

University of Virginia
Department of Systems and Information Engineering

MASTER OF ENGINEERING HANDBOOK

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1. PROGRAM DESCRIPTION

MASTER OF ENGINEERING (M.E.) is a graduate professional degree for those wishing to pursue careers in industry, consulting, or government. Our program is designed to provide a blend of fundamental knowledge and professional skills needed by

- practicing systems engineers,
- management engineers,
- entrepreneurial engineers.

It is an intensive, non-thesis, 12-month program built of five components.

- **Core courses** supplying the fundamentals of systems engineering.
- **Elective courses** focusing on techniques of analysis and application of fundamentals to a problem area.
- **Colloquium**, a regular meeting of graduate students and faculty for presenting and discussing contemporary systems problems and research.
- **Supervised project** emphasizing the development of technical and communication skills.
- **Participation** in the intellectual life of the University.

2. DEGREE REQUIREMENTS

A candidate for the Master of Engineering degree must fulfill the general requirements of the School of Engineering and Applied Science and must complete an approved plan of study consisting of at least 32 credit hours.

3. FACULTY ADVISOR

Upon admission to the program, the student is assigned a faculty advisor by the Graduate Programs Director. The student should meet with the advisor to initiate a planning effort.

4. PLAN OF STUDY

4.1 The Nominal Plan

The plan of study must be prepared under the guidance of the faculty advisor by the end of the first semester of study. Then it must be approved by the Graduate Programs Director.

The approved plan of study may be revised if necessary; the new plan must be submitted for approval.

The nominal plan of study is shown in the exhibit. A full-time student, who meets all the prerequisites (calculus, linear algebra, probability and statistics, computer programming) and enters the program in the Fall semester, should be able to fulfill the degree requirements in 12 months.

4.2 The Required Credits

The plan of study must include at least 32 credit hours of graduate-level work and must satisfy the following requirements.

9 credit hours of *core courses* SYS 6001, SYS 6003 or SYS 6043, SYS 6005 or SYS 6045.

18 or more credit hours of *elective courses* distributed thusly:

- At least 9 credit hours of systems engineering courses at the 6000 or 7000 level. [These credit hours cannot be earned through Independent Study SYS 6993 and SYS 7993, Supervised Project Research SYS 6995 and SYS 8995. Students enrolled in the Accelerated Master's Program complete SYS 6002, Systems Integration, in lieu of SYS 8995.
- No more than 3 credit hours of Independent Study SYS 6993 or SYS 7993.
- *No more than 3 credit hours at the 5000 level from the School of Engineering and Applied Science. [The 5000-level courses in the Graduate School of Arts and Sciences are nominally equivalent to 6000-level courses in the School of Engineering and Applied Science.]*

2 or more credit hours of Systems Engineering Colloquium, SYS 7096. The student should register for one credit hour in each semester, the Fall semester and the Spring semester. Students enrolled in the CGEP Master's of Engineering Program take a 2 or 3 credit elective in lieu of SYS 7096, typically SYS 8995.

3 or more credit hours of Supervised Project Research, SYS 8995. The student must complete a project under the guidance of a faculty advisor. It should

be a state-of-the-art application of systems engineering methodology or technique to a real-world problem, documented in a written report. Students enrolled in the Accelerated Master's Program complete SYS 6002, Systems Integration, in lieu of SYS 8995.

**NOMINAL PLAN OF STUDY FOR
MASTER OF ENGINEERING ON GROUNDS STUDENTS**

| <i>Fall Semester</i> | <i>Credit</i> |
|---|----------------------|
| <i>SYS 6001 Introduction to Systems Engineering</i> | 3 |
| <i>SYS 6003 Mathematical Programming</i> | 3 |
| <i>SYS 6005 Stochastic Systems</i> | 3 |
| <i>... Elective</i> | 3 |
| <i>SYS 7096 Systems Engineering Colloquium</i> | <u>1</u> |
| | 13 |
| | |
| <i>Spring Semester</i> | |
| <i>SYS xxxx Systems Engineering Elective</i> | 3 |
| <i>SYS xxxx Systems Engineering Elective</i> | 3 |
| <i>SYS xxxx Systems Engineering Elective</i> | 3 |
| <i>... Elective</i> | 3 |
| <i>SYS 7096 Systems Engineering Colloquium</i> | <u>1</u> |
| | 13 |
| | |
| <i>Summer Session</i> | |
| <i>SYS 8995 Supervised Project Research</i> | 3 |
| <i>... Elective</i> | <u>3</u> |
| | 6 |
| | |
| <i>Minimum total number of credit hours</i> | 32 |

4.3 Special Circumstances

***Prerequisites.** The student who does not have the prerequisites (calculus, linear algebra, probability and statistics, computer programming) should take articulation courses. These courses cannot be used to satisfy the degree requirements.*

***Equivalent Courses.** The student who, prior to enrolling in our graduate program, has already taken a course equivalent to a core course, may petition the Graduate Programs Director for the substitution of the core course by an elective course.*

***Transfer Credit.** Up to 12 credit hours of graduate courses may be transferred. Only courses with a grade of B or better which have not been applied towards another degree may be transferred. The request for credit transfer must include the following documents: a description of course content and level, an official transcript, and a statement by the student certifying that the course has not been used to satisfy requirements for another degree. If the student is already admitted into a program at the University of Virginia, then the request for credit transfer must be pre-approved before the course is taken.*

5. APPLICATION FOR THE DEGREE

An application for the degree must be submitted in two forms (paper and electronic) by the date specified in the academic calendar. This is usually October 1 for January graduation, February 1 for May graduation, and June 1 for August graduation.

The student must be registered during the semester in which the application for the degree is submitted.

6. ADMINISTRATIVE FORMS

All forms that must be completed in the course of study may be obtained in Olsson Hall 114, or may be found at

<http://web.sys.virginia.edu/graduate/forms-and-documentation.html>

(departmental forms)

<http://www.seas.virginia.edu/advising/allforms.php>

(school forms)

All administrative requirements that must be met before graduation in the School of Engineering and Applied Science may be found at

http://www.seas.virginia.edu/advising/graduation_procedure_ME.php

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