

Department of Civil and Environmental Engineering

Lehigh University

Summary of Rules and Regulations



**Master's Program
For
Environmental Degree**

August 2007

SUMMARY OF RULES AND REGULATIONS FOR MASTER'S PROGRAM ENVIRONMENTAL ENGINEERING

Students should consult the Lehigh Catalog and the College Graduate Student Handbook for more detailed information on university requirements, or the department for departmental requirements.

1. College Admission Rules

In order to be considered for admission as a regular graduate student, an applicant must satisfy at least one of the following conditions:

- 1) have an undergraduate grade point average (GPA) of at least 2.75 out of 4.0;
- 2) have a GPA of at least 3.00 for the last two semesters of undergraduate study
- 3) have scores at or above the 75th percentile on the GRE or other recognized exam
- 4) have a graduate GPA of at least 3.00 on a minimum of twelve hours of graduate work at other institutions
- 5) have successfully completed the probationary conditions as an associate graduate student

Satisfying one of these five conditions is necessary but not sufficient for admission as a regular graduate student.

If a department wishes to offer admission to a student who fails to meet any of the above five requirements, the department is required to submit its recommendation to the Associate Dean's Office with an explanation. Cases that cannot be resolved by the Chairperson or program director and the Associate Dean will be referred to the Graduate Research Committee for a decision.

2. Department Requirements Admission: Environmental Engineering Fundamentals:

Students without an environmental, civil, or chemical engineering background must demonstrate the following minimal proficiency:

- a) The completion of courses equivalent to the Lehigh courses indicated below, with grades of B- or better in three (for Regular Admission) or two (for Associate Admission) of the following six courses:

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| 1) Thermodynamics | ChE 210 or equivalent |
| 2) Fluid Mechanics | CEE 121, ChE 44 or ME 231 |
| 3) Soil Mechanics | CEE 142 |
| 4) Biological Sciences | CEE 279, CEE 376, EES 31, EES 351, BioE 110 or BioS 324 |
| 5) Environmental Engineering | CEE 170 or CEE 276 |
| 6) Chemistry/Chemical Engineering | Chm 51, Chm 31 or CEE 274 |

- b) Competency in environmental engineering at the senior-elective (200-300) level.

3. Course Requirements for Graduation

- a) Minimum of 30 semester credits, at least 18 in the major field.
- b) Minimum of 24 credits in courses numbered 300 or higher.
- c) Minimum of 18 credits in courses numbered 400 or higher, at least 15 in the major field.
- d) All courses in the graduate degree program must have 200 or higher numbers.
- e) All Department of Civil & Environmental Engineering (CEE) courses in the program must be numbered 300 or higher.
- f) A degree program, listing all courses to be completed for the master's degree, must be signed by the CEE Associate Chair and submitted to the Associate Dean's Office for approval by the University Graduate and Research Committee. Submission should be as soon as possible after the completion of 15 credits towards the degree.

4. Core Course Requirements for Graduation

- a) **General requirement:** All master's degree programs are expected to include a course to expand their background in advanced mathematics and computer application. Suggested courses are CEE 405 (when offered), ChE364, ChE464, ME 413, ME442, ME443, or IE328. Depending on the student's background, additional mathematics courses may be required by the student's Academic Advisor.
- b) **Major Area Requirements:** CEE 381-74; CEE 470; CEE 476; and select at least two additional courses from CEE 400-level courses in environmental engineering
- c) **Exemptions:** Exemptions from core course requirements listed above are granted based on either examination or concurrent recommendation by the student's academic advisor and the course instructor.

5. Thesis/Project Options

The normal effort of the thesis and project courses CEE 491, 481, or 480 is 3 credits. The student should not mix credits of these three courses. It is expected that a student's effort for these credits will be somewhat more than that for a regular 3 credit course which requires approximately 130-160 hours. More than three credits may be proportionally assigned for more extensive work in the judgement of the supervisor. The four options available for masters students are:

a) **Master of Science - Thesis Option (CEE 491)**

This is a research-oriented option, expected of all research assistants, and may also be selected by other graduate students. The thesis should reflect a study of an Environmental Engineering problem with no existing solution and be technically suitable for publication in a refereed technical journal. The writing should conform to the specifications of the graduate school. A copy should be filed in the Fritz Library.

b) Master of Science - Project Option (CEE 481)

The project is a more flexible option than a thesis, and may be research, analytical, or design oriented. The project should involve a significant effort of independent work, including literature search, engineering analysis, synthesis of information, and engineering judgement. The project report should be of a quality and style suitable for publication in a refereed technical journal, or in a professional magazine or presentation at a technical conference.

c) Master of Engineering - Design Option (CEE 480)

This is a design-oriented option. The design project can be by an individual or by a group, and must include some unique feature. A routine application of design specifications in the project is not sufficient. The design project should be sufficiently comprehensive to involve consideration of technical, economical, social and environmental issues. The final report of a group project should be organized in such a way that the contribution of each participant can be identified.

d) Master of Engineering Courses only option

A program of 30 credits with no thesis, project or design course is allowed.

6. a. College Performance Requirements:

- i) All work that is to be credited toward a Master's degree must be done in actual and regular attendance at Lehigh University.
- ii) 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.
- iii) No course in which the grade earned is less than "C" is credited toward the degree.
- iv) 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.

b. Departmental Performance Requirements:

- i) No grade below "C" for CEE 300 level courses is acceptable for degree.
- ii) More than four grades (regardless of number of credits) below "B-" will terminate the student's eligibility for continued graduate work at Lehigh (supercedes items 6.a.ii and 6.a.iv above).

7. Presentation Requirements

All master's degree candidates are required to make a presentation of their work at a CEE/FERS seminar before receiving the degree. The presentation is to be made during the last semester before graduation. The schedule of seminars will be arranged by the FERS seminar chairperson, who will handle the physical arrangement of each presentation in consultation with the CEE Seminar Committee chairperson. Wednesdays starting at 4:10 p.m. is usually a convenient time if a CEE faculty meeting is not scheduled, but other times will be considered.

M.S. candidates: Presentation will be on the intended thesis (CEE 491), special problems (CEE 481) or independent research work (CEE 429, CEE 439, CEE 449, CEE 469, or CEE 479).

M.Eng. Design Option: Presentation will be on the design project (CEE 480).

M.Eng. Courses only Option: Students who choose not to undertake an individual study course, the presentation may be on any engineering or professional topic related to the student's specialty area in consultation with the academic advisor.

Each master's degree candidate must attend 60% of given CEE/FERS seminars in the specialty area during their program of study. No academic credit is given for the attendance, but failure to attend sufficient number of seminars is considered as not fulfilling a Departmental requirement for the master's degree. This process will allow the student the opportunity to learn the professional experience of other students, new knowledge of engineering practice, as well as exchanging of ideas.

8. Time Frame and Procedure

1. Satisfy the core courses requirements as early as possible.
2. Plan your degree program by the second semester and file a **Master's Degree Program Form** with the departmental office after completing 15 credits.
3. Select a Thesis or Project topic and supervisor as soon as possible.
4. Students taking CEE 491 must deliver approved thesis to the Associate Dean's Office at least 3 weeks before the degree is conferred.
5. A resident student is expected to complete the master's degree within 2 years. The University's maximum time limit for any Master's degree student is 6 years.

9. Registration is required in the semester of conferring the degree. Application for degree:

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| a) | To graduate on University Day - | March 1 |
| b) | To graduate in January - | November 1 |