



VII School of Engineering

FOREWORD

The general objective of the School of Engineering is identical with the purpose of the University of Dayton in meeting its objective of serving the community and fulfilling its motto, *Pro Deo et Patria*. The specific purpose of the graduate program in engineering is to provide the best possible education for men and women at the graduate level for enriched careers in engineering. This purpose is achieved by developing those special capacities and capabilities of the student which enable him to become a thoroughly competent professional in his chosen field.

The programs leading to the several Master's degrees in the Engineering areas, are designed to meet the professional needs of the engineer. They are also a preparatory step toward a Ph.D. degree.

TYPES OF ADMISSION

A. REGULAR—Regular admission is granted to applicants who satisfy the requirements for admission to a degree program of the Graduate School of Engineering. Applicants in this category must be holders of a bachelor's degree from an institution having curricula accredited by the Engineer's Council for Professional Development and must have demonstrated superior academic performance in their respective major fields.

Regular admission to the Program in Engineering Management is open to individuals holding engineering or other bachelor's degrees. The candidate for graduate work in Engineering Management must be well-trained in mathematics and statistics and understand the use of computers.

B. CONDITIONAL—Conditional admission is granted to applicants who do not qualify for regular admission but show promise of being able to complete the requirements for the graduate degree. Conditional admission may be granted to qualified applicants:

1. Holding a bachelor's degree in engineering from an institution not having curricula accredited by ECPD.
Holding a bachelor's degree in a field other than engineering, whose academic performance indicates an ability to do satisfactory graduate work.
2. The candidate for graduate work in Engineering Management whose background does not include at least three terms of analytic geometry and calculus, two terms of statistics and competence in a computer language may be required to complete certain prerequisite courses before he is admitted to the program. These courses must be completed with a minimum grade of "B". Students requiring in excess of 9 credit hours of prerequisites will be considered as unclassified.
3. Whose preparation cannot be determined adequately and for whom any part of their qualifying education was obtained more than seven years before the proposed date of initiation of studies in the graduate program.
4. In their final term of work toward their bachelor's degree pending the filing of supplementary transcripts and evidence of the awarding of the degree.
5. Undergraduates at the University of Dayton who are within six credit hours of graduation may be permitted to register for graduate credit. Permission of the department is required. The combined elections in both the undergraduate and graduate courses for one term may not exceed 12 hours and only students who have excellent records should seek such approval.

Applicants in categories 1 to 3 inclusive may be required to complete additional qualifying work beyond the normal degree requirements. Applicants in these categories will be permitted to complete 12 credit hours of graduate work at the end of which a cumulative graduate grade point average of B or 3.00 must have been maintained. Otherwise, dismissal from the graduate program may result.

Students in the Engineering Management Program will be permitted to complete 15 hours of graduate work before a decision is made regarding their status.

Applicants in categories 4 and 5 will be subject to re-evaluation and reclassification upon completion of the Bachelor's degree.

C. UNCLASSIFIED—Graduate Record Examination results should be included in the supporting data for admission if available.

See General Academic Information regarding Unclassified Status.

THE MASTER'S PROGRAM

The Director of Engineering Graduate Programs will assign each student admitted to graduate study to the department representing the student's major interest. After consultation with the student, arrangements will be made to assign a member of the department to be the student's permanent advisor. The advisor will guide the student in the development of a Program of Study deemed best for his particular interest and objectives. The Program of Study, approved by the advisor and the department head, must be filed with and approved by the Director of Engineering Graduate Programs. A graduate student may not change from one advisor to another without permission from the Director. A written request must be filed with the Director.

It is the student's responsibility to meet with the department head as soon as possible after acceptance into a graduate program thru formal notification by the Office for Graduate Studies. Conditional attendance for one term is permissible until the Program of Study has been filed. Amendments to the original Program of Study are permissible with the approval of the advisor and department head, and must be filed with the Director of Engineering Graduate Programs.

All Programs and Amendments must be prepared in quintuplicate. A copy will be returned to the student, advisor, and department head. A copy will be retained by the Director's office and the Office for Graduate Studies.

GENERAL DEGREE REQUIREMENTS

A student admitted for a master's program in engineering must have met the requirements for the bachelor's degree.

He must successfully complete the minimum number of hours of graduate work which are approved by his advisor and which are required in the program for which he is registered. He must obtain a cumulative average of B, 3.00, or better. At the discretion of the advisor an oral or written examination may be required to confirm the student's ability to complete the program satisfactorily.

Satisfactory completion of a thesis or an engineering project represents an important part of the degree requirements and the indicated credit becomes a part of the cumulative average.

THESIS EXAMINATION

A satisfactory final oral thesis examination is a requirement for the completion of certain programs. Where specified such examination will be conducted by the departmental advisory committee under the supervision of the advisor as chair-

man. An application form for the examination should be obtained from the Office of the Director of Engineering Graduate Programs, filled out, signed by the advisor, and filed with the Office of the Director at least two weeks prior to the date of the oral examination. The final oral thesis examination record, showing satisfactory completion, shall be filed with the Office of the Director at least 10 days prior to the date of graduation.

THESIS

Joint authorship is not permissible. Students following a program which requires a thesis examination, must have copies of completed theses in the hands of the advisory committee for approval two weeks prior to the date for the final oral thesis examination. After the final oral examination, three completed and approved typewritten copies (one original) shall be deposited with the library. These copies must be deposited at least one week prior to commencement. The University of Dayton Thesis Manual, prepared by the Engineering Graduate School, shall be used as a guide in preparing the thesis. If thesis research is conducted at the candidate's place of employment, confidential aspects of research projects will be observed. When requested, arrangements will be made to delay public disclosure of the thesis or its subject matter for any reasonable time to permit filing of patents or taking any other measure to protect the rights of the employer to the findings of the research program.

THE MASTER OF SCIENCE IN ENGINEERING PROGRAM

The Program of Study must include a minimum of 30 credit hours consisting of the following:

1. 6 credit hours in Basic Sciences;
2. 12 credit hours in Engineering Sciences;
3. 3 credit hours in Philosophy;
4. 3 credit hours in Thesis Supporting Courses approved by the student's advisor;
- *5. 6 credit hours on an approved thesis project.

*Students who have completed registration in all courses including thesis, but have not completed the thesis, must request approval for continuance in the graduate program by means of a Graduate Student Approval form each term until graduation. A regular grade will be assigned upon satisfactory completion of the thesis and will be included in the final cumulative grade point average. Prior to completion, cumulative averages will be calculated only on the basis of course performance, and a grade of "P" will be given for the thesis.

Courses:

1. Basic Sciences
6 credit hours are to be selected from the general basic science group taught by the Mathematics and Science Departments, and approved by the advisor.
2. Engineering Sciences
12 credit hours of engineering subjects approved by the advisor.
3. Philosophy
Three credit hour course approved by the advisor.
- *4. Thesis Supporting course
Three credit hours approved by the student's advisor.
- *5. Thesis
6 credit hours on an approved investigational project.

Examinations:

A final examination at the completion of the thesis is required.

THE MASTER OF SCIENCE IN ENGINEERING MANAGEMENT PROGRAM

The Program of Study leading to the degree of Master of Science in Engineering Management is inter-disciplinary and is offered by the School of Engineering with the cooperative participation of the School of Business Administration and the College of Arts and Sciences. It must include a minimum of 36 credit hours consisting of the following:

1. 18 credit hours in Industrial Engineering;
2. 9 credit hours in Business Administration;
3. 9 credit hours in electives.

Courses:

1. Industrial Engineering
18 credit hours to be selected from the graduate level Industrial Engineering courses. The student will be required to choose twelve credit hours from either Option A, Systems Engineering or Option B, Operations Research.

Option A—12 credit hours to be selected from the following courses:

INE 501

INE 517

*Thesis supporting courses and direction of thesis may be under the direction of the Chemical, Civil, Electrical, Industrial and Mechanical Engineering Departments.

INE 502	INE 518
INE 503	INE 524
INE 504	INE 541
INE 506	INE 542
INE 507	INE 543
INE 508	INE 590
INE 516	INE 598
	*INE 599

Option B—12 credit hours to be selected from the following courses:

INE 501	INE 524
INE 502	INE 525
INE 503	INE 528
INE 504	INE 530
INE 508	INE 531
INE 515	INE 544
INE 516	INE 590
INE 518	INE 598
INE 521	*INE 599
INE 522	

2. Business Administration

Six credit hours, two courses, to be selected from the following list:

MBA 520	MBA 560
MBA 530	MBA 540
MBA 550	

Three credit hours, one course, to be selected from the following list:

MBA 581
MBA 582
MBA 583

3. Electives

Nine credit hours of electives from graduate courses approved by the advisor and selected from Business Administration, Engineering, Science and Mathematics.

EXAMINATIONS:

A final examination at the completion of the thesis is required.

*If a student so elects, a thesis may be substituted for six credit hours of course work.
See first footnote on page 78, under Master of Science in Engineering Program.

THE MASTER OF SCIENCE IN CHEMICAL ENGINEERING PROGRAM

The Program of Study must include a minimum of 30 credit hours consisting of the following:

1. 3-6 credit hours in Basic Sciences;
2. 15 credit hours in Chemical Engineering;
3. 3-6 credit hours of electives;
4. 6 credit hours on an approved thesis project. See footnote on page 78, under Master of Science in Engineering Program.

Courses:

1. Basic Sciences
3-6 credit hours to be selected from the basic sciences taught by the Mathematics and Science Departments.
2. Chemical Engineering
15 credit hours to be selected from the graduate level Chemical Engineering courses. CME 507, CME 521, and CME 581 must be included in the 15 credit hour requirement.
3. Electives
3-6 credit hours of electives as approved by the advisor and department chairman.
4. Thesis
CME 599 6 credit hours on an approved thesis project.

EXAMINATIONS:

A final examination at the completion of the thesis is required.

THE MASTER OF SCIENCE IN CIVIL ENGINEERING PROGRAM

The Program of Study must include a minimum of 30 credit hours consisting of the following:

1. 3-6 credit hours in Basic Sciences;
2. 18-21 credit hours in Civil Engineering, Engineering Science, or thesis related subjects;
3. 6 credit hours on an approved thesis project. See first footnote on page 78, under Master of Science in Engineering Program.

Courses:

1. Basic Sciences
3-6 credit hours are to be selected from the general basic science group taught by the Mathematics and Science Departments.
2. Civil Engineering, Engineering Science, or Thesis Supporting Courses
18-21 hours to be selected from the following courses:
Civil Engineering graduate level courses.
Engineering Sciences
Egr 501, Egr 502, Egr 503, Egr 504, Egr 505, Egr 506.
Thesis Supporting Courses
Thesis Supporting Courses approved by the student's advisor.
3. Thesis
Cie 599 6 credit hours on an approved thesis project.

Examinations:

A final examination at the completion of the thesis is required.

**THE MASTER OF SCIENCE IN ELECTRICAL
ENGINEERING PROGRAM**

The program of study must include a minimum of 30 credits hours consisting of the following:

1. 6 credit hours in Basic and Engineering Sciences;
2. 12 credit hours in Electrical Engineering;
3. 6 credit hours in Thesis Supporting Courses approved by the student's advisor;
4. 6 credit hours on an approved thesis project. See first footnote on page 78, under Master of Science in Engineering Program.

Courses:

1. Basic and Engineering Sciences
6 credit hours are to be selected from either the general basic science group taught by the Mathematics and Science Departments, or from the Engineering Sciences group listed in the Master of Science in Engineering Program. It is permissible to combine three credit hours from each program. Selected courses must meet with the approval of advisor.
2. Electrical Engineering
12 credit hours to be selected from the graduate level Electrical Engineering courses.

3. Thesis Supporting Courses

6 credit hours in Thesis Supporting Courses approved by the student's advisor.

4. Thesis

Ele 599 6 credit hours on an approved Thesis Project.

Examinations:

A final examination at the completion of the thesis is required.

THE MASTER OF MECHANICAL ENGINEERING PROGRAM

The Program of Study leading to the degree of Master of Mechanical Engineering with major areas of study in Thermal Engineering, Fluid Mechanics and Mechanical Design must include a minimum of 30 credit hours consisting of the following:

1. 15 credit hours in Mechanical Engineering;
2. 6 credit hours in Mechanical Engineering Project;
3. 9 credit hours of electives.

Courses:

1. Mechanical Engineering

15 credit hours to be selected from the following courses:

Material Science — MEE 501, MEE 502.

Thermal Engineering — MEE 511, MEE 512, MEE 513, MEE 514, MEE 515, MEE 516, MEE 517.

Fluid Mechanics — MEE 521, MEE 522, MEE 523, MEE 524, MEE 525.

Mechanical Design — MEE 531, MEE 533, MEE 534, MEE 535, MEE 536, MEE 537, MEE 538.

2. Mechanical Engineering Project

Mee 550 Mechanical Engineering Project one to six credit hours
With the approval of the Chairman, the project may be replaced by 6 credit hours of course work when the student can provide evidence of previous engineering research of acceptable quality.

3. Electives

Electives from other Engineering Departments and from Science may be taken with the approval of the Faculty Advisor and the Department Chairman.

Examinations:

A final examination at the completion of the project is required.

SUMMARY

The School of Engineering at the present time offers graduate programs of study leading to the degrees of Master of Science in Engineering, Master of Science in Engineering Management, Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering and Master of Mechanical Engineering.

The requirements for the degree are the following:

1. Earn a minimum cumulative grade point average of 3.00 and successfully complete all courses on an approved Program of Study.
2. Submit an acceptable thesis or engineering project when specified.
3. Satisfactorily pass an oral thesis or project examination.

In fulfilling the requirements for the degrees, certain specified conditions prevail and should be noted carefully by the student. These are the following:

1. Transfer Credits

All Master of Science in Engineering Programs will permit transfer credit for two courses completed at other recognized institutions, providing a grade of "B" or better has been achieved. All transfer credits must have the approval of the advisor.

2. Course Load

Any person who is not a full-time student may register for more than six credit hours per term only with the permission of the Director of Engineering Graduate Programs.

3. Use of Advanced Undergraduate Courses

Certain undergraduate level courses may be used if approved by the student's advisor. See Page 16.

RESEARCH FACILITIES

The facilities for research at the University of Dayton are administered by the academic departments and the University of Dayton Research Institute.

FINANCIAL AID

Assistantships and industrial fellowships are available at the University of Dayton for the encouragement of graduate work and the promotion of research. They are administered by the academic departments. Detailed information for making application may be secured from the office of the Director of Engineering Graduate Programs.

