Course: ENGR 45 - Engineering Materials – Fall 2011

Instructor: Troy D. Topping

Assignment: Lab Report for Heat Treatment of Steel

Description:

Students performed instructor guided experiments on 4140 Steel to determine the strength and ductility of the material before and after heat treatment by use of standard tensile and hardness tests. In the course of the assignment, they are required to work in groups to obtain data for 6 specimens. After collecting and analyzing data, lab reports are written individually with the assistance of instructor provided guidelines for each section. Sections include: Abstract, Introduction, Procedure, Results, Discussion, Conclusion, References and Appendix. In addition to providing guidelines for each section, students are given a grading ‘rubric’ which details the value of components within each section of the report. This ‘rubric’ can act as both an informal table of contents and a decision matrix for the engineering student. (e.g. If he or she does not feel there is enough time to complete the entire report before the due date, the student knows exactly how many points will be deducted for leaving out a particular component or section.) From the beginning of experiment to the date the report is due, approximately 4 weeks of lab (4 meetings) occur. During this time, data are collected and analyzed. Feedback and guidance are given on analysis methods and students are provided the opportunity to ask the instructor for assistance with their writing process. Other laboratory experiments are also performed during these meetings, necessitating multitasking skill development for the student. Previous assignments in the lab also followed this methodology, with instructor and peer review time allotted for the writing of Abstract, Introduction, and Procedure sections. The reports submitted supported by this letter followed the methodology and excelled in there format, presentation and understanding of the material investigated. In addition this cover letter, the assignment guidelines and grading rubric can be provided on request.

Best Regards,

Troy D. Topping