

Department of Mechanical and Materials Engineering
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PhD Comprehensive Exam Part A
Study Guide

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The Part A Comprehensive exam will evaluate your knowledge in three fields. Two of the exams will focus on undergraduate material and the third will be for your chosen major field. The major field exam will also examine you on relevant graduate courses in the area. The objective of the exam is to determine if you understand and can communicate the fundamental concepts needed for your program.

The content of the three exams will be specified in writing, so you will know exactly what material you must study. The question now is – how do you study for an oral exam? Here is my advice on this.

First you must ***study*** to get the information and a good understanding of that information into your brain. Then you must ***practice*** standing in front of people to get that information back out of your brain in an organized way. In many referred exams the problem was with the second part of this process.

Study

You study the material by doing the following:

- i) reading
- ii) identify key concepts, key assumptions, key equations, key diagrams and graphs
- iii) do lots of examples – write them out -- don't just look at them
- iv) write down material so you can review it over and over again
- v) question your understanding – be prepared to explain concepts in detail

Practice

You practice for the oral exam by talking about what you know – and writing it on a blackboard. I suggest the following:

- i) book a room with a black board and practice writing things on the board
- ii) write clear diagrams and label them
- iii) practice answering questions verbally – think before you speak
- iv) invite some other grad students in (some who passed Part A) so they can ask you questions off your study guides.