FITCHBURG STATE UNIVERSITY

These top fields will be completed by the SGOCE office.

Academic Year: *2021-2022 SOGCE #48:

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New Graduate Program 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.

Program Request Information

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

*Title of New Program: M.S. in Construction Management Program

*Department / Unit Developing: Engineering Technology

*Department Chair: Dr. Nirajan Mani *nmani@fitchburgstate.edu

*Academic Dean: Dr. Margaret Hoey *mhoey@fitchburgstate.edu

*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

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

*(•) Yes
( ) No

Program Details

New Program and/or New Concentration:

- [x] New Program
- [ ] New Concentration

Type of Program: *(check all that apply)*

- [ ] Certificate
- [ ] Teacher Licensure
- [x] Degree

Catalog Description
Briefly describe new program/concentration as it will appear in university catalog:

*Engineering Technology Department
M.S. in Construction Management Program (Online Modality)

Program Description:
The online M.S.C.M. program is comprised of advanced courses in construction management with two plan options: plan 1 (Thesis Option) and plan 2 (Special Project Option); for a total of 30 credits. Students must be admitted and confirm their intent to enroll in order to register for these 15 week courses. If students are able to pass courses as per suggested plan of study, they will be able to graduate within three semesters.

Advanced Curriculum Requirements for M.S. in Construction Management

Plan 1: Thesis Option (30 credits)
Core Curriculum: 6 courses (21 credits)
CMGT 7XXX: Construction Cost Analysis & Estimating (3 credits)
CMGT 7XXX: Construction Scheduling & Resource Optimization (3 credits)
CMGT 8XXX: Improvement in Construction Productivity (3 credits)
CMGT 8XXX: BIM Applications in CM (3 credits)
CMGT 8XXX: Research Methodology for CM (3 credits)
CMGT 9XXX: Construction Management Thesis (6 credits)
Suggested Elective Courses: 3 courses (9 Credits)

Plan 2: Special Project Option (30 credits)
Core Curriculum: 6 courses (18 credits)
CMGT 7XXX: Construction Cost Analysis & Estimating (3 credits)

CMGT 7XXX: Construction Scheduling & Resource Optimization (3 credits)
CMGT 8XXX: Improvement in Construction Productivity (3 credits)
CMGT 8XXX: BIM Applications in CM (3 credits)
CMGT 8XXX: Research Methodology for CM (3 credits)
CMGT 9XXX: Special Project in CM (3 credits)
Suggested Elective Courses: 4 courses (12 credits)

Elective course will be suggested by program chair as per students' interests.

Enrollment & Implementation

A Cohort Model will be used: * (•) Yes ( ) No

Additional faculty will be needed (day/adjunct) * ( ) Yes (•) No

The Program is expected to begin: * Fall * 2023

Semester Year

Population Description
Anticipated enrollment/staffing plan *(i.e., Who/how many will program serve?)*

*We estimate that 10 -15 students will enroll in the program during the first year. By year five, we expect that enrollment will reach 125 students. Dr. Nirajan Mani and Dr. Abdel Gabar Mustafa are qualified to teach courses. Additional required qualified faculty (adjunct) will be added as needed with permission from Dean of School of Health of Natural Sciences and Dean of SGOCE.

Rationale
Rationale and expected outcomes for new program:

*In response to market analysis conducted by Academic Partnerships, LLC, there is a strong demand of this program as no other Massachusetts State Universities offer M.S. in Construction Management. Only Wentworth Institute of Technology (Private) offers this program in Massachusetts. We have affordable tuition fees compared with other universities which helps to bring more students in this program from global market.

Need for graduates in the local / regional / state labor market:
The construction industry is one of the largest industries in the USA with the involvement of over 7.31 million workers and generating more than $1.73 million in annual revenue (Statistics Brain, 2017). There is a growing need for construction management professionals in both consulting firms and constructing firms (general contractors and subcontractors).
- The U.S. Bureau of Labor Statics projected the employment growth in Construction Industry is 14% from 2016 to 2026, faster than the average for all occupations (BLS, 2017).
- STEM Occupation Projection Report in Massachusetts shows that the employment of construction managers is projected to grow 5% from 2014 to 2024. According to published database of the Commonwealth of Massachusetts, about 11,218 construction jobs were posted between January and March in 2017.
- As per Occupational Employment Statistics (OES), the average annual wage in 2016 for Construction Manager is $145,000
- The American Society of Civil Engineers (ASCE) in their infrastructure evaluation report card (2017), which grades the infrastructure facilities (transport, water, plants, etc.), assigned the infrastructure in the United States a grade of D+ which translate into large investment in infrastructure and thus, high demand for engineers and construction managers.
- Associated General Contractors-Massachusetts (AGC-MA) also stated that there is a huge demand of construction managers.

Program Outcomes:
M.S. in Construction Management program prepares students for careers in construction, engineering management, and project management. It focuses on the planning and management of critical aspects of the construction process. Students will learn the tools, practices, and strategies of construction management, including the relationship between estimating and budgeting for projects, materials, and method. Students will also evaluate quality control and equipment management and the implications of construction law, contracts, and risk management in decision-making for different types and sizes of construction projects. Candidates with a graduate degree in construction management qualify for senior positions in the industry. The best construction management master's degree produces construction managers with advanced project management and leadership skills specific to the field.

Resources
Library and other resources needed:

*Library and Information Technology:
For Master Thesis and other research activities in various courses, students will need access into some journal and conference publications. As this is online program, students will manage all required textbooks themselves.

The course content will be delivered through Blackboard. For specific software, students will have access into the Engineering Technology Department computer laboratory via VMware virtual platform. Some software are free for educational purpose or free student version.

Facility:
Since this program will be offered as online modality, there is no additional equipment or lab facility required specific for this program.

Fiscal and Other Resources:
Faculty instructor (s) may need teaching supplies and IT support. Assistance from digital content developer may be needed for some faculty to deliver course content in online modality.

Admissions
Describe program's admissions requirements:

*General Admissions Requirements:
- To be considered for admission to M.S. in Construction Management program, applicants must hold a bachelor's degree with a minimum undergraduate GPA of 2.8 in construction management, civil engineering, civil engineering technology, industrial technology, architecture, or related programs. Applicants holding other bachelor degrees with appropriate, related work experience will be considered for admission on an individual basis.
- Have coursework or equivalent documented professional experience in cost estimating, planning, & scheduling and project management.
- Suggested: Have at least one-year relevant construction management experience.
- Submit a completed, official graduate application, accompanied by official transcripts (in English) of all previously completed undergraduate and graduate course work;
- International applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL). A minimum score of 550 on the written exam, or 79 on the internet version of the exam is required.

Implementation Plan
Describe how the new program will begin; will it be phased in; suggested execution:

*New program is expected to be announced in fall 2023. Elective courses will be added in every 2- year rotation calendar/scheduling carousal managed by MSCM program chair. Core courses will be offered yearly basis.

Supporting Documentation

A plan of study must be included.
If new courses are proposed or major changes are made to existing courses, submit a Graduate Council New Course Approval form.
Attach any letter(s) of support from professional agencies or others within or outside the university.

Attach an approved Plan of Study:	*Plan_Study_CM_Master.docx	Supporting Documentation:	1.5_Year_Plan_study_CM_Master_Degree.pdf

CIP Code

List the CIP code you would like associated with the program.
For a list of possible CIP codes to choose from visit nces.ed.gov/ipeds/cipcode.
**NOTE - all CIP codes will be reviewed and approved by the Office of Institutional Research for final confirmation.*

Proposed CIP Code: * 52.2001

* ○ Yes Institutional Research is this the ideal code?
○ No

Signatures

...3237343132
Nirajan Mani 03/14/2022
Requester Signature: Date

...3735353331
Nirajan Mani 04/18/2022
Department Chair Approval: Date

Academic Dean Signature: Date

SGOCE Dean Signature: Date

Institutional Research has checked the CIP Code.
Initials

Approval of the Graduate Council Date

Approval of the President Date

Notification

Reviewed by the Registrar: _____

Reviewed by the Library: _____

Retired form

Fitchburg State University
School of Graduate, Online, and Continuing Education (SGOCE)
Engineering Technology Department

M.S. in Construction Management Program
Plan of Study

Plan I: Thesis Option (30 credits)

Major Required (Core) Courses (Total # of courses required = 6)		
Course Number	**Course Title**	**Credit Hours**
CMGT 7XXX	Construction Cost Analysis & Estimating	3
CMGT 7XXX	Construction Scheduling & Resource Optimization	3
CMGT 8XXX	Improvement in Construction Productivity	3
CMGT 8XXX	BIM Applications in CM	3
CMGT 8XXX	Research Methodology for CM	3
CMGT 9XXX	Construction Management Thesis	6
	Sub-total # Core Credits Required	***21 credit hours***
Elective Course Choices (Total # of courses required = 3)		
CMGT 7XXX	Construction Safety	3
CMGT 7XXX	Construction Law & Contracts	3
CMGT 8XXX	Modular Construction	3
CMGT 8XXX	Construction Engineering Management	3
CMGT 8XXX	Temporary Structures	3
CMGT 9XXX	Risk Management	3
	Sub-total # Elective Credits Required	***9 credit hours***
Curriculum Summary		
Total number of courses required for the degree =		9
Total credit hours =		30

Fitchburg State University
School of Graduate, Online, and Continuing Education (SGOCE)
Engineering Technology Department

M.S. in Construction Management Program
Plan of Study

Plan II: Special Project Option (30 credits)

Major Required (Core) Courses (Total # of courses required = 6)		
Course Number	**Course Title**	**Credit Hours**
CMGT 7XXX	Construction Cost Analysis & Estimating	3
CMGT 7XXX	Construction Scheduling & Resource Optimization	3
CMGT 8XXX	Improvement in Construction Productivity	3
CMGT 8XXX	BIM Applications in CM	3
CMGT 8XXX	Research Methodology for CM	3
CMGT 9XXX	Special Project in CM	3
	Sub-total # Core Credits Required	***18 credit hours***
Elective Course Choices (Total # of courses required = 4)		
CMGT 7XXX	Construction Safety	3
CMGT 7XXX	Construction Law & Contracts	3
CMGT 8XXX	Modular Construction	3
CMGT 8XXX	Construction Engineering Management	3
CMGT 8XXX	Temporary Structures	3
CMGT 9XXX	Risk Management	3
	Sub-total # Elective Credits Required	***12 credit hours***
Curriculum Summary		
Total number of courses required for the degree =		10
Total credit hours =		30

Suggested Plan of Study
Engineering Technology Department

FITCHBURG STATE UNIVERSITY

M.S. in Construction Management Program

FIRST YEAR

Fall Semester — **9 Credits**

CMGT 7XXX	Construction Cost Analysis & Estimating	3
CMGT 7XXX	Construction Scheduling & Resource Optimization	3
CMGT 8XXX	Any Elective	3

Spring Semester — **9 Credits**

CMGT 8XXX	BIM Applications in CM	3
CMGT 8XXX	Improvement in Construction Productivity	3
CMGT 8XXX	Research Methodology for CM	3

SECOND YEAR

For Thesis Option:

Fall Semester — **12 Credits**

CMGT XXXX	Any Elective	3
CMGT XXXX	Any Elective	3
CMGT 9XXX	CM Thesis	6

For Project Option:

Fall Semester — **12 Credits**

CMGT XXXX	Any Elective	3
CMGT XXXX	Any Elective	3
CMGT XXXX	Any Elective	3
CMGT 9XXX	Special Project	3

Electives:

CMGT 7XXX Construction Safety (3 credits)
CMGT 7XXX Construction Law & Contracts (3 credits)
CMGT 8XXX Construction Engineering Management (3 credits)
CMGT 8XXX Temporary Structures (3 credits)
CMGT 8XXX Modular Construction (3 credits)
CMGT 8XXX Risk Management (3 credits)

Suggested 1.5 years plan of study. Completion of 30 credits required for graduation.