UNIVERSITY of HOUSTON | ENGINEERING

Department of Mechanical Engineering

QUALIFYING EXAM AGREEMENT FORM

MECHANICS GROUP

Student: _____

Advisor: _____

Exam Date: _____ **Exam Time:** _____

QUALIFYING EXAM REQUIREMENTS:

If a student has taken any or all of the core courses in the mechanics group, he/she must specify in the form with their respective grades. If the student has not taken the core courses, they can substitute courses from the list of approved mechanics-based substitute courses. Students must have received A- or above in their core courses, to be exempt from taking the course based QE exam, and will have to give a research presentation only. Students who have received less than A- in any of their core courses or approved substitute courses, must take the QE oral exam on those specific courses/topics, in addition to the research presentation.

COURSE	SEMESTER TAKEN	GRADE
MECE 6384: Methods of Applied Mathematics I *OR APPROVED SUBSTITUTION*		
MECE 6377: Continuum Mechanics I *OR APPROVED SUBSTITUTION*		
MECE 6397: Advanced Mechanics of Solids *OR APPROVED SUBSTITUTION*		

*Students are allowed to substitute one course from the core courses of other groups (Materials, Thermal-Fluids, Controls). In the transition period (June 2017-Aug 2018), students has the option of replacing one of the core courses by a course already taken. This switch should be approved by his/her advisor. Only by an exception may one of the two mechanics related courses be replaced with another core course from other groups that rationally supports the student's research/education. The graduate advisor must approve of these exception.

		Initials	Date
Student's Advisor:	_____	_____	_____
Chair of Committee:	_____	_____	_____
Committee member 2:	_____	_____	_____
Committee member 3:	_____	_____	_____
Committee member 4:	_____	_____	_____
Graduate Director:	_____		_____

New Format of Mechanical Engineering Ph.D. Qualifying Examination

Beginning June 2017, the Ph.D. qualifying examination of the Department of Mechanical Engineering will be administered per the following new format.

The specific guidelines and policy items of this document supersede those in the department website and the department files.

1. A student must take the Ph.D. qualifying examination within three long (fall and spring) semesters after he/she enrolls in the Ph.D. program.
2. The scope of Ph.D. Qualifying examination is limited to three subjects associated with three core courses listed in the table below for each research group.
3. If a Ph.D. candidate had scored a grade of A- or higher in one of these courses, he/she will be exempt from examination on this subject. In case the Ph.D. candidate scores a grade of A- or higher in all the three courses, the qualifying examination will be only on the research presentation.
4. Each academic year, the faculty members of each research group will select a Ph.D. qualifying examination committee of three members to serve for the year. The committee members will be rotated for the following academic year.
5. A Ph.D. candidate may petition to choose one faculty member from the designated committee of another group. For example, a Ph.D. candidate in the Materials group may petition to choose a faculty member in the Mechanics committee for that year. This petition must be approved by the designated committee of the home group of the candidate.
6. All qualifying examinations will begin with a short presentation (20 min-30 min) by the Ph.D. candidate on his/her research. The total exam can last up to 2 hours.
7. The Ph.D. candidate will provide a copy of the presentation to the qualifying exam committee at least one week in advance of the examination.
8. The questions to be posed to the Ph.D. candidate need not be about the specific research results presented by the candidate, but on the knowledge of the student in his/her research area. For instance, if the student presents data on texture of materials, the questions may be to test his/her knowledge on X-ray diffraction and crystallography.
9. The questions to be posed to the student in the qualifying examination will not be a regurgitation of the course work but to test how well he/she applies the knowledge learned to his/her research, as well as how the student is able to demonstrate critical thinking, problem solving skills and the ability to integrate knowledge across different topics.
10. The outcome of the qualifying examination (pass/fail) will be by a majority vote of the three committee members. If the Ph.D. candidate fails the qualifying examination, he/she will be allowed an opportunity for a 2-hour long written examination. The written examination will only be on the courses/topics the student was found to have failed and will be administered within one month after the oral qualifying examination. A score of at least 75 out of 100 is needed for the candidate to pass the written

examination. If the Ph.D. candidate fails to secure a score of at least 75, there will be no other recourse to reinstate him/her in the Ph.D. program in the department.

11. The thesis advisor of the Ph.D. candidate can serve on the qualifying examination committee but cannot be a voting member. In this case, a fourth faculty member must be added to the committee for this particular candidate.
12. Students who take the Ph.D. qualifying examination during the transition period from June 2017 to August 2018 may choose either the new format or the prior format of the examination.

Core Courses of Research Groups

Research Group	**Core Course I**	**Core Course II**	**Core Course III**
Controls	MECE 6384: Methods of Applied Mathematics	Control Systems Analysis and Design	Nonlinear Control Systems
Materials	MECE 6361: Mechanical Behavior of Materials	MECE 6363: Physical Metallurgy	MECE 6364: Phase Transform in Materials
Mechanics	MECE 6377: Continuum Mechanics I	MECE 6384: Methods of Applied Mathematics	Advanced Mechanics of Solids
Thermo-Fluids	MECE 6334: Convection Heat Transfer	MECE 6384: Methods of Applied Mathematics	Advanced Fluid Dynamics I