



DEPARTMENT OF
HIGHER EDUCATION &
WORKFORCE DEVELOPMENT

New Program Report

Date Submitted:

07/10/2023

Institution

Webster University

Site Information

Implementation Date:

6/1/2023 12:00:00 AM

Added Site(s):

Selected Site(s):

Webster University, 470 East Lockwood, St. Louis, MO, 63119-3194

CIP Information

CIP Code:

144201

CIP Description:

A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of computer controlled electro-mechanical systems and products with embedded electronics, sensors, and actuators; and which includes, but is not limited to, automata, robots and automation systems. Includes instruction in mechanical engineering, electronic and electrical engineering, computer and software engineering, and control engineering.

CIP Program Title:

Mechatronics, Robotics, and Automation Engineering

Institution Program Title:

STEM Education

Degree Level/Type

Degree Level:

Master Degree

Degree Type:

Master of Arts (MA)

Options Added:

Collaborative Program:

N

Mode of Delivery

Current Mode of Delivery

Classroom

Hybrid

Online

Student Preparation



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Special Admissions Procedure or Student Qualifications required:
Requirements for admission to the MA in STEM education program include:
Receipt of official transcripts..
Final degree conferred GPA of 2.5 or higher.
Essay.

Specific Population Characteristics to be served:
n/a

Faculty Characteristics

Special Requirements for Assignment of Teaching for this Degree/Certificate:
Webster University has academic policies describing minimum faculty qualifications by discipline. These policies meet or exceed guidelines from the Higher Learning Commission.

Estimate Percentage of Credit Hours that will be assigned to full time faculty:
Webster University strives to have more than 50% of credit hours assigned to full-time faculty. Percentages can be above 75%. The percentage of credit hours assigned to full-time faculty will vary based on student enrollment in a program at any given time.

Expectations for professional activities, special student contact, teaching/learning innovation:
Faculty are expected to continually engage in appropriate professional development activities to ensure their professional qualifications are current. The University provides resources to help ensure robust student contact and engagement. The University also provides resources for faculty to innovate their teaching/learning to meet clear learning outcome objectives.

Student Enrollment Projections Year One-Five

Year 1	Full Time: 5	Part Time: 0	
Year 2	Full Time: 5	Part Time: 0	
Year 3	Full Time: 5	Part Time: 0	Number of Graduates: 5
Year 4	Full Time: 5	Part Time: 0	
Year 5	Full Time: 5	Part Time: 0	Number of Graduates: 5

Percentage Statement:
n/a

Program Accreditation

Institutional Plans for Accreditation:
Webster University will maintain its accreditation by the Higher Learning Commission. There are no plans to pursue specialized accreditation at this time for this program.

Program Structure

Total Credits:
33

Residency Requirements:
n/a

General Education Total Credits:
0



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Major Requirements Total Credits:

33

Course(s) Added

COURSE NUMBER	CREDITS	COURSE TITLE
EDTC 5465	3	Instructional Design
EDTC 5703	3	Operations and Methods of Teaching Robotics: Drones and UAVs
EDTC 5334	3	Instructional Coaching in a Remote Environment
EDTC 5701	3	Operations and Methods of Teaching Robotics: Sensors
EDTC 5705	3	STEM Pedagogy and Instruction
EDTC 5460	3	Curriculum Design: Tech Apps
EDTC 5780	3	Apps-based Learning Environments
EDTC 5996	3	Digital Portfolio
EDTC 5702	3	Operations and Methods of Teaching Robotics: Robotic Arms
EDTC 5995	0	Final Program Survey
EDTC 5704	3	Operations and Methods of Teaching Robotics: Aerospace Explorations

Free Elective Credits:

3

Internship or other Capstone Experience:

N/A

Assurances

I certify that the program will not unnecessarily duplicate an existing program of another Missouri institution in accordance with 6 CSR 10-4.010, subsection (9)(C) Submission of Academic Information, Data and New Programs.

I certify that the program will build upon existing programs and faculty expertise.

I certify that the institution has conducted research on the feasibility of the proposal and it is likely the program will be successful. Institutions' decision to implement a program shall be based upon demand and/or need for the program in terms of meeting present and future needs of the locale, state, and nation based upon societal needs, and/or student needs.

Contact Information

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STEM Education (MA)

This program is offered by the School of Education. It is available online and at the St. Louis main campus.

Program Description

The master of arts (MA) in STEM education provides students with expertise in teaching in the STEM fields of coding and robotics. Candidates learn how to develop learner-centered and content-centered projects and assessments. They also acquire STEM learning skills in coding. The program uses robotics to teach the STEM pedagogy.

Learning Outcomes

Candidates completing the MA in STEM Education will be able to:

- Develop a working knowledge of core components of computational thinking.
- Foster an inclusive and diverse classroom culture that incorporates and values unique perspectives.
- Work together to select tools and design activities and environments that facilitate collaboration.
- Create meaningful learning experiences and environments that inspire students to build their skills and confidence around computing in ways that reflect their interests and experiences.
- Facilitate learning by integrating computational thinking practices into the classroom.

Program Curriculum

Students pursuing the master of arts (MA) in STEM education are required to complete 33 credit hours. In particular, they take the following courses:

Required Courses

- EDTC 5334 Instructional Coaching in a Remote Environment (3 hours)
- EDTC 5460 Curriculum Design: Tech Apps (3 hours)
- EDTC 5465 Instructional Design (3 hours)
- EDTC 5701 Operations and Methods of Teaching Robotics: Sensors (3 hours)
- EDTC 5702 Operations and Methods of Teaching Robotics: Robotic Arms (3 hours)
- EDTC 5703 Operations and Methods of Teaching Robotics: Drones and UAVs (3 hours)
- EDTC 5704 Operations and Methods of Teaching Robotics: Aerospace Explorations (3 hours)
- EDTC 5705 STEM Pedagogy and Instruction (3 hours)
- EDTC 5780 Apps-based Learning Environments (3 hours)
- EDTC 5995 Final Program Survey (0 hours)
- EDTC 5996 Digital Portfolio (3 hours)
- EDTC xxxx Elective (3 hours)

Admission

See the Admission section of this catalog for general admission requirements. Students interested in applying must submit their application online at www.webster.edu/apply. Transcripts should be sent from your institution electronically to transcripts@webster.edu. If this service is not available, send transcripts to:

Office of Admission
Webster University
470 E. Lockwood Ave.
St. Louis, MO 63119

Additional Requirements

Requirements for admission to the MA in STEM education program include:

- Receipt of official transcripts..
- Final degree conferred GPA of 2.5 or higher.
- Essay.

Advancement to Candidacy

Automatic advancement to candidacy (ATC) is based on 12 credit hours of 3.0 GPA graduate level EDTC courses.