Qualifying exam and defense structure:

The MME Ph.D. program has three components:

1. Qualifying Exam
2. Proposal Defense and Candidacy Exam
3. Final Defense

Scheduling of qualifying exam:

The qualifying exam is offered by the department in fall and spring semesters.

Students entering the Ph.D. program with M.S. degrees:

A Ph.D. student entering the program with a recognized M.S. degree will take the qualifying exam in the second major semester.

If the student fails the exam in the first attempt, a second chance will be provided in the third major semester.

Students entering the Ph.D. program with B.S. degrees:

A Ph.D. student entering the program with a B.S. degree will take the qualifying exam in the fourth major semester.

If the student fails the exam in the first attempt, a second chance will be provided in the fifth major semester.

Exceptional cases:

Students may file a petition with the MME Graduate Committee for a deferral of the qualifying exam by one major semester at a time.
SUGGESTED COURSES AND CORRESPONDING REFERENCE TEXTBOOKS
FOR PHD QUALIFYING EXAM PREPARATION

The Qualifying Exam has four sections:

1. Analytical Math (Answer 2 problems out of a total of 3 problems in this area)
2. Computational Math (Answer 1 problem out of a total of 3 problems in this area)
3. Major Area (Before the exam, declare a major area and 2 courses in that major area; and answer 4 problems out of a total of 4 problems; 2 problems per course)
   a. Thermo/Fluid
   b. Mechanics/Materials
   c. CAD/Robotics
4. Breadth Area (Before the exam, declare a course in each of the non-major areas; and answer 1 problem out of a total of 2 problems)

ANALYTICAL MATH

EGM 5315 Intermediate Analysis of Mechanical Systems


COMPUTATIONAL MATH

EGM 5346 Computational Engineering Analysis
EGM 6422 Advanced Analysis of Mechanical Systems

EGM 5354 Finite Element Method Applications in Mechanical Engineering

THERMO/FLUID AREA

EML 5103 Intermediate Thermodynamics

EML 5152 Intermediate Heat Transfer
EML 5709 Intermediate Fluid Mechanics  

EML 6725 Computational Fluid Dynamics  

MECHANICS/MATERIALS AREA

EGM 5615 Synthesis of Engineering Mechanics  


EGM 6570 Fracture Mechanics  

EMA 5001 Physical Properties of Materials  

or  
EMA 5935 Advanced Topics in Materials Engineering  

EMA 5106 Thermodynamics and Kinetics of Materials  

CAD/ROBOTICS AREA

EML 5530 Intermediate CAD/CAE  

EML 5385 Identification Techniques of Mechanical Systems  

EML 5808 Control Technology for Robotic Systems  

EML 6805 Advanced Design of Robots  