

# Procedures for the PhD Preliminary Exam in CEE-NGTS

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The purpose of this document is to outline the standard operating procedure for the Civil and Environmental (CEE) PhD Preliminary Exam for students specializing in Next Generation Transportation Systems (NGTS). The information in this document is intended to supplement the current version of the CEE PhD Guidelines defined in the document titled REQUIREMENTS AND PROCEDURES, Doctor of Philosophy in Engineering, Department of Civil and Environmental Engineering, which is available at <http://www.cee.umich.edu/phdinfo>. Currently, the following NGTS faculty can be the chair/advisor of a student's committee and serve on a Preliminary Exam committee:

- Professor Henry Liu, [henryliu@umich.edu](mailto:henryliu@umich.edu)
- Professor Neda Masoud, [nmasoud@umich.edu](mailto:nmasoud@umich.edu)
- Professor Atiyva Shaw, [atiyva@umich.edu](mailto:atiyva@umich.edu)
- Professor Yafeng Yin, [yafeng@umich.edu](mailto:yafeng@umich.edu)

The NGTS Preliminary Exam Coordinator (PEC) is Professor Neda Masoud. The PEC will serve as the liaison between NGTS and the CEE Graduate Chair in all matters related to the administration of the CEE-NGTS Preliminary examination. This includes communicating the details of all scheduled exams in each cycle as well as informing the Graduate Chair of the outcomes of all conducted examinations.

## Administration and Scheduling

### *Exam Administration and Schedule*

The research advisor of a student planning to take the Preliminary Exam is considered to be the Chair of the student's exam committee (hereinafter "Chair"). Each PhD student in consultation with his or her Chair should determine the appropriate semester to take the Preliminary Exam. All PhD students in CEE must take the Preliminary Exam during the timeline established in the CEE PhD Guidelines for that semester (i.e., January and May). The exam will be administered the same way irrespective of how long a student has been enrolled at the University.

All students should submit a CV, a brief research summary, and UM transcripts to the Chair and the Chair is required to send a memo to the PEC specifying the date of the exam, and requesting authorization to hold the exam. This memo should be sent no later than November 30 of the prior semester for the January exam and March 31 for the May exam. The PEC will compile all such requests and forward them to the Chair of the Graduate Committee no later than one week before the time of the exam.

Each student's Preliminary Exam committee will consist of 4 members, including as a minimum 3 NGTS faculty members identified above. The Chair and student should work together to identify the 4 committee members. Committee assignments should be specified in the memo from the Chair to the PEC.

After the exam is completed, the Chair is responsible for notifying their advisee of the exam outcome. This should be done in the form of an official letter or memorandum, sent to the student via email and cc'd to PEC and the student's Preliminary Exam committee. The PEC will then communicate all Preliminary Exam results to the Chair of the Graduate Committee. All memos sent to the Graduate Committee Chair should be cc'd to the Graduate Programs Coordinator.

### ***Ad-hoc Exams***

Students in the NGTS area are expected to take their exam at the standard January or May time, and should begin planning for their exam upon arrival at the University of Michigan in consultation with their Chair. However, if extenuating circumstances require a student to take the exam at a different time of the year, an ad-hoc exam can be administered on a case-by-case basis.

A student wishing to plan an ad-hoc Preliminary Exam must petition to do so. Petitions must have the support of the Chair. The petition will be voted on by the NGTS faculty. If approved, the ad-hoc exam will be planned following same procedure described above (including committee assembly, scheduling, and notifications to the Graduate Committee Chair) by the Chair.

### **Format**

The CEE NGTS Preliminary exam is composed of a written and an oral exam.

#### ***Written Exam***

Four committee members will provide the Chair (i.e., the advisor) with their own written questions a week before the written exam. The Chair will assemble these 4 sets of questions and send them to a student at 9AM of the first day of the written exam. The student should provide the Chair with his/her answers by 9AM of the fifth day. Thus, the student will have 4 full consecutive days to answer these questions.

The questions are at the discretion of each committee member, and can be course-related and/or research-related. The intent is to evaluate if the student is ready to conduct rigorous scientific research that builds upon and extends her/his classroom learning and preliminary research/industry experience.

The student is not allowed to discuss any aspect of the exam with anyone except the Chair and the committee members. All the questions should be completed by each student working independently. Violation of this policy will result in immediate failing grade in the exam. The student is allowed to use any material to answer these questions, unless explicit prohibition for a set of questions is given by the corresponding committee member. The exam location will be at the discretion of the committee. The student will be notified of the exam location at least 24 hours prior to the exam. If no exam location is specified, then the student is free to take the exam at any location (e.g., office, home, and library).

#### ***Oral Exam***

Following the written exam, an oral exam will be administered. It will typically be 2 hours long and will be conducted on the next day or the week following the written exam. The committee will review the student's answers and ask follow-up questions. All committee members can participate in all 4 sets of

questions regardless of the origin of the questions. It is not necessarily the case that the time for 4 sets of questions will be divided evenly. It is also not necessarily the case that the student must provide a complete solution to all parts of all the questions, in order to pass the exam. Additionally, on each set of questions, the committee can ask impromptu questions to the student, which were not on the written questions provided to the student, but involve related concepts. The student's answers to such questions are considered as part of the exam, and will be taken into account when determining the outcome of the exam.

### *Decision*

Immediately after all the January and May exams are administered, the respective examination committees members will deliberate to determine the outcome of each exam. Students will be notified of the decisions regarding the exams within 48 hours after the end of the oral exam. This notification will be in the form of an official letter from the Chair, which states the outcome and provides feedback from the committee. The PEC will aggregate all such information and inform the CEE Graduate Chair of all the exam results via an email memorandum.