

Tech 025: Industrial Materials Technology

Fall, 2008 Edition, Dr. Seth P. Bates, Professor

Industrial Materials is a class required for all students in the Manufacturing Systems program in the Department of Aviation & Technology and also serves students in Industrial Design and Aviation programs. In this course you will learn about the structure of materials from the inside out, and how that structure affects the properties of materials. You will conduct tests to explore these properties in the laboratory, and conduct some study of materials that interest you in a research paper. The course covers materials science principles, metallurgy (ferrous and non-ferrous), ceramics, semiconductors, polymers, and composites.

The faculty of the Department of Aviation and Technology thank the faculty of the Department of Chemical and Materials Engineering for the use of many course elements, beginning in Fall of 2004.

To read some of the documents referred to in this page, you will need the Adobe Acrobat Reader. Click the link



Be sure to press the "Reload" button regularly in order to see the site updates!

Check writing guidelines posted to [Course Documents](#) pages, including [instructions for turnitin.com](#). Browse to [turnitin.com](#)

Current Readings See **Course Reading Schedule (below)**

For Lab See **email about term projects. Be there and be prepared. See Lab Schedule (below)**

Download images from Metallurgy Lab [here](#)

See also the excellent resources available at Dr. Gleixner's MatE 25 Learning Center:

<http://www.engr.sjsu.edu/sgleixner/mate25/>

Primary Course Documents:

Course syllabus: describes course purposes, requirements, and grading.

Course Reading Schedule: lists readings by week

Lab Syllabus and outline: lists the readings, assignments, and calendar for the course. [Lab Greensheet and Schedule](#)

[Course Learning Objectives](#) list

Format for [Homework Assignments](#)

Laboratory Documents

Lab Experiments: information about laboratory exercises. Please note that not all of these have been adapted to our uses, and we will not cover all of them in any given semester.

[LN-0 - Cover Page for Lab Notes](#)

[Table of Contents](#) and [preface](#) (includes lab writing guide)

[LN-1 - Introduction to Materials](#)

[LN-2 - Corrosion](#)

[LN-3 - Crystal Structures/Rules for planes & directions](#)

[LN-4 - Crystal Defects](#)

[LN-5 - Magnetic Properties of Materials](#)

[LN-6 - Cold Working of Brass](#)

[LN-7 - Electrical Resistance of Metals](#)

[LN-8 - Resistance in Semiconductors](#)

[LN-9 - Tensile Test and Glass Fracture](#)

[LN-10- Integrated Circuit Lab](#)

[LN-11- Polymers](#)

[LN-11- Polymer Data Sheet only](#)

[LN-12- Lead/Tin \(Pb/Sn\) Phase Equilibrium Diagram](#)

[LN-13- Tempering of Steel](#)

Course Resources:

Lecture Notes and Powerpoints

Chemistry Review and other Links:

[Lee Buescher's Atomic Time Line](#)

[City College of New York Atomic Structure Page](#)

[Web Elements Periodic Table](#)

[SJSU's World of Materials](#)

[Univ of Illinois Intro to Materials Engineering](#)

[Iron-Carbon PED](#)

[Powder Metallurgy images](#)

[Electromotive Potential of Metals](#)

[Tensile Test Problem](#)

[AISI Steels Nomenclature](#)

[Learning about ASTM](#)

[Lever Rule and the PED](#)

[Silicon Wafer Processing overview](#)

[Glossary of Terms for Plastics](#)


[Polymer and Composites Lecture outline](#)

[Polymer Additives and Reinforcements](#)

Dr. Stacy Gleixner's [World of Materials](#)

Dr. Gleixner's [web links page](#)

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<p>Course Reader (old version, under revision. check new labs above)</p> <p>Course Term Project Guidelines Term Project Proposal Format</p> <p>Secondary Course Documents: Universal Course Documents page! This is where you will find MANY things you need for this course. Materials Selection Process and Report guidelines</p>	<p>Internet Links Vision Engineering Web Pages MatWeb Materials Property Data</p>
<p>Course Resources: Universal Course Documents: these documents apply to all courses APA Manual of Style Crib Sheet</p>	 <p>What is happening in this image?</p>
<p>Internet Resources - weblinks page</p>	

Seth Bates' [Home Page](#)

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