

The PhD Qualifying Exam (QE) for the Department of Nuclear Engineering, NC State University

The new exam has two components:

- 1) Proficiency in course-work “NE courses”
- 2) Competency and aptitude in research “NE research”

Part 1: NE Course-Work:

PART 1: Proficiency in course-work “NE courses”

To satisfy the proficiency requirement in the QE examination “Part 1: Proficiency in NE course-work”, PhD students have to select 4 courses from the list of named graduate classes (which includes all permanently named 5xx and 7xx level classes) and declare them as selected core classes within the first semester of enrollment in the program. The three courses with the highest grades from the selected 4 courses will be used to calculate an average GPA. A minimum average 3.5 GPA or higher with no course grade less than (B-) in these 3 courses is required to advance to the written/oral examination “Part 2: Competency and aptitude in NE research”.

MS, MNE, ABM (Accelerated Bachelor's/Master's Program) and PBS students who plan to continue for the PhD program must also declare their selection of the classes from this list within the first 2 months of enrollment in the program to count graduate classes taken during their MS, MNE, ABM or PBS. Declaring at a later time will not permit including previously completed classes in the selected four courses; it will follow the procedure described in the first paragraph upon enrollment in the PhD program.

Part 2: NE Research:

PART 2: Competency and aptitude in research “NE research”

The student completes a written report and provides an oral presentation within 8 weeks from the date of assignment (The requirements are given in Appendix 1). The student's adviser initiates Part 2 assignment [examples: journal article(s) or conference paper (s) or a selected research topic] and the formation of the Q-Committee of 3 members in consultation with the DGP. The student's adviser attends the presentation and participates in the comments and evaluation; the adviser is the chair of the committee but doesn't vote. The adviser will NOT be present when the committee is ready for their final deliberation and vote. The DGP will serve as the interim adviser in the rare case that the student's adviser is not available to serve in this capacity.

For clarification, and as written and published, the rule for the Part II Q exam is that the adviser initiates Part 2 assignment, formulates the committee and then leave the student to prepare for the exam within 8 weeks, i.e. no communication between the adviser and the students regarding the exam during the period in which the student is preparing for presentation and written report, then the adviser chairs the exam committee on the day of the exam. What this means is that the students don't get any help from the adviser or consultation after receiving the assignment. Appendix 1 item 7 provides clarification on the adviser's role during the student's preparation period.

The committee will recommend a PASS / FAIL / CONDITIONAL PASS upon the completion of the report and the oral presentation (Appendix 2).

In case of CONDITIONAL PASS, the committee will guide the student towards the additional required work to be completed within FOUR weeks and re-present his/her work, after which either the student passes or fails. There is no second chance in the research competency.

Transitional Students:

Students who took last year's (2015) PhD Qualifying Exam and didn't pass and students, who declared themselves as PhD student but haven't yet taken the qualifier exam since they were not aware of the changed exam, all will have their courses evaluated according to the new course proficiency criterion as described in the new exam. If among courses completed by the end of the Spring 2016 semester there is a set of 3 permanently numbered graduate-level courses in which their grades meet the passing criteria specified above then they will be admitted to Part 2 (Competency and aptitude in research "NE research"); if such set of three courses is not found in their record, then they can complete at most 2 additional classes to be allowed to take Part 2 of the exam if as a result of completing the additional class(es) they attain a set of three courses with corresponding grades that satisfy the passing requirement for Part 1 of the PhD Qualifying Exam.

Appendix 1

Requirements for Part 2 of QE

1. The objective of Part 2 of QE is to ensure that the student has the ability for and meets the requirements to perform research at the Ph.D. level in nuclear science and engineering. It includes **preparation of technical report** on the paper/project assigned to the student from her/his advisor. Based on this report of the paper the student has to **prepare a presentation** for the exam. The ability of the student to write a technical report with a critique of the paper/project will demonstrate if the student has understood the paper/project and the impact of the paper/project on the field.
2. The report should be **ten to fifteen pages long** and it should contain a summary of the contents of the paper and the student's critical review. The report is to be prepared using standard 8.5" × 11" paper with 1-inch margins (top, bottom, left, right), using a font size no smaller than Times New Roman 11 point. The preferred file format is PDF. The paper will serve as the basis for the oral presentation.
3. The technical report should be submitted to the Q-Committee by the student **one week before the date of exam**.
4. At the beginning of the Part 2 of QE the Q-Committee has to select one of the **two options**: either the student will present uninterrupted or the student could be interrupted during the presentations with questions from the members of the committee. In the first option, the presentation will be no longer than 30 minutes, uninterrupted, and will be timed. In the second option there is no time limit.
5. The duration of Part 2 of QE is up **to 2 hours**. At the end of the exam the Q-Committee is filling in and signing the **QE form** (Appendix 2) and filling in **Graduate Student Evaluation** (Appendix 3). The Chair of the committee is submitting these forms to DGP and Assistant Director for Graduate Student Activities.
6. During the Part 2 of QE the Q-Committee is **evaluating 3 components**, which the final committee decision should account for: a) the written report (review-critique); b) the presentation; and c) how the student answers the questions from the committee.
7. The adviser can discuss with the student and answer questions about the Part II assignment BUT NOT reviewing or editing neither the written report nor the Power Point presentation.

Appendix 2 (For Faculty)

Name of Student: _____

Student ID number: _____

Qualifying Exam Part 1

NE course 1: _____ NE course 2: _____ NE course 3: _____ NE course 4: _____

Grade: _____ Grade: _____ Grade: _____ Grade: _____

GPA of 3 best courses: _____

Qualifying Exam Part 2

Competency and Aptitude in research "NE research":

- Journal Article Conference Paper Selected Research Topic

Name of NE research Topic:

Committee decision:

- Pass Conditional Pass Fail

Committee's comments if any:

Name: _____

Signature: _____

Name: _____

Signature: _____

Name: _____

Signature: _____

Chair-Name: _____

Signature: _____

Date: _____

Appendix 3
(for Faculty)

Graduate Student Evaluation: Oral Examination

Date:

This form needs to be completed at the exam. It will be kept in the students' file and a copy will also be kept for program evaluation and assessment.

Name of the student:

- Qualifying Exam (PhD)
- preliminary oral exam (PhD)
- final MS thesis
- final dissertation exam (PhD)

Name of person completing this form:

Student reviewed the literature in a way that demonstrates a comprehensive understanding of the research in the area of study:

1 2 3 4 5

strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	strongly agree
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Student identified research questions or problems pertinent to the field of study, providing a focus for making significant contribution to the field:

1 2 3 4 5

strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	strongly agree
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Student gathers, organizes, analyzes and reports data using a conceptual framework appropriate to the research question and the field of study:

1 2 3 4 5

strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	strongly agree
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Student effectively communicates content appropriate to the field of study:

1 2 3 4 5

strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	strongly agree
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Indicate any additional information pertinent to named student: