

*Alabama Commission on Higher Education*

**PROPOSAL FOR A NEW DEGREE PROGRAM – NEW APPLICATION TOOL**

Please check one:  Baccalaureate Program  Graduate Program

**A. General Information**

1. Institution: Auburn University
  
2. Institutional Contact Person: Dr. George Flowers  
Title: Dean of the Graduate School and Professor of Mechanical Engineering  
Telephone: (334) 844-2125  
E-mail: flowegt@auburn.edu
  
3. Program Identification--  
Field of Study/ Program Title: Engineering Management  
Degree: Master of Engineering Management (MEM)  
CIP Code: 15.1501
  
4. Date of Proposal Submission: May 19, 2017
  
5. Proposed Program Implementation Date: Spring Semester, 2018
  
6. Program Administration:  
Name of College/School: Samuel Ginn School of Engineering  
Name of Dean: Dr. Christopher Roberts  
Name of Department: Industrial and Systems Engineering  
Name of Chair: Dr. John L. Evans

**Note: Please expand all response fields as necessary.**

## **B. Program Purpose and Description**

- 1. In no more than one paragraph describe the purpose of the proposed program. Please also include a brief statement regarding how the program's purpose is related to the University's mission and goals.*

The Master of Engineering Management (MEM) degree will primarily provide specialized education to practicing engineers, enabling them to manage technical projects and/or other engineers effectively. Auburn University's Mission Statement states that the "University will provide high-quality graduate and professional programs in areas of need and importance to the state and beyond." This program is directly targeted at the \$12 billion per year State of Alabama vehicle manufacturing (automotive, aerospace, military and industrial equipment) industry, the multi-billion dollar State of Alabama research industry, the increasing activity for product innovation businesses within the state, as well as the demand of the government and defense industry for systems engineering expertise. The Mission Statement also states that the "University will continue to seek new and innovative ways to reach out to the people it serves." This program will provide graduates that will assist their organizations to improve operational efficiency, improve safety in the workplace, expand product development, and improve management of highly complex technical systems. There are several areas in which this program aligns with the strategic plan. Strategic Priority 1 states as a commitment to "Add new professional development programs for graduate students, including programs preparing students for non academic careers." The MEM program is designed mainly for students to practice in industry. Strategic Priority 3 states that "we will develop our strategic research initiatives by building on our existing strengths and developing programs that will translate our discoveries into practical solutions for the state, region, and world." Students taking academic knowledge to industry and our hearing directly about industry problems from students in the program will nurture partnerships between Auburn and the companies where the students work.

- 2. Please provide a description of the specific kinds of employment opportunities, post-graduate professional degree programs, and other graduate programs that will be available to the graduates.*

For the job title "Architectural and Engineering Managers," the Bureau of Labor Statistics (BLS) 2015 estimates 179,770 US positions, 26,070 Southeast Region positions and 2,610 Alabama positions (<http://www.bls.gov/oes/current/oes119041.htm#st>). A 2% growth is projected from 2014-2024 for this job title. The MEM degree is considered by many as the engineer's MBA. As the Master of Engineering Management Programs Consortium (including Cornell, Duke, USC, Dartmouth, MIT, and Northwestern) states, "The world is changing. With these challenges facing us on a global level (sustainability, health, environmental protection) there is a new need for companies and organizations to integrate technical and business skills to solve these difficult problems. MEM graduates can fill this gap."

3. *Succinctly list at least four (4) but no more than seven (7) of the most prominent **student learning outcomes** of the program. These outcomes should lend themselves to subsequent review and assessment of program accomplishments.*

The five program outcomes below are common to all options in the MEM. Each outcome corresponds to a core course in the MEM program.

- 1) Students will be able to assess the economic value for a global investment in any option area as it relates to the life cycle cost (investment, operation, maintenance, technological changes, risks, and salvage) for a variety of engineering investments (manufacturing, safety, government, infrastructure, or product innovation).
- 2) Students will demonstrate capability to design and operate global management systems involving technological innovation and risk, engineering projects and personnel management, and operational safety.
- 3) Students will demonstrate capability to design and manage a technical project within a framework of strategy, culture, leadership, people, and process.
- 4) Students will be able to design an efficient system (or improve existing systems) using lean engineering principles integrated with organizational challenges for an organization. This design will consider management structures, as well as system "optimization" heuristics and "best practices." Students will have the ability to use variance reduction, factory physics, lean cell design, setup time reduction, and other lean tools.
- 5) Students will be able to apply human factors design and engineering to include information input, human output and control, work space and arrangement and environment in order to decrease errors and increase usability.

### **C. Need for the Program**

1. ***State need.** Briefly describe why the program is specifically needed for the State of Alabama. (State need is considered a priority in the review process.)*

There are approximately 80 institutions throughout the U.S. that offer this degree, but none in our state (Note: University of Alabama in Huntsville has a concentration in Engineering Management in the Master of Science in Engineering degree). Peer institutions such as Texas A&M, University of Florida, Clemson University, and University of Wisconsin currently have Engineering Management master's programs. Meetings have taken place with representatives from over 100 Alabama and regional manufacturers and

engineering operations, and these individuals have encouraged Auburn to develop an engineering management program for engineers emphasizing the four options included in this proposal.

2. ***Employment Opportunities.** Based on your research on the employment market for graduates of this program, please complete the following table reporting the total projected job openings (including both growth and replacement demands) in your local area, the state, the SREB region, and the nation. These job openings should represent positions that require graduation from a program such as the one proposed.*

Projected Job Openings

	Year 1	Year 2	Year 3	Year 4	Year 5
Local	7	7	7	8	8
State	310	340	374	413	455
SREB	208	221	235	250	266
Nation	1,256	1,356	1,465	1,584	1,713
TOTAL	1,781	1,924	2,081	2,255	2,442

*Please briefly describe your methodology for determining employment opportunities – projected job openings. Be sure to cite any data sources used in formulating these projections. The actual survey instrument, detailed results, and associated data file(s) must be maintained internally by the institution for five years from the implementation date. The survey upon which the proposal is based must be available for ACHE Staff examination upon request for that five year timeframe. The survey instrument, detailed results, or associated data file(s) should not be included in the proposal.)*

Several hundred surveys were sent out to various constituents in industry, government, and academia; 23 responses were collected (10% response rate). Of the responses, 11 were government organizations, 11 were for profit businesses and one was a trade association. The survey included one question about current job openings that would benefit from the MEM degree and one about the expected job growth rate over the next five years. This survey data was used directly in answering this question. It is noteworthy that one survey respondent stated, “Our parent company runs 25 factories and they are moving from low paid labor to engineers who make the factory smarter.” We expect a similar trend to take place as manufacturing returns to the US and the presence of robots increases.

3. Student Demand - Enrollment projection. Please briefly describe your methodology for determining enrollment projections. If a survey of student interest was conducted, please briefly describe the survey instrument, number and percentage of respondents, and summary of results. (The survey instrument, and associated data file(s) need not be included in the proposal. This proposal information should be maintained for ACHE Staff review for five years from the actual implementation date.)

The MEM degree is targeted primarily at practicing engineers who will take the courses online through our existing graduate outreach program. According to the most recent Alabama employment estimates for engineers (<http://www2.labor.alabama.gov/Projections/Occupational/Statewide/Architecture.aspx>) approximately 28,600 engineers are employed in the state. We conservatively estimated that .1% would choose to pursue this degree in year one of the program. Assuming a 1% growth rate for engineering jobs in Alabama, this would result in 89 currently employed Alabama engineers in the program by year five.

In addition to currently employed engineers, we estimated that 1% of current engineering undergraduate students at Auburn would enroll in the MEM program following graduation. We based year one on the 2015 undergraduate enrollment for the Samuel Ginn College of Engineering at Auburn University and used growth statistics from the American Society for Engineering Education (<https://www.asee.org/papers-and-publications/publications/college-profiles/15EngineeringbytheNumbersPart1.pdf>) which projected an annual 7.5% increase of new enrollments from the 2015 base. We expect working engineers and students from other states to enroll in this program as well which could increase enrollment even more.

MEM STUDENT HEADCOUNT					
	Year 1	Year 2	Year 3	Year 4	Year 5
Engineers	29	58	87	88	89
COE Graduates	8	17	26	28	30
TOTAL	37	75	113	116	119

Advanced engineering education enrollment at Auburn University is already significant. The Department of Industrial and Systems Engineering at Auburn University currently has 70 on-campus master's students in the program and 184 master's applicants for Fall 2017. Admission will likely be offered to only 1/3 of the applicants, mostly due to capacity constraints, leaving much of the demand unsatisfied.

**D. Specific Rationale (Strengths) for Program**

*What is the specific rationale (strengths) for recommending approval of this proposal? List no fewer than three (3) and no more than five (5) potential program strengths. **Please note that letters of support may be included with the proposal.***

1. The MEM degree will provide both online and on campus access to engineering/industrial management education that is missing in the state of Alabama and the region. This access will allow working professional engineers to advance in their careers and improve operations at their current jobs.
2. The MEM degree will offer four specially focused options to tailor the graduate education to selected interest areas (manufacturing, occupational safety and ergonomics, product innovation and systems).
3. Auburn University houses the highest ranked engineering program in Alabama. It is natural for companies/students to look to Auburn to further their education.
4. Nearly 80% of the survey respondents indicated that a MEM degree would strongly or very strongly enhance an engineer's ability to improve the respondent's organization. The Systems Option was considered by nearly 90% of respondents as a needed option for their organizations and the Manufacturing and Product Innovation Options were cited as needed for about 60% of all respondents. One respondent said, "Our parent company runs 25 factories and they are moving from low paid labor to engineers who make the factory smarter. I think the Manufacturing Option is great for those kind of companies." We have awarded 79 graduate certificates in Occupational Safety and Ergonomics. We believe many of these certificate holders will apply for the MEM/OSE option.
5. The graduate deans from all public universities in the State of Alabama approved the NISP. The proposed MEM, particularly the Manufacturing Option, was identified as "a step toward meeting local and regional needs." Several of the institutions welcomed opportunities for collaboration with Auburn for the benefit of both institutions.

#### **E. Similar Programs**

*Using the ACHE Academic Program inventory found at <http://www.ache.state.al.us/Content/Departments/Instruction/StudentInfo.aspx>*

*List below all programs at the same degree level (by institution) that utilize the same 6-digit CIP code as the one being requested in the program proposal. Also, list any programs at other CIP codes that may be offering similar instruction. If there are no similar programs place a "0/none" by 1. in the listing directly below.*

*Note: Institutions should consult with ACHE Staff during the NISP phase of proposal development to determine what existing programs are considered duplicative of the proposed program.*

*Please add numeration and list additional similar programs, if applicable.*

The following institutions offer similar programs at this level:

The University of Alabama in Huntsville (UAH) offers an engineering management concentration in the Master of Science degree.

The University of Alabama at Birmingham (UAB) has a Master of Engineering program in Advanced Safety Engineering and Management that may have some overlap with this program's Occupational Safety and Ergonomics (OSE) option.

*If the program duplicates, closely resembles, or is similar to another program already offered in the State, provide justification for that duplication.*

The UAH program does not offer the four options proposed in the MEM program. There may also be a slight overlap in the proposed Systems Option with the MS degree there.

The UAB track focuses on occupational safety and includes one ergonomics/human factors course in the curriculum, while the Auburn OSE option has an equal focus in safety and ergonomics with multiple courses in each area.

*Also, if a graduate program, please identify and list any similar programs at institutions in other SREB states.*

0/none

#### **F. Collaboration With Other Institutions/Agencies**

*Does the institution plan on collaborating with other institutions in the delivery of this program?*

Yes  No

*If yes, please indicate below which institutions and describe the basis of this collaboration.*

Auburn is currently leading a manufacturing (including safety and ergonomics) research center (Southern Alliance for Advanced Vehicle Manufacturing) that includes University of Alabama in Huntsville (UAH) and Clemson. The potential expansion plans include Tennessee Technology University (imminent), Mississippi State University (MSU), University of Tennessee and Middle Tennessee State University. Throughout these discussions UAH and Auburn have strategized over the potential for course sharing in the areas of manufacturing engineering and ergonomics/safety to provide collaboration in education within these fields. Future collaborations are possible (including sharing sabbaticals, research facilities, etc.) as the research programs

accelerate. If this program is approved, efforts will be intensified to collaborate with the institutions mentioned above.

Auburn is a partner of the highly recognized National Institute for Occupational Safety and Health (NIOSH) Deep South Center with UAB and currently delivers approximately 20 graduate certificates annually.

*If no, please indicate your reasons why.*

**G. Curriculum**

1. *Program Completion Requirements: (Enter a credit hour value for all applicable components, write N/A if not applicable)*

Credit hours required in major courses	_____15
Credit hours required in minor	_____
Credit hours in institutional general education or core curriculum	_____
Credit hours required in support courses	_____15
Credit hours in required or free electives	_____
Credit hours for thesis or dissertation	_____
<b>Total credit hours required for completion</b>	<b>_____30</b>

2. *Will this program be related to other programs at your institution?*

Yes.

*If so, which ones and how?*

Some of the required courses that are part of the curriculum are in the College of Business (COB), and some of them are in the Department of Industrial and Systems Engineering in the College of Engineering (COE). The Deans of the COB and COE have pledged to support this new degree program.

3. *Please identify any existing program, option, concentration or track that this program will replace at your institution.*

None.

4. *Is it likely that this program will reduce enrollments in other graduate programs at your institution? If so, please explain.*

No.

5. *If this is a graduate program, please list any existing undergraduate programs at the institution which are directly or indirectly related to the proposed graduate program. If this is a doctoral proposal, also list related master's programs at your institution.*

To offer the Product Innovation option, the Thomas Walter Center will need to be expanded to include graduate level courses that can be taught in conjunction with revamped Business-Engineering-Technology (B-E-T) minor courses. This will include the addition of an accelerated master's program in Engineering Management, Product Innovation option, targeted at the B-E-T minor students (there are currently around 50 students enrolled in that minor).

This program will be open to students from any engineering undergraduate program, including aerospace, biosystems, chemical, civil, computer science and software, electrical and computer, industrial and systems, materials, mechanical, and wireless.

6. *Please complete the table below indicating the proposed program's courses. Include the course number, and number of credits. (If feasible/useful, please group courses by sub-headings within the table.)*

Note that each line below refers to two courses. For example, INSY 6600 is the on campus option and INSY 6606 is the online option for the same course content.

Course Number and Title	Number of Credit Hours	* If New Course
<b>Master of Engineering Management—all options</b>		
INSY 6600/06 Manufacturing and Production Economics	3	
INSY 7980/86 Master's in Industrial and Systems Engineering Project	3	
INSY 6800/06 Lean Production	3	
INSY 7080/86 Human Factors Engineering	3	
BUSI 7140/46 Organizational Leadership, Ethics and Change	3	
<b>Master of Engineering Management-Manufacturing Option</b>		
INSY 6330/36 Data Based Decision Making Using Six Sigma	3	
INSY 6840/46 Control of the Manufacturing Floor and Processes	3	
Select 3 courses in INSY 6000-8999 or INSY-related @6000-8999 electives	9	
<b>Master of Engineering Management-Occupational Safety and Ergonomics Option</b>		
INSY 6010/16 Safety Engineering I	3	
INSY 7020/26 Safety Engineering II	3	
INSY 7060/66 Ergonomics I	3	
INSY 7070/76 Ergonomics II	3	

INSY 7050/56 Industrial Hygiene and Environmental Hazards	3	
<b>Master of Engineering Management-Product Innovation Option</b>		
MNGT 7160/66 Strategic Management of Innovation and Technology	3	
INSY7730/36 Product Design, Development, and Test	3	*
INSY 7740/46 Product Launch, Manufacturing, and Delivery	3	*
INSY 7750/56 Intellectual Property, Legal, and Venture Capital	3	*
INSY 7710/16 Life Cycle Engineering	3	*
<b>Master of Engineering Management-Systems Option</b>		
INSY 7720/26 Systems Engineering 1	3	*
INSY 7710/16 Life Cycle Engineering	3	*
MNGT 7160/66 Strategic Management of Innovation and Technology	3	
Select 2 courses in INSY 6000-8999 or INSY-related @6000-8999 electives	6	

7. *Enumerate and briefly describe any additional requirements such as preliminary qualifying examination, comprehensive examination, thesis, dissertation, practicum or internship, some of which may carry credit hours included in the list above.*

None.

8. *Does the program include any options/concentration. If so, please describe the purpose and rationale and list the courses in the option.*

The program includes four specially focused options to further tailor the graduate education to the selected interest area. Courses are grouped by option in the table in 6. above.

- a. The manufacturing option expands the current leadership Auburn has in manufacturing. Auburn has aggressively worked to develop state leadership with the hands-on Lego manufacturing lab located in the Shelby Center for Engineering Technology, the mechanical engineering Design for Manufacturing Lab (DML), and a graduate certificate program in automotive manufacturing. The manufacturing option will address lean manufacturing, quality management, data analysis and cyber security, and technical management of the factory floor (PLCs, Robotics, etc.).
- b. The occupational safety and ergonomics option will focus on issues in safety and ergonomics for manufacturing operations. Auburn is a partner of the highly recognized National Institute for Occupational Safety and Health (NIOSH) Deep South Center and currently delivers

approximately 20 graduate certificates annually. This option expands on this leadership role.

- c. The product innovation option will address issues of intellectual property, global technology management, product launch and marketing, business plans for engineers, and product design and development for technological innovation. This option is a graduate level expansion of the highly successful undergraduate Business-Engineering-Technology (BET) program and will encourage undergraduates from the College of Engineering and the College of Business to continue their education and be productive managers to help local and regional manufacturing and engineering companies by improving operational efficiency.
- d. The systems option will be tailored to those engineers involved in managing very large complex projects in the private, public, or government sector. Referring to a recent publication (<http://www.ndia.org/Divisions/Divisions/SystemsEngineering/Documents/Studies/Top%20SE%20Issues%202010%20Report%20v1%20FINAL.pdf>) by the National Defense Industrial Association, one of the five "Top Systems Engineering Issues in US Defense Industry" is "The quantity and quality of Systems Engineering expertise is insufficient to meet the demands of the government and defense industry."

9. *State and list if the program has any special admission requirements. If none, state: "The program has no special admission requirements".*

For all options: Applicants with an engineering degree from an ABET accredited program with a minimum of 2.75 GPA will not be required to take the GRE and may be admitted to the program with no work experience.

- a. Manufacturing Option: Applicants without an engineering degree will be considered if they have  $\geq 5$  years of related manufacturing experience.
- b. Occupational Safety and Ergonomics Option: Applicants without an engineering degree will be considered if they have  $\geq 5$  years related experience or a related undergraduate degree such as Occupational Safety and Health.
- c. Product Innovation Option: Applicants without an engineering degree will be considered if they have  $\geq 5$  years related experience or if they have a Business-Engineering-Technology minor with a  $\geq 3.0$  cumulative GPA.
- d. Systems Option: Applicants without an engineering degree will be considered if they have  $\geq 5$  years related experience.

#### **H. Program Review and Assessment**

*In the final analysis, the institution and its governing board are accountable for the quality, utility and productivity of this and all other programs of instruction. With this in mind, please describe the procedures that will be used in assessing the program's outcomes.*

*Be sure to include:*

- 1. An assessment process for the student learning outcomes;*
- 2. A follow-up plan to determine accomplishments of graduates such as obtaining relevant employment or being admitted to a masters or doctoral program (graduate or professional).*

Three assessment methodologies will be used in the program. Method 1 will assess specific parts of each outcome through graded problems, projects, and case studies in individual courses. Method 2 will be through student assessment of outcome attainment as measured by an exit survey that will be administered to all graduates of the program in the semester of graduation. Method 3 will be through evaluation of outcomes attainment by the industry advisory board (IAB) and teaching faculty of each option based on data obtained from employers and alumni of the program.

For all of the Method 1 assessments detailed below, each instructor will complete a one-paged outcome audit form for each outcome assessed in his/her course every time the course is offered. This form will indicate if the outcome has been attained at 85% minimum for each student. If not, the instructor will indicate improvements that will be made the next time the course is offered. All of the forms will be reviewed at a faculty meeting once per year. The faculty members of the Thomas Walter Center in conjunction with the faculty members who teach the courses will decide if other changes are needed.

Method 1: Listed below are the Method 1 assessments for the five (5) program outcomes common to all options. Each outcome assessment refers to one course.

- a. Example Assessment: A case study project will be assigned to each student to evaluate the student's ability to perform an evaluation for a new opportunity (manufacturing facility, product launch, etc.). This assessment will include the cost and risk of initial investment, facility investment, operation cost, tax and depreciation, individual product risk, technological obsolescence risk, and end of life cost/opportunities. The economic analysis will also consider investment capital cost, inventory and transportation cost, supplier risk, investment hedging, and currency risks. A rubric will be developed to assess cost and risk analyses for the specific assignment resulting in a grade for each student on a 100 point scale.
- b. Example Assessment: Students will be required to write a research case that will design an engineering and operational management structure for a facility investigating technological, personnel, operational, and safety controls for the facility. The students will also explore differences in design and management issues related to a global operation. A rubric will be developed to assess each aspect of the outcome for the specific assignment resulting in a grade for each student on a 100 point scale.
- c. Example Assessment: Students will be given an assignment to complete a technical project in their option focus area. A rubric will be developed

to assess the project resulting in a grade for each student on a 100 point scale.

d. Example Assessment: Students will be required to conduct a Lean project in the Lego lab at Auburn University. The project can be conducted by use of video and other online technologies. A rubric will be developed to assess the project resulting in a grade for each student on a 100 point scale.

e. Example Assessment: Students will design a solution for a human factors problem. A rubric will be developed to assess the design resulting in a grade for each student on a 100 point scale.

Method 2: An exit survey will be administered to all graduates of the program in the semester they graduate. The survey will ask them to self rate their attainment of all of the outcomes for their option on a five-level Likert type scale and allow them to make comments. This data will be summarized and reviewed at a faculty meeting once per year. The faculty members will decide if changes need to be made in the program based on this data. The attainment goal is an average of at least 4/5 for each outcome.

Method 3: An employer survey will be developed to be completed by the student's supervisor for students who are interning or for students who are working professionals. This survey will ask the supervisor to rate the attainment of all the outcomes on a five-level Likert type scale and allow them to make comments. These data will be summarized and reviewed at a faculty meeting once per year. The faculty members will decide if changes need to be made in the program based on this data. The attainment goal is an average of at least 4/5 for each outcome. In addition, an industry advisory board (IAB) will be established for each option consisting of current or potential employers of this program's students as interns or professional employees. These representatives will be asked to complete the same employer survey to assess attainment of program outcomes. The aggregate survey data will be reviewed once per year by the IAB and faculty who teach in the program. Alumni of this program will also be invited to attend one of the IAB's meetings each year to directly report to the faculty on attainment of outcomes. The IAB and faculty will decide based on this input if changes need to be made to the program.

### **I. Accreditation**

*If there is a recognized (USDE or CHEA) or other specialized accreditation agency for this program, please identify the agency and explain why you do or not plan to seek accreditation. If there is no accrediting or similar body for this degree program state as such in your response.*

All graduate programs at Auburn University are accredited at the institution level by the Southern Association of Colleges and Schools (SACS), including the Master of Industrial and Systems Engineering (MISE) program. We do not intend to seek additional accreditation for this program.

## **J. Instructional Delivery Method**

1. *Describe which instructional delivery methods will be utilized in delivering this program.*

The MEM program will offer both on campus and distance (online) versions of all courses in all program options. The Industrial and Systems Engineering Department is currently offering its Master of Industrial and Systems Engineering degree online. All of the infrastructure and tools are already available in the department and the Graduate School to offer this program in a distance version.

2. *If distance technology is being utilized, indicate an approximate percent of the total program's courses offered that will be provided by distance education \_\_\_\_\_ 100%*
3. *If distance education is not being utilized, please explain why not.*

## **K. Resource Requirements**

1. *Faculty. Do not attach the curriculum vitae of each existing or additional faculty members to this proposal. (The institution must maintain and have current and additional primary and support faculty curriculum vitae available upon ACHE request for as long as the program is active.) Please do provide a brief summary of Faculty and their qualifications specific to the program proposal.*

The Department of Industrial and Systems Engineering has fourteen (14) full-time and four (4) part-time faculty members. All four INSY core courses in the MEM program are currently being taught for the existing degree programs by qualified faculty members. The core BUSI class is also currently being taught by qualified faculty members in the College of Business. All of the remaining courses in the Manufacturing and Occupational Safety and Ergonomics (OSE) Options are currently being taught for the existing degree programs by qualified faculty members. For the Systems Option, one of the new courses (Systems Engineering I) has already been taught in Spring semester 2017 with an enrollment of 31 students, 6 of which were online students. We have qualified faculty members in the department to teach the other new courses in the Systems Option. If Auburn decides to offer the Product Innovation option, faculty resources will have to be shifted or attained.

a) Please provide faculty counts for the proposed program:

Status	Faculty Type	
	Primary	Support
Current- Full Time	14	
Current-Part Time	4	
Additional-Full Time (to be hired)	0*	
Additional-Part Time (to be hired)	0*	

b) Briefly describe the qualifications of new faculty to be hired.

2. Equipment. Will any special equipment be needed specifically for this program? If "Yes", please list: The cost of the new equipment should be included in the table following (Section K.).

Yes  No

3. Facilities. Will any new facilities be required specifically for the program? If "Yes", please list. Only new facilities need be listed. Their cost should be included in the table following (Section K.).

Yes  No

4. Library. Are there sufficient library resources to support the program?

Yes  No

Please provide a brief description of the current status of the library collections supporting the proposed program.

The combined collections of the Auburn University Libraries contain over 3.2 million volumes as well as 2.6 million government documents, 2.5 million microforms, and over 148,000 maps. The Libraries receive over 35,000 current periodicals, many which are available online. The library also provides access to over 227 electronic databases and has over 10 million archival and manuscript items.

If "No", please briefly describe how any deficiencies will be remedied; include the cost in the table following (Section K.).

5. Assistantships/Fellowships. Will you offer any assistantships specifically for this program?

Yes  No

No additional assistantships will be required initially for the Manufacturing, OSE, or Systems Options. If the program grows such that additional class offerings are required or if the Product Innovation Option is offered, program revenue will be used to fund additional teaching assistantships.

If "Yes", how many assistantships will be offered? Be sure to include the amount in the table following.

Number of assistantships offered

Be sure to include the cost of assistantships in the table following (Section K.).

6. Program Budget. The proposal projected that a total of \$  in estimated new funds will be required to support the proposed program.

A projected total of \$  will be available to support the new program.

#### **L. New Academic Degree Program Proposal Summary Form**

*In the following "NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY" table, please provide a realistic estimate of the costs of the program. This should only include the additional costs that will be incurred, not current costs. Indicate the sources and amounts of funds available for the program's support.*

**DO NOT LEAVE ANY PORTION/SOURCES OF THE NEW FUNDS OR FUNDS AVAILABLE BLANK. ENTER "\$0" IF THERE ARE NO NEW FUNDS NEEDED OR NO FUNDS AVAILABLE.**

**THERE MUST BE AN ACTUAL DOLLAR AMOUNT PROVIDED FOR TUITION, SINCE THOSE FIGURES REPRESENT PROJECTED ENROLLED STUDENTS.**

**If it is stated that new funds are requested or if it is a reallocation of resources, please explain directly below from what source(s) the funds for the proposed new program, (e.g. faculty, equipment, etc.) will be attained.**

***If tuition is used to support the program, what start-up revenue source will be used to initiate the program. Also, include enrollment and completer projections.***

**New enrollment headcounts are defined as unduplicated counts across years.**  
*For example, if “Student A” would be initially enrolled in the program in year 2, and again is enrolled in the program in years 4 and 5; “Student A” is only counted in the new enrollment headcount in year 2.*

**Total enrollment headcounts represent the actual number of students enrolled (both part-time and full time each year. This is a duplicated count).**

**NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY**

INSTITUTION Auburn University

PROGRAM Master of Engineering Management Degree

<b>ESTIMATED NEW FUNDS REQUIRED TO SUPPORT PROPOSED PROGRAM</b>						
	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
FACULTY	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
LIBRARY	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
FACILITIES	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
EQUIPMENT	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
STAFF	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
ASSISTANTSHIPS	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
OTHER	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

<b>SOURCES OF FUNDS AVAILABLE FOR PROGRAM SUPPORT</b>						
	Year 1	Year 2	Year3	Year 4	Year 5	TOTAL
INTERNAL REALLOCATIONS	0	0	0	0	0	0
EXTRAMURAL	0	0	0	0	0	0
TUITION*	\$699,975	\$1,424,813	\$2,155,388	\$2,210,850	\$2,266,313	\$8,757,338
<b>TOTAL</b>	<b>\$699,975</b>	<b>\$1,424,813</b>	<b>\$2,155,388</b>	<b>\$2,210,850</b>	<b>\$2,266,313</b>	<b>\$8,757,338</b>

<b>ENROLLMENT PROJECTIONS AND DEGREE COMPLETION PROJECTIONS</b>						
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*Note: "New Enrollment Headcount" is defined as unduplicated counts across years.*

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Average
FULL TIME HEADCOUNT	0	0	0	0	0	0
PART TIME HEADCOUNT	37	75	113	116	119	92
TOTAL HEADCOUNT	37	75	113	116	119	92
NEW ENROLLMENT HEADCOUNT	37	38	38	40	41	39
DEGREE COMPLETION PROJECTIONS	0	0	26	38	38	23

\*Tuition is calculated as \$850 per credit hour and it was estimated that part time students would average 7.5 hours per semester and attend 3 semesters in each academic year.