

## **GUIDELINES FOR M.S.E. DEGREE IN CIVIL ENGINEERING: CONCENTRATION IN HYDRAULIC AND HYDROLOGIC ENGINEERING**

### Introduction

Well-maintained and properly allocated water resources are indispensable to economic vitality and community health. Civil and environmental engineering includes managing natural water systems and building water infrastructure. Increasingly sophisticated process-based hydrologic models now enable detailed accounting of water budgets in watershed systems, providing a powerful tool for understanding how large-scale climate and weather events impact water resource availability at scales relevant to human actions and ecosystem services. Computational and experimental research identify how to exercise adaptive control of flow and mass transport to mitigate natural and man-made water hazards such as storm surge and wave impacts, overflows of stormwater conduits, and wastewater discharges from outfall structures, and how to design hydraulic and coastal structures, and hydropower systems, for a changing climate and the energy transition.

### General

An applicant for the M.S.E. degree should present the equivalent of an undergraduate Civil or Environmental Engineering program as preparation. More specifically, it is expected that applicants will have successfully completed the following courses (or equivalents) in their undergraduate preparation:

- CEE 421
- CEE 212
- CEE 345

If an admitted applicant has not completed these courses, then some additional undergraduate coursework may be required to be completed (without credit) to complete the M.S.E. degree in Civil Engineering with a concentration in Hydraulic and Hydrologic Engineering. In such situations, the specific additional courses to be completed will be determined by the Masters Advisor.

### Coursework

A student pursuing an M.S.E. degree in Civil Engineering with a concentration in Hydraulic and Hydrologic Engineering must complete at least 30 credit hours of acceptable graduate work. A thesis is not required for the M.S.E. degree. In satisfying the credit hour requirement, the following requirements must be satisfied:

- At least 15 hours in Civil and Environmental Engineering courses. A student should expect to take at least eight hours in the area of specialization but will not be permitted to apply more than 21 hours in one area of specialization toward the graduate requirement.
- No more than 12 credit hours at the 400 level listed in the bulletin of the Rackham School of Graduate Studies are acceptable. Of these 12 hours, a maximum of 9 hours can be in CEE courses.
- SUGS students with undergraduate specialization in any area of CEE may pursue an M.S.E. degree in Civil Engineering with a concentration in Hydraulic and Hydrologic Engineering. SUGS students are permitted to double count up to 6 credit hours.
- A maximum of 6 graduate level semester hours (with a grade of B or better) can be transferred from other institutions approved by Rackham.

### Grades

The grading system used for graduate studies is based on the following 9-point scale:

A+ = 4.3; A = 4.0; A- = 3.7; B+ = 3.3; B = 3; B- = 2.7; C+ = 2.3; C = 2; C- = 1.7

A minimum cumulative graduate grade point average (GPA) of 3 on this 4.0-point scale is required for all graduate courses taken for credit and applied toward the Master's Degree.

### Diploma

To be considered for a master's degree diploma, a student must submit a formal application to the Office of Graduate Academic Records of the Graduate School. The deadline for the Graduate School to receive the degree application form is four weeks after the first day of classes in a full term and one week after the first day of classes in a half term. These dates can usually be found on the Rackham Graduate School web site (<http://www.rackham.umich.edu/>).

Additional Information:

For additional information on M.S.E. degree requirements, see the *Graduate Student Handbook* (prepared by the Horace H. Rackham School of Graduate Studies) and the CEE Department Guidelines. The *Graduate Student Handbook* is available on the World Wide Web at <http://www.rackham.umich.edu/>.

## Concentration in Hydraulic and Hydrologic Engineering: WORKSHEET

Student Name: \_\_\_\_\_ Faculty Advisor: \_\_\_\_\_

### STEP 1: Courses in the Hydraulic and Hydrologic Engineering area (8 credits min, 21 max):

Hydraulic and Hydrologic Engineering Course	Term Taken	CEE Credits	Non-CEE Credits*
TOTAL			

### STEP 2: Other Courses:

Course	400-Level (Yes/No)	Term Taken	CEE Credits	Non-CEE Credits*
TOTAL				

### STEP 3: Program Requirements:

Check to ensure all other program requirements have been met.

Requirement	Credits	Limit
Total Number of Credits Taken		$\geq 30$
Number of CEE Credits Taken		$\geq 15$
Total Number of 400-Level Credits		$\leq 12$
Total Number of 400-Level Credits in CEE		$\leq 9$

Advisor signature \_\_\_\_\_ Date: \_\_\_\_\_