

The University Senate of Michigan Technological University

Proposal 26-15

(Voting Units: Academic)

“New Concentration in Computer Systems within the Bachelor’s Degree in Computer Science”

Submitted by

Department of Computer Science

Contact: Prof. Charles Wallace, Chair, Undergraduate Committee

Department of Computer Science

Description

A bachelor’s degree in Computer Science from Michigan Tech with a Computer Systems concentration provides a strong basis in computing environments—from operating systems, to networking, to administration, to security—allowing students to be adaptable and embrace the change inherent in technology. Graduates of this program are well equipped to identify and maintain the appropriate combination of application hardware and software to meet the needs of the end user, working closely with the software engineers who develop the application.

Rationale

This concentration is proposed as a substitute for the Computer Systems Science degree program, which we are planning to shelve. Enrollment in Computer Systems Science has lagged behind enrollment in Computer Science and Software Engineering, and it is more in keeping with enrollment numbers for a degree concentration. The average number of enrolled students from 2009-2014 in Computer System Science (SCSY) is 22.2. As a comparison the Computer Science enrollment (SCSX) is 252.5 and Software Engineering (SEEN) is 69.5.

The area of Computer Systems is undergoing a transformation as the bounds of what constitutes computing expand. The Computer Systems Research program within the National Science Foundation notes that the term “computer systems” includes everything from warehouse-scale computing to “smart dust”, along with important emergent concepts like the Internet of Things and sustainable computing. There is clearly a need for experts in tomorrow’s computing workplace who understand the capabilities and limitations of systems hardware and software and can find an appropriate match for client requirements.

The 123 credits required is in line with our other Computer Science concentrations.

Related Programs

Central Michigan University: Information Technology degree program

Kettering University: System & Data Security concentration & minor

Michigan State University: Information Technology concentration

Oakland University: Information Technology degree program

Ferris State University: Computer Information Technology degree program

Projected Enrollment Based on Current Faculty Numbers

We expect enrollment in the Computer Systems concentration to be roughly the same as that in the current Computer Systems Science degree program, which is being shelved, so no additional teaching resources will be needed.

Scheduling Plan: Regular (no evening or extension courses).

Curriculum Design: See attached degree audit form.

New Courses: None.

Model Schedule: See attached.

Library and Other Learning Resources: No additional expenses.

Faculty Resumes

Computer Science: <http://www.mtu.edu/cs/department/faculty/>

Computer Network and System Administration:

<http://www.mtu.edu/technology/undergraduate/cnsa/faculty/>

Additional Equipment Needed: None.

Program Costs

Revise promotional/marketing material, including web material. Expected cost is less than \$1000.

Additional Space Needed: None.

Additional Policies, Regulations, and Rules: None

Accreditation Requirements

The Computer Systems concentration will fall within the ABET accreditation requirements for Computer Science. We will start the accreditation process in the 2015-2016 academic year.

Planned Implementation Date: Fall 2015