

## **ESTABLISHMENT OF A NEW PROGRAM FOR THE MASTER OF SCIENCE IN SYSTEMS ENGINEERING**

### **Recommendation**

It is recommended that the Board of Governors establish a new online degree program, the Master of Science in Systems Engineering in the College of Engineering, effective Fall 2024.

### **Background**

The Department of Industrial and Systems Engineering (ISE) proposes a fully online master's degree program in Systems Engineering. The goal is to build a highly visible and coherent online program serving the interests of students, industry, and faculty in systems engineering foundations and applications.

### **Program Description**

While the ISE department has been a part of the College of Engineering for nearly a century, it has not previously offered a dedicated degree program in systems engineering. The challenges posed by globalization and rapid technological advancements have significantly increased the complexity of engineering product development and the management of intricate manufacturing and supply chain operations for companies. Consequently, there is a growing demand for training programs in the field of Systems Engineering. To the best of our knowledge, the Master of Science in Systems Engineering program we are proposing will be the first of its kind in the State of Michigan. Beyond serving the commercial sectors, Michigan also hosts a substantial Department of Defense (DoD) complex that requires proficient Systems Engineers. The online format of the program enhances accessibility and allows us to attract students from outside Southeast Michigan.

### **Admissions Requirements**

Admission to the program is contingent upon admission to the Graduate School. All applicants must be admitted to the Graduate School, the College of Engineering, and in a department within the College, meeting all applicable admission requirements. Students must have a bachelor's degree or the equivalent in Engineering from an accredited college or university. Students from all science, technology, engineering, and math (STEM) disciplines will be considered for admission. Professional experience will be considered in admission.

### **Curriculum Requirements**

The online M.S. in Systems Engineering requires a minimum of thirty credits (completed under master's degree Plan C) in a Plan of Work approved by the graduate program director. All curriculum requirements must be met in accordance with Graduate School regulations. The degree is organized into two concentrations:

- General Commercial Systems
- Defense Systems

Both concentrations have a common twelve-credit core requirement. Each concentration has additional required course(s). There are a number of elective courses, some of which are shared by other programs in the Industrial and Systems Engineering Department.

Submitted by: Acting Provost and Senior Vice President for Academic Affairs Laurie Clabo

### **Graduation Requirements**

30 total credits are required for graduation in this program. All coursework must be completed in accordance with the Graduate School and the regulations governing graduate scholarship and degrees.

### **Program Administration**

The program will be administered by the Chair of the ISE department. A non-tenure-track teaching faculty member will be hired to serve as the program director responsible for program management and course delivery. The program director will collaborate closely with the M.S. programs director within the department.

Under the guidance of the ISE Chair, the program director will establish an advisory committee, aiming to include representatives from enterprise and defense manufacturing sectors. This committee will conduct regular reviews and offer guidance to ensure the program's ongoing enhancement and improvement.

### **Budget and Resource Requirements**

This program builds upon existing courses within the Industrial and Systems Engineering Department. A non-tenure-track faculty member will be hired to head the program, oversee its marketing and recruitment efforts, and deliver a substantial portion of the program's coursework.

### **Accreditation**

Accreditation is neither required nor anticipated for this program.

### **Approvals**

The proposal was approved by the faculty and Chair of the Industrial and Systems Engineering Department, the Academic Operations Committee of the College of Engineering, the Dean of the College of Engineering, Graduate Council, the Dean of the Graduate School, and the Provost.