FITCHBURG STATE UNIVERSITY

These top fields will be completed by the SGOCE office.

Academic Year: * 2022-23 21-22 SGOCE#: * X 47

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: * Construction Cost Analysis & Estimating

Proposed Banner Abbreviation: * Cost Analysis & Estimating

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@fitchburg

Program Chair

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

* (•) Yes
( ) No

Course Information

Course Description

* This course provides the in-depth knowledge of principles and procedures used in estimating construction projects and cost analysis. It covers application of quantity determination, estimate pricing, specifications, subcontractor and supplier solicitation, risk assessment and risk analysis, and final bidding preparation. Students will learn computer-based estimating skills through a semester project.

Rationale and expected outcomes of offering the Course

* The main objective of this course is to provide the knowledge of the cost estimating processes. It provides the basic understanding of cost for unit quantity, labor-hour pricing, quantity take-off, overhead, profit, bonds, valid bid, and project desirability. It explains roles of bidders, contractors, consultants, and clients. It also exposes and provides information regarding the latest estimating technology. After entering into the professional workforce, the students passing this course will be able to understand and compute detail estimates, which includes materials, equipment, and labor costs.

Expected Outcomes:
1. Explain advanced concepts of cost estimating processes.
2. Conduct quantity take off and cost estimation of construction projects.
3. Estimate material, labor, and equipment cost and any construction projects.
4. Use estimating software for horizontal and vertical projects.
5. Prepare bidding documents and develop professional report writing skills.

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:: * It is a graduate level core course for M.S. in Construction Management program. It provides estimating and cost analysis knowledge and skills required for other higher level courses.

The course will be: Requirement / Elective

Elective or Requirement Note/Special: This is core course.

Is there a similar undergraduate course? * Yes / No

How does this graduate course differ from the undergraduate one? CMGT 3028 Estimating and Bidding is undergraduate level course. CMGT 7XXX Construction Cost Analysis & Estimating is an advanced course which provides more in-depth knowledge of estimating and cost analysis than CMGT 3028.

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 2023

How often thereafter to be offered?: * Every year

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_Estimating_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.

...3034393735

Nirajan Mani
Requester Signature

03/15/2022
Date

...3432363133

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 04/28/2022 9:30:46 AM

Revision Email Sent Sunday, May 1, 2022 10:42 AM

From	Becky Copper Glenz
To	Margaret Hoey
Subject	Revision

Year is 2021-2022 and number is 47

Click here to complete your section of the form.

FITCHBURG STATE UNIVERSITY

School of Graduate Online and Continuing Education (SGOCE)
Department of Engineering Technology
SYLLABUS
FALL 2023

Class Information:

Course: CMGT 7XXX (Construction Cost Analysis & Estimating)
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:

Estimating Construction Costs (6th Edition)
Authors: Robert Peurifoy, Garold Oberlender
Publisher: McGraw Hill Education
ISBN: 978-0073398013

References:

Walker's Building Estimator's Reference Book (31st Ed)
Author: Frank R. Walker
Publisher: Frank R. Walker Company
ISBN-13: 978-0911592313
And, RS Means Cost Books

Supplementary Materials: Handout materials will be provided by instructor

Catalog Description:

This course provides the in-depth knowledge of principles and procedures used in estimating construction projects and cost analysis. It covers application of quantity determination, estimate pricing, specifications, subcontractor and supplier solicitation, risk assessment and risk analysis, and final bidding preparation. Students will learn computer-based estimating skills through a semester project.

Prerequisite: *Graduate Standing*
Required Skills: *Proficient in mathematics, quantity take-off, and Excel software*
Computer Usage: *Mandatory use electronic spreadsheets and estimating software for homework and lab.*

Course Objectives:
The main objective of this course is to provide the knowledge of the cost estimating processes. It provides the detailed understanding of cost for unit quantity, labor-hour pricing, quantity take-off, overhead, profit, bonds, valid bid, and project desirability. It explains roles of bidders, contractors, consultants, and clients. It also exposes and provides information regarding the latest estimating technology. After entering into the professional workforce, the students passing this course will be able to understand and compute detail estimates, which includes materials, equipment, and labor costs.

Students Learning Outcomes:
Student will be able to:

1. Explain advanced concepts of cost estimating processes.
2. Conduct quantity take off and cost estimation of construction projects.
3. Estimate material, labor, and equipment cost and any construction projects.
4. Use estimating software for horizontal and vertical projects.
5. Prepare bidding documents and develop professional report writing skills.

Learning Outcomes Assessment:
Assessment tools for the above learning outcomes include homework & quizzes (outcomes: 1, 2, 3), demonstrated lab activities (outcomes: 4, 5), and exams (outcomes: 2, 3, 4).

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 a lecture and demonstrated laboratory format (remote / online format). This class may use lectures, demonstrations, self-guided study, group discussions on the blackboard, collaborative learning groups, project work, and recorded presentations to cove 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 and actively engage in discussions and activities. Every effort will be made to meet the individual needs and various learning styles of the course. 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.

- Bid documents
- Estimating methods and processes
- Cost estimating and cost analysis
- Estimating labor and equipment cost
- Estimating earthwork excavation cost

- Estimating foundation cost
- Estimating highway pavement cost
- Estimating concrete structure cost
- Estimating steel structure cost
- Estimating carpentry cost
- Estimating masonry cost
- Contract, bonds, and insurance
- Profit, markup, overhead and contingencies

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	20%
Demonstrated Labs	10%
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.
(Note: It is recommended that students back up all of their work on a flash drive.)

Students will utilize technology as:

- A research tool; (a means of discovering current trends and substantive research articles in education)
- A demonstrated laboratory activity
- 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	Bid documents	
Week 2	Estimating methods and processes	*Homework 1 due*
Week 3	Cost estimating and cost analysis	
Week 4	Estimating labor and equipment cost	*Homework 2 due*
Week 5	Estimating earthwork excavation cost	*Quiz 1 due*
Week 6	Estimating foundation cost	*Assign Final Project / Demonstrated Lab 1 due*
Week 7	Estimating highway pavement cost	***Exam I due***
Week 8	Estimating concrete structure cost	
Week 9	Estimating steel structure cost	*Homework 3 due*
Week 10	Estimating carpentry cost	*Demonstrated Lab 2 due*
Week 11	Estimating masonry cost	*Homework 4 due*
Week 12	Contract, bonds, and insurance	
Week 13	Profit, markup, overhead, and contingencies	*Quiz 2 due*
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.