

New Graduate Program Proposal

Form Procedure

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Program Request Information

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

Title of New Program:	* Dual Concentrations		
Department / Unit Developing:	* Computer Science		
Department Chair:	* Dr. Nadimpalli Mahadev	*	nmahadev@fitchburgstate.edu
Academic Dean:	Dr. Mahmoud Al-Odeh		malodeh@fitchburgstate.edu
Requestor Name:	* Xuzhou Chen		
Members of the Graduate Curriculum Committee:	Ricky Sethi, Natasha Kourtonina, Nadimpalli Mahadev, Guy Karlebach, Hefei Qiu, Xuzhou Chen		
Program Chair	The Program Chair for this request is among the people listed above. * ☒ Yes ☐ No		

Program Details

New Program and/or New Concentration:

- ☐ New Program
☒ New Concentration

Type of Program: (check all that apply)

- ☐ Certificate
☐ Teacher Licensure
☒ Degree

Catalog Description

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

* The dual concentrations for MSCS program offers students the opportunity to develop the necessary skills and knowledge to pursue careers in the multiple related fields, such as data science and cybersecurity, allowing them to connect ideas and solve complex problems more effectively.

Students who are persuing the dual concentrations are required to complete the six required core courses for the general MS in computer science plus the specific courses for both chosen concentrations.

Learning Outcomes

List the Student Learning Outcomes for the program.

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:

* *
Semester Year

Population Description

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

*The concentration will serve the
1. Students who are interested in pursuing MS CS with a career goal in multiple related fields, allowing them to connect ideas and solve complex problems more effectively.
2. Students who are currently working in computer and/or IT industry and would like to pursue career in multiple related fields to increase the competitiveness in their workplaces.

Rationale

Rationale and expected outcomes for new program:

*The Master's Degree Program in Computer Science provides the opportunity for graduate students to obtain competitive skills and knowledge to succeed as computer scientists in the constantly developing high-technology market place. Students who are accepted into the program are required to take the following six core courses:

- CSC 7013 - Advanced Mathematics for Computer Scientists
- CSC 7014 - The Practice of Computer Programming
- CSC 7050 - Theory of Computation
- CSC 7132 - Operating Systems and Networking
- CSC 7400 - Object Oriented Analysis and Design
- CSC 8050 - Design and Analysis of Algorithms

Then, students can select a minimum of 15 credit hours of elective courses at the 7000 and above level with advisor approval. In addition, the MS in computer science program also offers the following two concentrations:

- MS in Computer Science with Data Science Concentration: Besides the above six core courses, students are also required to take the four required Data Science courses and an elective.
- MS in Computer Science with Cybersecurity Concentration: Besides the above six core courses, students are also

At this moment, students are allowed to take MSCS with either Data Science concentration or Cybersecurity concentration but not both.

The proposed change is to add MSCS program with dual concentrations. Students enrolled in a dual concentration must complete the six required core courses for general MSCS program as well as the course requirements for each concentration. Each course in the program may only be counted once, i.e. If a course serves as a required course for both concentrations, it will be counted only once, and the student must take an elective to meet the total credit requirement for the dual concentrations. Students in a dual concentration will need to take a minimum of 15 courses (45 credits).

Resources

Library and other resources needed:

*No additional library resources needed. We may need to hire more adjunct faculty to help cover additional courses.

Admissions

Describe program's admissions requirements:

*No additional admissions requirements are needed.

Implementation Plan

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

*We plan to offer the concentration in Fall 2026.
* For the existing students who are pursuing a concentration, they may request for the MSCS with dual concentrations by adding additional concentration.
* For incoming students, there should be an option of dual concentrations (of their choices) when they apply for MSCS program.

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:

*DualConcentrationCourses.docx

Supporting Documentation:

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: * 43.0303, 29

* ☒ Yes Institutional Research is this the ideal code?
☐ No

Signatures

* ...3234373736
Xuzhou Chen 10/23/2025
Requester Signature: Date
* ...3839323735
Nadimpalli Mahadev 10/24/2025
Department Chair Approval: Date

Graduate Council
The Graduate Council Chair Signature indicates that the Council has discussed this proposal and has decided it should move forward.

Institutional Research has checked the CIP Code.

Approval of the President Date

* ...3037363236
Mahmoud Al-Odeh 10/31/2025
Academic Dean Signature: Date
* ...3635323835
Becky Copper Glenz 10/31/2025
SGOCE Dean Signature: Date

*
Graduate Council Chair Signature Date

*
Institutional Research Signature Date

Notifications

*
SGOCE Dean Initials Date

*
Reviewed by the Registrar: Date

MSCS, Dual Concentrations of Data Science and Cybersecurity

Old Plan of Study			New Plan of Study		
Required Courses	Pre-practicum Hours	Credits	Required Courses	Pre-practicum Hours	Credits
Course number: Title of Course			Course number: Title of Course		
CSC 7050 - Theory of Computation		3	CSC 7050 - Theory of Computation		3
CSC 7400 - Object Oriented Analysis and Design		3	CSC 7400 - Object Oriented Analysis and Design		3
CSC 8050 - Design and Analysis of Algorithms		3	CSC 8050 - Design and Analysis of Algorithms		3
CSC 7013 - Advanced Mathematics for Computer Scientists		3	CSC 7013 - Advanced Mathematics for Computer Scientists		3
CSC 7014 - The Practice of Computer Programming		3	CSC 7014 - The Practice of Computer Programming		3
CSC 7132 - Operating Systems and Networking		3	CSC 7132 - Operating Systems and Networking		3
Students select minimum of 15 credit hours of graduate level courses with advisor approval		15	Data Science concentration required courses: - CSC 7015 - Introduction to Data Science (3 cr.) - CSC 8008 - Data Exploration, Analytics, and Visualization (3 cr.) - CSC 8015 - Data Mining and Predictive Analytics (3 cr.) - CSC 8016 - Machine Learning for Data Science (3 cr.)		12
			Cybersecurity concentration required courses: - CSC 7150 Introduction to Cybersecurity (3 cr.) - CSC 8027 Digital Forensics (3 cr.) - CSC 8026 Ethical Hacking (3 cr.) - CSC 8025 Computer & Network Security (3 cr.)		12
			One 3 credit hour graduate course approved by advisor		3
TOTAL CREDITS FOR PROGRAM		33	TOTAL CREDITS FOR PROGRAM		45