

DATE: January 31, 2020

SUBJECT: New Academic Program
University of Memphis
Engineering Management, Master of Science
(CIP 15.1501— Engineering/Industrial Management)

ACTION RECOMMENDED: Approval

PROGRAM DESCRIPTION

The proposed Engineering Management, Master of Science (MS) program at the University of Memphis is a collaboration between the Herff College of Engineering and with the Fogelman College of Business that is designed to serve the needs of students and local industry. According to the National Center for Education Statistics, engineering management is a discipline that prepares students to plan and manage industrial and manufacturing enterprises through the application of engineering principles. The curriculum will provide students the option to specialize in transportation or manufacturing. These specialties align with the economic well-being of both Shelby County and the state of Tennessee. With the cooperation of the Fogelman College of Business, the proposed MS degree will be awarded by the Herff College of Engineering and is intended to be a fully online program.

INSTITUTIONAL GOVERNING BOARD APPROVAL

The proposed Engineering Management, MS program was approved by the University of Memphis Board of Trustees on June 6, 2018.

PROPOSED IMPLEMENTATION DATE: Fall 2020

RELEVANCE TO INSTITUTIONAL MISSION AND STRATEGIC PLAN

The proposed Engineering Management, MS program aligns with the University of Memphis’ institutional mission to “provide the highest quality education by focusing on research and service benefitting local and global communities.” The proposed Engineering Management, MS program also aligns with the State Master Plan to meet the needs of economic, workforce, and research needs, and to increase degree production. As drivers of technology in industry, engineering managers have the capability to influence workforce development by providing jobs at the output of the educational pipeline. This includes workers at all levels of educational attainment which helps increase the demand for engineers as well as skilled technical workers.

CURRICULUM

The proposed Engineering Management, MS program requires the completion of 33 credit hours. The curriculum will consist of 15 credit hours devoted to the core, 12 credit hours for the concentration area (transportation or manufacturing), and 6 credit hours of electives. No new courses are needed for this program. However, based on the consultant's recommendation, the Seminar in Leadership course was modified to include additional content on managing people and organizations and an overview of organizational cultures.

PROGRAM PRODUCTIVITY

The proposed Engineering Management, MS program projects an initial enrollment of 15 students with a steady enrollment of 36 students beginning in year four. It is anticipated that full-time students will take two years to complete the program and part-time students will take three years to complete. Attrition rates are calculated at the rate of 20 percent which is comparable to other programs in the Herff College of Engineering.

	2020	2021	2022	2023	2024
Enrollment	15	27	30	36	36
Graduates	--	--	6	9	9

PROGRAM DUPLICATION

Currently, two public universities in Tennessee offer Engineering Management, MS programs – the University of Tennessee at Chattanooga (UTC) and Tennessee Technological University (TTU). UTC offers an online Master of Science in Engineering Management which has averaged 25 graduates per year from 2014-2019. The online Engineering Management program at TTTU began in January 2020 with 15 students expected to enroll. Among private universities in Tennessee, Christian Brothers University and Lipscomb University also offer Master of Science in Engineering Management programs.

The proposed Engineering Management, MS program at the University of Memphis will be a unique program that will focus on two concentration areas, transportation and manufacturing. These concentration areas are in high demand in the Memphis metropolitan area.

EXTERNAL JUDGEMENT

On June 27-28, 2019, Dr. Phillip A. Farrington, Professor Emeritus of Industrial & Systems Engineering & Engineering Management at the University of Alabama in Huntsville conducted a campus site visit to evaluate the proposed Engineering Management, MS program. Dr. Farrington recommended approval of the proposed program and indicated that the Engineering Management, MS "program is needed, primarily because of the high manufacturing and transportation employment in the Memphis area. Based on the site

visit and discussions with the Provost, other academic leadership, and the faculty, the resources and support appears to be sufficient to implement the program.”

STUDENT DEMAND

The University of Memphis conducted student and alumni interest surveys to determine the student demand for the proposed Engineering Management, MS program. Among the students who responded to the survey, 60 percent were very interested in the proposed program. Interest among alumni was higher with 76 percent indicating they would be interested in pursuing the proposed academic program.

OPPORTUNITIES FOR PROGRAM GRADUATES

According to the United States Bureau of Labor Statistics, engineering manager jobs are expected to grow 10 percent by 2026 with an average wage of \$135,000 per year. Additionally, the University assessed employer interest via a survey conducted in 2019. Ninety percent of employers indicated that the proposed Engineering Management, MS program would enhance the ability of their employees to do their current job. Letters of support for the proposed program were provided by PwC Consulting, FedEx and Thyssen-Krupp.

INSTITUTIONAL CAPACITY TO DELIVER THE PROGRAM

There are currently sufficient full-time faculty in the Civil Engineering and Engineering Technology programs in the Herff College of Engineering and the Fogelman College of Business and Economics that are qualified to provide instruction for the proposed Engineering Management, MS program. The only anticipated need for this program will be two adjunct faculty to assist with online instruction. The library, information technology and other support resources are adequate to implement this proposed academic program. Attachment A outlines the five year budget for the proposed Engineering Management, MS program.

ASSESSMENT AND POST-APPROVAL MONITORING

An annual performance review of the proposed program will be conducted for the first five years following program approval. The review will be based on benchmarks established in the approved proposal. At the end of this period, the campus, institutional governing board, and Commission staff will perform a summative evaluation. The benchmarks include, but are not limited to, enrollment and graduation, program cost, progress toward accreditation, and other metrics set by the institution and Commission staff. If benchmarks are not met during the monitoring period, the Commission may recommend that the institutional governing board terminate the program. If additional time is needed and requested by the institutional governing board, the Commission may choose to extend the monitoring period.

Tennessee Higher Education Commission
Appendix A: THEC Financial Projections
University of Memphis
Master of Science in Engineering Management

Seven-year projections are required for doctoral programs.

Five-year projections are required for baccalaureate and Master's degree programs

Three-year projections are required for associate degrees and undergraduate certificates.

Projections should include cost of living increases per year.

	Year 1	Year 2	Year 3	Year 4	Year 5
I. Expenditures					
A. One-time Expenditures					
New/Renovated Space ¹	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	-	-	-	-	-
Library	-	-	-	-	-
Consultants	-	-	-	-	-
Travel	-	-	-	-	-
Other	-	-	-	-	-
Sub-Total One-time	\$ -	\$ -	\$ -	\$ -	\$ -
B. Recurring Expenditures					
Personnel					
Administration					
Salary	\$ -	\$ -	\$ -	\$ -	\$ -
Benefits	-	-	-	-	-
Sub-Total Administration	\$ -	\$ -	\$ -	\$ -	\$ -
Faculty					
Salary	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
Benefits	-	-	-	-	-
Sub-Total Faculty	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
Support Staff					
Salary	\$ -	\$ -	\$ -	\$ -	\$ -
Benefits	-	-	-	-	-
Sub-Total Support Staff	\$ -	\$ -	\$ -	\$ -	\$ -
Graduate Assistants					
Salary	\$ -	\$ -	\$ -	\$ -	\$ -
Benefits	-	-	-	-	-
Tuition and Fees* (See Below)	-	-	-	-	-
Sub-Total Graduate Assistants	\$ -	\$ -	\$ -	\$ -	\$ -
Operating					
Travel	\$ -	\$ -	\$ -	\$ -	\$ -
Printing	-	-	-	-	-
Equipment	-	-	-	-	-
Other	-	-	-	-	-
Sub-Total Operating	\$ -	\$ -	\$ -	\$ -	\$ -
Total Recurring	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
TOTAL EXPENDITURES (A + B)	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000

*If tuition and fees for Graduate Assistants are included, please provide the following information.					
Base Tuition and Fees Rate		\$ -	\$ -	\$ -	\$ -
Number of Graduate Assistants		-	-	-	-
	Year 1	Year 2	Year 3	Year 4	Year 5
II. Revenue					
Tuition and Fees ²	200,850	361,530	385,632	482,040	482,040
Institutional Reallocations ³	(194,850)	(355,530)	(379,632)	(476,040)	(476,040)
Federal Grants ⁴	-	-	-	-	-
Private Grants or Gifts ⁵	-	-	-	-	-
Other ⁶	-	-	-	-	-
BALANCED BUDGET LINE	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
Notes:					
(1) Provide the funding source(s) for the new or renovated space.					
Tuition was based on Fall 2019 for UofM Global (online). Tuition and fees are expected to be generated starting in Fall 2020. The engineering course fee of \$45 per credit was added.					
(2) In what year is tuition and fee revenue expected to be generated? Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program. Explain any differential fees.					
\$6000 for part-time instructor					
(3) Identify the source(s) of the institutional reallocations, and grant matching requirements if applicable.					
(4) Provide the source(s) of the Federal Grant including the granting department and CFDA(Catalog of Federal Domestic Assistance) number.					
(5) Provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).					
(6) Provide information regarding other sources of the funding.					