

**DEPARTMENT OF MECHANICAL ENGINEERING AND MECHANICS
GRADUATE DEGREE PROGRAMS: REQUIREMENTS FOR STUDENTS WHO START
THEIR DEGREES AS OF SPRING 2019**

I. NEW MASTER OF SCIENCE DEGREE (APPLIES TO INCOMING STUDENTS AS OF SPRING 2019)

The program for the Master of Science degree requires a minimum of 30 credit hours, distributed as follows.

Group I: Required Core Course in Engineering Mathematics:		3
<u>ME 452</u>	Mathematical Methods In Engineering I	
Group II: Required Core Courses in Mechanical Engineering (2 courses):		6
<u>ME 413</u>	Numerical Methods in Mechanical Engineering	
<u>ME 423</u>	Heat and Mass Transfer	
<u>ME 430</u>	Advanced Fluid Mechanics	
<u>ME 433</u>	Linear Systems and Control	
<u>ME 453</u>	Mathematical Methods In Engineering II	
<u>MECH 406</u>	Fundamentals of Solid Mechanics	
<u>MECH 425</u>	Analytical Methods in Dynamics and Vibrations	
<u>ME 401</u>	Integrated Product Development	
or <u>ME 402</u>	Advanced Manufacturing Science	
Group III: Three other MEM courses at the 300 and 400 level. (Only once course may be at the 300 level).		9
Group IV: Up to 4 free electives (12 credits) approved by the Graduate Program Coordinator or the Student's Advisor		12

There are four options** for the Master of Science degree:

1. MS-Thesis Option: 6 credits of ME490 (Thesis) must be taken as part of the free electives. If the student wishes to pursue a PhD, course requirements should following the PhD requirements (2 math courses, 3 core courses, 2 depth courses, 1 breadth course).
2. MS-Project Option: 6 credits of ME460 (Project) must be taken as part of the free

electives

3. MS-Applied Engineering Option: 6 credits of course-work in MEM taken as part of the free electives

4. MS-Interdisciplinary Engineering Option: 12 credits of course-work outside MEM to satisfy the free electives

**These options correspond to courses selected from Group IV of the foregoing overview: Up to 4 free electives (12 credits) approved by the Graduate Program Coordinator or the Student's Advisor

Students should ensure that all courses for the Master of Science degree satisfy the distribution requirements of the University for all Masters Degrees.

For students pursuing the Master of Science degree with a thesis, it is necessary to obtain the agreement of a faculty member willing to supervise the thesis research and to submit the Adviser Selection Form. Those pursuing the Master of Science degree with a project should secure the agreement of a faculty member who will supervise the (ME 460) project and submit the Graduate Engineering Project Permission Form. The availability of faculty for research and project supervision depends on the specialty within the area of mechanical engineering and the ongoing advisory commitments of the faculty member during a given semester. Those students who wish to pursue the Master of Science degree with a thesis or project should contact faculty members in their area of interest during their first semester of study.

Plan for Master of Science Degree All students pursuing this degree must complete a Department-level form entitled *Plan for Master of Science Degree* immediately prior to or at the beginning of the first semester of study towards the new Master of Science degree. The student will specify which of the four possible tracks toward the M.S. degree is being pursued and will indicate a preliminary plan of courses to satisfy the degree requirements. The purpose of this form is to ensure that both the student and the advisor are fully aware of the courses required for the selected track of the new Master of Science degree. It should be emphasized that the course plan is viewed as preliminary, and can be modified as the student progresses through the program.

Department Requirement: All students are required to attend a minimum number of MEM seminars.

*Each degree candidate is responsible for ensuring that his/her program is compatible with the degree requirements given in the most recent version of the Lehigh University Catalog and the Graduate Student Handbook of the P. C. Rossin College of Engineering and Applied Science:

http://www.lehigh.edu/engineering/pdf/graduate_student_handbook.pdf

II. UNIVERSITY REQUIREMENTS FOR ALL TYPES OF MASTERS DEGREES

In meeting the requirements for all existing and new Master's degrees in the Department of Mechanical Engineering and Mechanics, the student must satisfy the following common (University) requirements, as outlined in the Graduate Student Handbook.

1) Each candidate for the Master's degree must complete the form "Program for Master's Degree," setting forth the courses proposed to satisfy the degree requirements. This program must have the approval of the chairperson of the student's major department. All courses included that are not offered by the student's major department also must be approved by the chairpersons of the departments concerned. The program of courses must be submitted to and approved by the Graduate and Research Committee. Submission should be as soon as possible after 15 credit hours toward the degree have been completed. Approval of the program by this committee signifies that the student has formally been admitted to candidacy for the degree.

2) The "minimum" program for the Master's degree includes:

- not less than 30 credit hours of graduate work; audit credits may not be used toward the degree; research or thesis registration counts as part of the 400-level coursework requirement
- not less than 24 credit hours of 300- and 400-level coursework of which 18 credit hours must be at the 400-level
- not less than 18 credit hours in the major field; of which 15 credit hours must be at the 400-level

3) The 18 credit hours required in the major field are ordinarily taken in one department with exceptions for those programs that are interdisciplinary. Specific exceptions to this rule are mentioned in the departmental statements at the head of course listings. The remaining twelve hours of a "minimum" program, or any part of them, may also be taken in the major department, or they may be taken in any other field in which courses for graduate credit are offered, as the needs or interests of the student may indicate, subject to the approval of the chairperson of the major department. In all cases, the course work for the Master's degree is taken under at least two instructors.

4) A graduate student may include in his or her program courses numbered 200 or higher outside the major field and courses numbered 300 or higher in the major field. A graduate student registered in 200 or 300 courses may be assigned additional work at the discretion of the instructors. Advisor and/or department approval is required in order to register for a 200-level course.

5) The Master's degree is not granted unless the candidate has earned the grades of "B-" or better in at least eighteen hours of the work on his or her program AND in all 300 courses in the major field. No course in which the grade earned is less than "C-" is credited toward the degree.

6) All work which is to be credited toward a master's degree must be done through or approved by the appropriate academic unit of Lehigh University. A student who receives more than four grades below "B-" in courses numbered 200 or higher becomes ineligible to qualify for the Master's degree or to register for any other 400-level courses.