



DEPARTMENT OF  
HIGHER EDUCATION &  
WORKFORCE DEVELOPMENT

**New Program Report**

**Date Submitted:**

03/31/2021

**Institution**

Missouri Western State University

**Site Information**

**Implementation Date:**

8/1/2021 12:00:00 AM

**Added Site(s):**

**Selected Site(s):**

Missouri Western State University, 4525 Downs Drive, St. Joseph, MO, 64507

**CIP Information**

**CIP Code:**

110701

**CIP Description:**

A program that focuses on computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, computer development and programming, and applications to a variety of end-use situations.

**CIP Program Title:**

Computer Science

**Institution Program Title:**

Computer Science

**Degree Level/Type**

**Degree Level:**

Bachelor's Degree

**Degree Type:**

Bachelor of Science

**Options Added:**

**Collaborative Program:**

N

**Mode of Delivery**

**Current Mode of Delivery**

Classroom

**Student Preparation**



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**Special Admissions Procedure or Student Qualifications required:**

Applicants must be enrolled in CSC 184 "Introduction to Computer Programming" or have completed CSC 184 "Introduction to Computer Programming" with a grade of C or higher, or have an ACT composite score of 25 or higher, or an ACT Science Reasoning score of 28 or higher. In addition, the student must have an overall GPA of at least 2.0.

**Specific Population Characteristics to be served:**

n/a

**Faculty Characteristics**

**Special Requirements for Assignment of Teaching for this Degree/Certificate:**

All faculty will have a masters degree or higher in Computer Science, Mathematics, Cybersecurity, Information Technology, or other related field, and most will have a PhD.

**Estimate Percentage of Credit Hours that will be assigned to full time faculty:**

90%

**Expectations for professional activities, special student contact, teaching/learning innovation:**

N/A

**Student Enrollment Projections Year One-Five**

Year 1	Full Time: 40	Part Time: 10	
Year 2	Full Time: 42	Part Time: 12	
Year 3	Full Time: 48	Part Time: 14	Number of Graduates: 12
Year 4	Full Time: 52	Part Time: 16	
Year 5	Full Time: 54	Part Time: 18	Number of Graduates: 14

**Percentage Statement:**

n/a

**Program Accreditation**

**Institutional Plans for Accreditation:**

We intend to seek ABET accreditation within the next 5 years if it is financially feasible for the department.

**Program Structure**

**Total Credits:**

120

**Residency Requirements:**

n/a

**General Education Total Credits:**

42

**Major Requirements Total Credits:**

62

**Course(s) Added**



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COURSE NUMBER	CREDITS	COURSE TITLE
CSC 246	3	Programming Languages and Paradigms

**Free Elective Credits:**

21

**Internship or other Capstone Experience:**

None

**Assurances**

I certify that the program is clearly within the institution's CBHE-approved mission. The proposed new program must be consistent with the institutional mission, as well as the principal planning priorities of the public institution, as set forth in the public institution's approved plan or plan update.

I certify that the program will be offered within the proposing institution's main campus, CBHE-approved service region or CBHE-approved off-site location.

I certify that the program will not unnecessarily duplicate an existing program within the geographically applicable area.

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

I certify that the program can be launched with minimal expense and falls within the institution's current operating budget.

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**

First and Last Name: YEN

TO

Email: [yto@missouriwestern.edu](mailto:yto@missouriwestern.edu)

Phone: 816-271-4548



**TO BE COMPLETED BY PUBLIC INSTITUTIONS ONLY:**

As additional state funding for new programs will not be available in the immediate future so information about program finances must be very clear. Within this context, please complete the following financial projections table and questions below. The boxes are fillable. When you have completed this form, please save, and upload.

**FINANCIAL PROJECTIONS**

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>1. Expenditures</b>					
<b>A. One-time:</b>					
New/renovated space	0				
Equipment					
Library					
Consultants					
Institutional Overhead					
Other					
<i>anticipated</i>					
<b>Total for One-time Expenditures</b>					
<b>B. Recurring:</b>					
Faculty					
Staff					
Benefits					
Equipment					
Library					
Institutional Overhead					
Other					
<b>Total for Recurring Expenditures</b>					
<b>TOTAL (A + B)</b>					
<b>2. Revenues</b>					
*State Aid - CBHE					
*State Aid - DESE					
Tuition/Fees					
Institutional/Resources					
Other					

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Please provide response to the statements below.

1. What are the specific sources of funds to support the new proposed program?

The current program is existing. Due to financial retrenchment the University Board of Governors under the recommendation of the president approved a redesign of the program in hopes to attract more students while maintaining or reducing the currently allocated university funds used to sustain the program. The program with the curricular changes will use currently allocated funds.

2. If the new program is being funded through the "core institutional budget," what amount of funds will be reallocated and from which areas?

3. Are there any programs that will be deleted as a result of implementing this new program?

4. If the program will be supported by external funds, have the funding agency, the amount of funds, and whether they are one-time or ongoing funding been identified?

5. In those circumstances for which one-time or limited duration funds are an integral component of the financing arrangements for the new program, please define a transition plan for the period when the one-time or limited duration funds cease to be available.

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<b>Degree/Program:</b>	B.S. – Computer Science	
<b>Major:</b>	Computer Science	
<b>Concentration:</b>	General Concentration	
<b>Catalog Year:</b>	2020-2021	<b>Expires:</b> 2025-2026

### DEGREE REQUIREMENTS

- Earn a minimum of 120 credit hours (100 level and higher, maximum of 6 CED credit hours applicable).
- Earn a minimum of 30 credit hours in upper division courses. Lower division transfer courses accepted as meeting upper division departmental course requirements cannot be used to fulfill this requirement.
- Earn 30 of the last 45 credit hours at MWSU in institutional course work (exclusive of credit by examination).
- Participate in required departmental and campus wide assessments.
- Earn an overall GPA of at least 2.0 and a major GPA of at least 2.0.
- Fulfill the Missouri Constitution requirement.
- Successfully pass the Missouri Higher Education Civics Achievement exam.

MAJOR REQUIREMENTS		(65-667 Credits)	
CORE		Credit	Grade
ACT 101	Introduction to Information Technology	3	
CSC 184	Introduction to Computer Programming	3	
CSC 245	Enterprise Sys. Comp. COBOL-I	OR	
CSC 246	Programming Languages		
CSC 346	Principles of Prog. Languages	3	
CSC 254	Object Oriented Programming	3	
CSC 274	Introduction to UNIX/Linux	3	
CSC 285	Data Structures	3	
CSC 289	Comp Methods for Computer Science	3	
CSC 294	Networking and Telecommunications	3	
SEC300	Introduction to Cybersecurity	3	
ACT 301	Applied Database Systems	3	
CSC 305	Database Architecture & Concepts	3	
CSC 345	Enterprise Sys. Comp. COBOL-II	OR	
CSC 346	Enterprise Systems with Java	3	
CSC 324	Software Testing and DevOps	3	
CSC 406	Object-Oriented Applications & Program Development	3	
CSC 440	Network Security Technologies	3	
CSC 490	Computer Science Career Preparation	1	
MAT 111	Introductory Statistics (3)	OR	
MAT 111E	Introductory Statistics (4)	OR	
GBA 210	Business Statistics (3)	3-4	
<b>TOTAL</b>		<b>4039-4041</b>	
GENERAL CONCENTRATION			
MAT 165	Calc w/A. Geometry I: Differentiation (3)	AND	
MAT 166	Calc w/A. Geometry I: Integration (3)		
MAT 147	Applied Calculus	OR	
MAT 167	Calculus with Analytic Geometry I (6)	5-6	
CSC 208	Discrete Structures I	3	
CSC 264	Computer Architecture and Assembly Language	3	
CSC 318	Simulation and Modeling	3	
CSC 386	Operating Systems Concepts	3	
<b>PLUS--59 credits of ACT, CSC, SEC or MAT courses numbered 300-599*</b>			
		33	
		23	
		3	
<b>TOTAL</b>		<b>256-27</b>	

CS-General majors must own a laptop with approved minimum specifications. Specifications are available on the CSMP home page.

CS-General majors must take PHY 110 or 210 to meet the Natural Sciences portion of their General Studies program.

\* Students desiring to take 500 level courses must meet the criteria required for

PUBLIC  
 INDEPENDENT



SAVE  
SUBMIT  
ATTACH  
SHOW ATTACHMENTS

### NEW PROGRAM PROPOSAL FOR ROUTINE REVIEW

Sponsoring Institution: Missouri Western State University

Program Title: Computer Science

Degree/Certificate: BS-Bachelor of Science If other, please list:

Options: General

Delivery Site(s): MWSU main campus in St. Joseph, MO

CIP Classification: 11.0701

*\*CIP Code can be cross-referenced with programs offered in your region on MDHE's program inventory. Click here for link to NCES CIP site.*

Implementation Date 08/21 please use MM/YY date format.

Is this a new off-site location? No  Yes

If yes, is the new off-site location within your institution's current CBHE-approved service region? Yes

*\*If no, public institutions should consult the comprehensive review process.*

Is this a collaborative program? Yes  No  *If yes, please complete the collaborative programs form on page 6.*

#### CERTIFICATIONS:

- The program is within the institution's CBHE approved mission. *(public institutions only)*
- The program will be offered within the institution's CBHE approved service region. *(public institutions only)*
- The program builds upon existing programs and faculty expertise.
- The program does not unnecessarily duplicate an existing program in the geographically applicable area.
- The program can be launched with minimal expense and falls within the institution's current operating budget. *(public institutions only)*

#### AUTHORIZATION:

Name/Title of Institutional Officer

Signature

Date

## PROGRAM CHARACTERISTICS AND PERFORMANCE GOALS

Although the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below.

Qualifications of performance goals should be included wherever possible.

*If you need more than one line of text to answer questions 1–5, please attach a Word .doc.*

### 1. Student Preparation

- Any special admissions procedures or student qualifications required for this program which exceed regular university admissions, standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.

Applicants must be enrolled in CSC184 "Introduction to Computer Programming" or have completed CSC184 "Introduction to Computer Programming" with a grade of C or higher or have an ACT composite score of 25 or higher.

- Characteristics of a specific population to be served, if applicable.

N/A

### 2. Faculty Characteristics

- Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.

All faculty will have a masters degree or higher in Computer Science, Mathematics, Cybersecurity, Information Technology, or other related field and most will have a PhD

- Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.

90%

- Expectations for professional activities, special student contact, teaching/learning innovation.

N/A

### 3. Enrollment Projections

- Student FTE majoring in program by the end of five years.

60 - our CS program is well established and we expect a moderate upturn in enrollment following recovery from the pandemic.

- Percent of full time and part time enrollment by the end of five years.

90% Full Time and 10% part time



**STUDENT ENROLLMENT PROJECTIONS**

YEAR	1	2	3	4	5
FULL TIME	40	42	48	52	54
PART TIME	10	12	14	16	18
TOTAL	50	54	62	68	72

**4. Student and Program Outcomes**

- Number of graduates per annum at three and five years after implementation.

After 3 years, we would anticipate at least 12 per year. After 5 years, we would anticipate 14 per year.

- Special skills specific to the program.

Problem Solving skills; computer programming skills; logical reasoning skills; critical thinking skills

- Proportion of students who will achieve licensing, certification, or registration.

certification not required

- Performance on national and/or local assessments, e.g. percent of students scoring above the 50<sup>th</sup> percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.

We currently use the Associate Computer Scientist (ACS) test offered by Institute for Certification of Computing Professionals (ICCP) and expect to continue to have 50% of students to be scoring at or above the

- Placement rates in related fields, in other fields, unemployed.

We expect 5-10% to pursue graduate education and 75-90% to find employment in software development or IT immediately.

- Transfer rates, continuous study.

We anticipate 23.5% students to transfer into the program, consistent with University transfer averages.

**5. Program Accreditation**

- Institutional plans for accreditation, if applicable, including accrediting agency and timeline. If there are no plans to seek specialized accreditation, please provide a rationale

We intend to seek ABET accreditation within the next 5 years if it is financially feasible for the department.

6. Program Structure

A. Total credits required for graduation: 120

B. Residency requirements, if any: 0

C. General education: Total credits: 42

Courses (specific courses OR distribution area and credits)

Course Number	Credits	Course Title
Core 42	42	
MAT 111		Introductory Statistics
MAT 147 / 167	5	Applied Calculus / Calculus
ACT 301	3	Applied Database Systems
CSC 184	3	Introduction to Computer Programming

D. Major requirements: Total credits: 62 (one required course is part of general education requirements: MAT111)

Course Number	Credits	Course Title
CSC 208	3	Discrete Structures I
CSC246	3	Programming Languages and Paradigms
CSC 254	3	Object Oriented Programming
CSC 264	3	Computer Architecture and Assembly Language Programming
CSC 274	2	Introduction to Unix/Linux
CSC 285	3	Data Structures
CSC 289	3	Computational Methods for Computer Science
CSC 294	3	Networking and Telecommunications
CSC 305	3	Database Architecture and Concepts
CSC 318	3	Simulation and Modeling
CSC 324	3	Software Testing and DevOps
CSC 386	3	Operating Systems Concepts
CSC 406	3	Object Oriented Applications and Program Development
SEC 300	3	Introduction to Cybersecurity
CSC3**	9	9 CSC/MAT/SEC/ACT elective credits at 300 level or above
CSC490	1	Computer Science Career Prep

E. Free elective credits: 21  
(sum of C, D, and E should equal A)

F. Requirements for thesis, internship or other capstone experience: N/A

G. Any unique features such as interdepartmental cooperation: There will be cooperation with the Legal Studies and Criminal Justice department on SEC455.

**7. Need/Demand**

Student demand

Market demand

Societal need

I hereby certify that the institution has conducted research on the feasibility of the proposal and it is likely the program will be successful.

*On July 1, 2011, the Coordinating Board for Higher Education began provisionally approving all new programs with a subsequent review and consideration for full approval after five years.*