offerings in any other department or program? * Yes / No

Course Enollment

Expected Average Enrollment: * 12

This course is a replacement for: Course # / Name

Has the course been offered previously as a "Topics" course? * Yes / No

Is this an Extended Campus Course? * Yes / No

Which semester will this course be offered for the first time?: * Fall 2024

How often thereafter to be offered?: * Two year rotation basis

Course Requirements

Prerequisite course(s) if any:

Additional Requirements

Laboratory Hours:

Fieldwork Hours:

Pre-Practicum Hours:

Practicum Hours:

Other Requirements (specify): Graduate Standing

Syllabus Upload

New Course Syllabus Upload: MSCM_Syllabus_Temporary_Structures_Final.pdf

Signatures

*Click on the **Submit Form** button at the bottom of the page after you have signed the form.*
You should receive an email confirmation that your signature has been completed.

...3536363531
Nirajan Mani — Requester Signature — 03/23/2022 — Date

...3030373032
Nirajan Mani — Department Chair Approval — 04/18/2022 — Date

Academic Dean Signature — Date

SGOCE Dean Signature — Date

Approval of the Graduate Council — Date

Approval of the President — Date

Notification

Reviewed by the Registrar: _____

Reviewed by the Library: _____

Retired form

SGOCE Admin. Assistant Signature	Electronically signed by Denise Bertrand on 05/01/2022 12:48:53 PM

FITCHBURG STATE UNIVERSITY

School of Graduate Online and Continuing Education (SGOCE)
Department of Engineering Technology
SYLLABUS
FALL 2024

Class Information:

Course: CMGT 8XXX (Temporary Structures)
Credits: 3
Class Modality: Online
Class Start Date: TBD
Class End Date: TBD

Instructor Information:

Dr. Nirajan Mani
Office: CNIC 209A
Phone: 978-665-4843
Email: nmani@fitchburgstate.edu
Office Hours: M/W (11:00 A. M. – 12:15 P. M.) (By Appointment)

Textbook:

Temporary Structures in Construction (3rd Edition)
Author: Robert Ratay
Publisher: McGraw Hill
ISBN: 13: 978-0071753074

Recommended Reference Books and Articles:

- National Design Specifications for Wood Construction (NDS), by American Forest and Paper Association (2018 edition). The NDS and Supplement are available as free view only pdf downloads. https://awc.org/publications/2018-nds/
- APA The Engineered Wood Association, Design/Construction Guide: Concrete Forming https://www.apawood.org/publication-search?q=V345
- Temporary Structure Design by Chris Souder (ISBN – 13: 978-1118905586)

Supplementary Materials: Handout materials will be provided by instructor

Catalog Description:

This course focuses on a study of structural design and analysis concepts of temporary structures used in the construction process. It includes formwork design, scaffolding, support excavation systems, equipment for hoisting materials, personnel, and erecting structures, and other material handling equipment and staging.

Prerequisite: *Graduate student standing required unless otherwise agreed upon by instructor*
Required Skills: *Understanding of conventional stick-built construction method, practices, and management*

Course Objectives:
This course will focus on a temporary construction methods and design principles to ensure stability of structures during all phases of the construction process. It will provide construction and design professionals the skills to understand construction loads and their combinations, wind loads, and their impacts, timber design, bracing, and guying design, vertical forming systems, and shoring analysis for vertical construction.

Students Learning Outcomes:
Student will be able to:

1. Recognize temporary structures' major impact on schedule, cost, and quality of construction projects and impact on safety of construction workers
2. Analyze and design wood beams and columns using NDS for wood construction
3. Analyze and design formwork for concrete walls and slabs
4. Review alternative scaffolding systems and discuss their standard of practice
5. Discuss options for the support of excavation systems
6. Identify erection equipment to select the most suitable equipment for hoisting materials, personnel, and erecting structures.

Learning Outcomes Assessment:
Assessment tools for the above learning outcomes include homework & quizzes (outcomes: 1 to 6), project (3,4, 5) and exams (outcomes: 4, 5, 6).

Instructor Availability:
Instructor will be available during weekdays to respond your questions or concern via university email. Please contact instructor via university email if you have any questions or concern to avoid spam issue. However, this is an online class, we will use Google Meet / Hangouts for all student requested meetings.

Instructional Strategies:
The course will be conducted in an online format. This class may use lectures, demonstrations, self-guided study, group discussions, collaborative learning groups, and presentations to cover the topics in this course. PowerPoint presentations, computer applications, etc. may be utilized. Some independent learning is expected of the students; they should complete assigned readings prior to each class session and actively engage in discussions and activities to facilitate their understanding of classroom presentations. Every effort will be made to meet the individual needs and various learning styles of the course participants. It is most important that you inform the instructor at the beginning of the semester of any particular unique needs.

Course Topics:
The following topics will be covered in the course. The following listing is a general indication of the order of their coverage. However, faculty instructor reserves the right to change the order of coverage and the topics to be covered based upon the class's performance and interests.

- Introduction to Temporary Structure
- Loads & Pressures
- Recent Development in Formwork Materials and Form Design
- Form Design for Slab
- Form Design for Wall

- Form Design for Shores
- Form Design for Column
- Form Design for Shoring and Reshoring
- Building and Erection of Formwork
- Formwork Planning
- Formwork Cost Estimating and Cost-Benefit Analysis
- Excavation Supports
- Equipment for Material Handling

Grading System:

Range	Letter Grade	Quality Points
95 - 100	A	4.0
92 - 94	A-	3.7
89 - 91	A- / B+	3.5
86 - 88	B+	3.3
83 - 85	B	3.0
80 - 82	B-	2.7
77 - 79	B- / C+	2.5
74 - 76	C+	2.3
71 - 73	C	2.0
0 – 70	C-	0
Withdrawn		W
Incomplete		IN
In-Progress		IP
Audit		AU
Satisfactory		S
Unsatisfactory		U

** Grades that fall between intervals will be rounded to the higher number.*

Evaluation Criteria:

Quizzes	10%
Homework	30%
Exam I	20%
Exam II	20%
Project	20%

** The instructor reserves the right and the responsibility for adjusting these items and their weights as necessary to meet specific situations as they may arise.*

Student Responsibilities and Class Requirements:

Each student is responsible for completing all course requirements and for keeping up with all activities of the course. Students are required to complete all assigned homework, quizzes, exams, and project work by the given deadline.

Policy on Assignments:
All assignments must be turned in on the blackboard on Sundays per the documented dates in the syllabus. Feedback to your submissions will be posted on the blackboard within 72 hours (96 hours for a class of 60 or more students) after the weekly submission due date and time. It means that if you chose to submit your assignment early, it will be graded at the scheduled time and not before. Work submitted after due date will receive a grade of zero. All assignments must conform to APA writing style and include a reference list (not a work cited or bibliography).

Students with extenuating circumstances, such as a medical emergency or other emergencies must provide written proof of such event, and report such events within 24 hours and make arrangement to complete assignments in a timely manner. Failure to do so will result in a penalty up o 50%. Make up examinations (if part of course) will only be offered at the discretion of the instructor.

Technology Initiatives:
Users of the Fitchburg State University computer systems are subject to all applicable federal, state, and international computer laws. Questions regarding regulations may be directed to the office of Information Technology Systems.

Students will utilize technology as:

- A research tool; (a means of discovering current trends and substantive research articles in education)
- A communication method
- An enhancement tool for the design of PowerPoint presentations (for recorded presentations-individual/group)

Fitchburg State University Library Online Services:

The Fitchburg State University Library online services may be accessed through the Fitchburg State University Homepage https://library.fitchburgstate.edu/. Students may access any of several full-text online databases. Passwords are available to students by calling 978.665.3063. Students may access the Fitchburg State University Career Service and Counseling Services Center via the college's homepage at https://www.fitchburgstate.edu/student-support/career-support/career-resources.

Disabilities Accommodation:
Students requiring course alterations or accommodations due to a disability or emergency medical condition, should inform instructor as soon as possible. You should also work with the Disability Services Office (978-665-4020). They will provide you with the forms needed to determine the particular accommodations that your situation merits.

University Academic Dishonesty Policy:
Fitchburg State University's policy on Academic Dishonesty will be enforced in this course. Please refer to the university catalog on this policy. Plagiarism and cheating are inexcusable. Any instance of plagiarism or cheating will result in lowered grade and possible failing the course.

Tentative Schedule:

Week	Topics	Remarks
Week 1	Introduction to Temporary Structure	
Week 2	Loads and Pressures	*Homework 1 due*
Week 3	Recent Development in Formwork Materials	
Week 4	Form Design for Slab	*Homework 2 due*
Week 5	Form Design for Wall	*Quiz 1 due*
Week 6	Form Design for Shores	*Assign Final Project*
Week 7	Form Design for Column	***Exam I due***
Week 8	Form Design for Shoring and Re-shoring	
Week 9	Building and Erection of Formwork	*Homework 3 due*
Week 10	Formwork Planning	
Week 11	Formwork Cost Estimating, Cost-Benefit Analysis	Homework 4 due
Week 12	Excavation Supports	
Week 13	Equipment for Material Handling	Quiz 2
Week 14	Project Week / Recorded Project Presentation	Project Report & Presentation due
Week 15	Final Exam	***Exam II due***

Note: The instructor reserves the right to modify this syllabus and schedule.