MSE 45L - PROPERTIES OF MATERIALS LABORATORY (1 UNIT)

COURSE OVERVIEW

SUMMARY

This course is a laboratory course which applies the basic principles of MSE 45. The lab focuses on analyzing thermal and mechanical properties of different materials. Each lab covers two weeks of classes. The first week of each lab is a 1 hour lab lecture, and the second week is the 3 hour lab period. A lab report is due the week following the lab. Lab reports include a cover page, abstract, introduction, procedure, results/discussion, conclusion, references, and appendices.

PREREQUISITES

None.

LABORATORY EXPERIMENT TOPICS COVERED

- Engineering Ethics
- Hardness Testing of Materials
- Recovery, Recrystallization, and Grain Growth
- Binary Alloy Phase Diagrams
- Heat Treatment of Steel
- Polymer Thermal and Mechanical Properties
- Mechanical Properties of Metals

SKILLS LEARNED

- Brinell and Rockwell Hardness Testing
- Metallographic etching and polishing
- Heat Treatment/Thermal Processing
- Optical Microscopy
- Tensile Testing
- Charpy Impact Testing

WORKLOAD

COURSEWORK

- Attendance and participation
- Engineering Ethics Report
- 6 Lab Reports (~2000 words maximum)

3 HOURS OF CLASS EACH WEEK. 3 HOUR LABS OCCUR ONCE EVERY TWO WEEKS. EVERY OTHER WEEK, THERE IS A LAB LECTURE WHICH ONLY TAKES ONE OF THE THREE HOURS.

X hours of class time. Y hours of hw time/study time.

CHOOSING THE COURSE

WHEN TO TAKE

The course can be taken concurrently or after taking MSE 45. As a chemical engineering student, the course can be taken during any semester.

ADDITIONAL COMMENTS AND TIPS

I suggest taking the course concurrently with MSE 45 because the topics line up well with the lecture course. The labs are straightforward and simple.

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COLLEGE OF CHEMISTRY PEER SERVICES

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lang=en) students/peer-
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