PhD QUALIFYING EXAMINATION COMMITTEE PETITION

Student Name: ________________________________________________________
Student ID: ____________________ Email: _________________________________

Examination Topics (Selected from the Approved Topic List on page 3)

Topic #1: _____________________________________________________________
Identify the classes to be used as content for topic #1:_______________________
Topic #2: _____________________________________________________________
Identify the classes to be used as content for topic #2:_______________________
Topic #3: _____________________________________________________________
Identify the classes to be used as content for topic #3:_______________________

Custom Option for Topic #3: If selecting the Custom Option, briefly describe the content proposed for this exam, and identify three or more faculty who could act as Examiners (including at least one ME Dept Faculty Member, and not including your research advisor). Also, please attach a 1-page Presentation Abstract, describing the content of your proposed presentation in detail, with references.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Faculty Sponsor: _______________ Signature: ____________________________

The signature of the Faculty PhD Advisor is an indication that the Advisor expects the student to pass the exam, and is prepared to support the student’s PhD research.

Submit completed forms to the ME Student Services Office (building 530, room 125). Exam is not valid without prior approval of Graduate Curriculum Chair (via Student Services Office).

Please do not write below this line.

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*** Committee Authorization Decision
☐ Approved  ☐ Denied (reason): _____________________________________________

Graduate Curriculum Committee Chair Signature: ___________________________
Please complete this form and attach to petition

Student Name: ________________________________________________________
Student ID: ____________________ Email: _________________________________
Date of Initiation of Graduate Program at Stanford: ________________________

Stanford GPA: ___________ Verified by Student Services: (Initials)__________

The GPA calculation must be based entirely on letter grades in Math, Science and
Engineering classes at the graduate level. Grades from independent study or dissertation
research are not to be included in this calculation. If GPA is below 3.5, a petition from
the Faculty Sponsor to the Graduate Curriculum Committee is required.

GRE Scores  V:__________  Q:__________  A:__________

Please include other materials with the Quals application: unofficial Stanford transcript, a
PhD dissertation proposal (1-3 pages), and any additional materials that you would like
available for examiners prior to your exam.
Exam Topics List

Math: Exam is based on ME300A/ME300B/ME300C (Linear Algebra/PDEs/Numerical Methods) – Please select 2 out of 3 of these classes, or indicate 2 other classes.

Automatic Controls: This exam will be based on the content normally offered in E105 + ME205, with some practical content from ME206 if appropriate.

BioMechanical Engineering: BME exams are based on any 2 of these courses: ME239, ME281, ME283, ME287, ME337, ME381

Mechatronics: This exam will be based on ME218AB or ME210+ME220.

Design Methodology: This exam will be based on ME310AB

Design for Manufacturing: This exam will be based on ME317AB

Fluid Mechanics: based on 2 of ME351A, ME351B, {ME355 or AA210A}

Energy Systems: This exam is based on 370A-C. Taking 370A and either 370B or C should prepare the student for this exam.

Reactive Gas Dynamics (formerly HT Gas Dynamics): This exam is based on ME362A, ME362B, ME364, ME371 and ME372. The student will be examined on material covered in any two courses selected from this sequence.

Heat Transfer: This exam is based on ME 352 A, B, C and ME 358. The student will be examined on material covered in any two courses selected from this sequence.

Solid Mechanics: This exam is based on {ME333 and 338A or 340A}, or {335A and 335B or 335C}.

Dynamics: This exam is based on ME331AB

MEMS and Devices: This exam is based on content in E240, E341, ME414 and ME457, based on the courses indicated.

Robotics and Kinematics: This exam is based on CS223A + one of CS225A, ME322, or ME326.

Materials and Stress Analysis: Exam based on any 2 courses selected from ME345, MatSci270, ME309, ME348
Examiners for exams for the standard topics will be selected by the Graduate Curriculum Committee. The selections will be made on the basis of the faculty expertise and experiences with the courses that are the basis of the topical exams, and with a goal of distributing workload evenly where possible. It is possible that the advisor for a PhD student will be one of the examiners on a single topical exam on occasion. The curriculum committee will insure that the advisor is not the examiner for more than one topic for one of their own PhD students, and that they are not the examiner for the custom topic exams. The assignment of faculty to examination topics will be announced before the second week of the autumn or spring quarter.

**Custom Subject** - This exam may consist of a research exam with a presentation, or a topical exam in a topic not represented above. **It is important for the Custom Subject Proposal to describe how the content of the Custom Exam is distinct from the content of the 2 topical exams already being selected.**

Custom exams are **private events**, and may be attended by other faculty, but not by students, family and friends. If the examination consists of a presentation followed by Q&A, the advisor may attend the entire session as a “silent observer”. Other faculty are excused after completion of the presentation portion of the examination.

Detailed proposals for a Custom Exam topic are to be prepared with and signed by the research advisor, and will be approved or rejected by the Graduate Curriculum Committee within 3 days of submission of the application. The Graduate Curriculum Committee will select 2 examiners from the list of 3 or more names provided in the application.

The recommended format for custom research exams is based on a 20-minute presentation related to the PhD research that the student is working on, followed by up to 40 minutes of questions by 2 examiners.

Looking ahead, we would like to offer some additional guidance on the format and execution of these custom exams:

1) The goal of the presentation is to demonstrate that the student can explain some specific key issue in their proposed research, and describe the work that they are doing to resolve this issue. The content of the presentation should be accessible to faculty with modest expertise in the PhD research topic. Therefore, it is the responsibility of the student to prepare a presentation that is clear and informative, and which can serve as the basis for rigorous questions by many faculty in our department.

2) It is the responsibility of the Student and Advisor to define a custom examination specification that is clearly distinct from the content of the 2 topical examinations. Specifications that do not address this distinction in detail will be rejected.