MACH 161: Metallurgy
Spring 2021 Syllabus
Section: 6091 3 Units

Class Meetings
Online

Instructor Contact
Name: Bill McCracken
Office: 2309 Lounibos Hall

Office hours:
Wednesday – Thursday, 1:00 pm - 2:00 pm
Friday by Appointment
You may contact via email or Canvas. Zoom meetings are possible also and I may schedule a Zoom meeting during the semester. Watch your campus emails and Canvas announcements.

Office phone number: (707) 527-4488 (please leave a voice-mail message)
Email address: wmccracken@santarosa.edu
I respond to emails within 24 hours.

***Spring 2021 students:** Due to the Covid-19 restrictions, this course will be online only without the lab portion on Wednesdays. This is an asynchronous class, meaning that it is all online with no face-to-face portion of the class. You will still have due dates each week that are expected to be met. Your professionalism grade will be assessed by your punctuality of assignments. Just like in today's 21st century manufacturing workforce, deadlines must be met! Each week class will consist of a video lecture, online quiz and a discussion board submission.

Canvas Course Web Site
https://canvas.santarosa.edu/courses/50995
Students will use the Canvas course web site for online lectures, assignment instructions, submitting assignments, viewing classmate's work, sharing resources, and viewing grades.

Textbook
Metallurgy Fundamentals Fifth Edition by Daniel A. Brandt, J.C. Warner ISBN: 9781605250793
This is a requirement.

You can locate and order textbooks online via the SRJC Bookstore or from any outside source. Note that if you want to pick your books up in Petaluma, you need to order them from the Petaluma Bookstore website.

Materials Needed
1. Assigned text book.
2. Safety glasses- provided (not needed for Fall 2020)
   - State approved (Z87.1)
   - Dark lenses and sunglasses are not allowed
5. A three ring binder to organize your class materials
6. Calculator
7. Pens and note paper for taking notes
8. Apron or shop coat (optional) (not needed for Fall 2020)

Course Description
Study of ferrous metals including alloying, heat treating, testing and applications in industry.
Course Outline of Record:
https://portal.santarosa.edu/SRWeb/SR_CourseOutlines.aspx?mode=1&CVID=21671&Semester=20113

Student Learning Outcomes
Students will be able to:
1. Describe the basic classification of metals, crystal structures and various material properties.
2. Explain the manufacturing, identification, phase diagram, heat treatment processes and deformation of iron and iron alloys.
3. Perform basic lab experiments demonstrating sample preparation and examination methods.

Objectives:

Upon completion of this course, students will be able to:
1. Describe the basic properties of all ferrous metals.
2. Describe the process of mining, extraction and refining of ores to metals.
3. Identify metals and alloys using the periodical table of elements or tables of alloys numbering systems.
4. Explain various crystal structures.
5. Explain heat treatment processes and surface hardening techniques pertinent to steel alloys.
6. Use handout materials, text and library materials to do research on metallurgical alloys.
7. Perform basic lab experiments including: plotting data, dimensional measurements, heat treatments, tensile loading and metallurgical sample preparation and examination methods.

Topics and Scope
1. Introduction to metallurgy
2. History of elements
3. Iron and steel refining
4. Identifying ferrous metals
5. Crystal structure systems
6. Tensile test
7. Heat treatment techniques
8. Quenching medias
9. Hardness testers
10. Physical and chemical metallurgy
11. Grain structure and patterns
12. Iron and steel systems
    a) A.I.S.I. [American Iron and Steel Institute]
    b) S.A.E. [Society of Automotive Engineers]
    c) U.S.S. [United States Standard]
    d) A.W.S. [American Welding Society]
13. Density measurements
14. Surface hardening methods

Representative Assignments
1. Reading (approximately 10 - 15 pages per week)
2. Complete discussion board assignments in each chapter
3. Chapter quizzes
4. 7 to 13 laboratory assignments to be completed during the lab sessions (Not for Fall 2020)
5. 2 mid-term exams
6. A semester group (or individual) project may be assigned to be presented electronically followed by an oral presentation to the class; the semester project can be substituted with a mid-term paper, as per instructions by instructor, consisting of library research
7. Final exam

Lab Activities (N/A for Spring 20121)
Lab activities consist of worksheets, reports and exercises assigned by the instructor. These activities are coordinated with, and related to, classroom lecture/discussion topics. **The lab/shop sessions are not to be used for personal projects**.

Exams
There will be three exams. The material comes from the textbook, class lectures and supplemental materials. If any exam is missed, a zero will be recorded as the score. It is your responsibility to take the online exams by the due date.

Grading Policy
Visit the "Grades" in Canvas to keep track of your grades. I grade weekly and post grades and comments on the online Canvas gradebook.

Your grades will be based on the following areas and count in the percentages noted:

Discussion and Responses: Online discussion board submissions Your discussion posts are due by 11:59 on Wednesdays and your response posts are due on Sundays by 11:59.

25%

Problem solving: Chapter Quizzes

25%

Exams: Performance exams, Component identification, and all forms of formal testing other than skill performance exams. Exams may be: multiple choice, true/false, or written answer... **There will be 3 course exams throughout the semester including a final assessment. Your final will be due by Wednesday, May 26, 2021 by 11:59 PM.**

40%

Professionalism: Meeting deadlines and turning assignments on time as in a 21st century workplace practice. Utilizing 'Netiquette' practices

10%

Extra Credit: The instructor will notify you when extra-credit is available.

Unless otherwise informed by the instructor, grades are calculated based on total semester points that you have earned. Grades may be adjusted to a class curve, but you are guaranteed the grade listed in the following chart if you attain the point total associated with that grade.

Letter grade A = 90% - 100%

Letter grade B = 80% - 89%

Letter grade C = 70% - 79%

Letter grade D = 60% - 69%

Letter grade F = ≤ 59%

Tests and Quizzes

- You will be given weekly quizzes. ***Check your copy of the weekly class schedule regularly for quiz dates***.
- You will be given two midterm examination and a final examination.
- ***Final examination will be administered on finals week of class***

Study Tips

- ***Take notes during online lectures***! You may use your class notes to study for exams.
- Keep your quizzes and use them to study for midterms and final exams.

The following Lab procedures and precautions must be observed: (NO LAB Spring 2021)

- **Safety First!**
    - Safety glasses must be worn when tools/equipment are in use. Everyone in the shop must wear safety glasses during the scheduled lab period.
    - No jewelry may be worn when working in the shop. This includes rings, necklaces, and anything that hangs loose or may dangle into a rotating device or a potential electrical shock area.
    - No loose clothing is allowed while working in the Lab. Loose attire may become tangled in machinery.
    - Long hair must be securely tied back or secured in some fashion. Loose hair may become tangled in machinery and torn off or result in even greater bodily damage.
    - **No sandals in the Lab!** Non slip sole work shoes are preferred, but in all cases closed toed shoes must be worn.
    - You must know where the fire extinguishers, first aid kit, eye wash stations, and shower stations are located, and **be familiar with how to use these safety items.**
- You are expected to arrive at work (the Lab) on time and stay until quitting time (end of Lab). Do not leave class early without checking with your instructor. Participation is a part of your final grade!

Required Software

You will need the following software for this course. [If linking to PDF or Word documents, QuickTime or Flash videos, put in a link to the helper applications in your Syllabus or Getting Started section of your course materials.]

- Adobe Reader
- Open Office
- Canvas

Dropping the Class

If you decide to discontinue this course, it is your responsibility to officially drop it to avoid getting no refund (after 10% of course length), a W symbol (after 20%), or a grade (after 60%). Also, for several consecutive, unexplained absences, the instructor may drop a studentInstructor Announcements and Q&A Forum

The instructor will post announcements on the “Instructor Announcements” page in Canvas throughout the semester. Canvas notifies students according to their preferred Notification Preferences as soon as the instructor creates an Announcement. A “Q&A Forum” is also on Canvas to ask for assistance of your classmates or of instructor.

Standards of Conduct

Cell Phones: ***Cell phone use is not allowed while in class or lab***, except for emergency calls. This is also a common employer's shop rule (no cell phone use during work hours). If you do receive an emergency call, please step outside the room to talk.

Cheating/Plagiarism: Cheating or plagiarism are unacceptable behavior and will result in an immediate two day suspension from class for all students involved; ***no exceptions***. Collaborating on or copying of tests or homework in whole or in part will be considered an act of academic dishonesty and result in a grade of 0 for that test or assignment. I encourage students to share information and ideas, but not their work. See these links on Plagiarism:
SRJC Writing Center Lessons on avoiding plagiarism
SRJC's policy on Academic Integrity

Class Participation: Your participation in class discussions is mandatory.

Missed Exams or Assignments: Assignments (lab sheets, homework, etc.) should be turned in on the dates noted in the course outline.

Late assignments are not accepted without prior authorization from the instructor.

Students who register in SRJC classes are required to abide by the SRJC Student Conduct Standards. Violation of the Standards is basis for referral to the Vice President of Student Services or dismissal from class or from the College. See the Student Code of Conduct page.

Emergency Evacuation Plan

In the event of an emergency during class that requires evacuation of the building, please leave the building immediately, but calmly. **Our class will meet at the Northeast end of Lounibos Hall in the parking lot** to make sure everyone got out of the building safely and to receive further instructions. If you are a student with a disability who may need assistance in an evacuation, please see me during my office hours as soon as possible so we can discuss an evacuation plan.

Campus Resources

SRJC has many resources for its students. These are only a few of them. Please refer to the SRJC website for more information (www.santarosa.edu). Click the "For Students" tab, then the "Student Services" tab.

DRD (Disability Resources Department)

If you are having trouble learning or understanding in class and don't know why, you can get a free consultation at DRD. ***It may change your life!***

Just a few of the DRD services:

- Disability screening
- Test taking help
- Aids for the physically disabled

Santa Rosa Campus DRD Office information:

Email: disabilityinfo@santarosa.edu
Phone: (707) 527-4278
TTY: (707) 528-2442
Fax: (707) 524-1768

Office Location: Room 637, Analy Village, Bldg. C

Office Hours:
Fall & Spring Semesters: Monday-Friday, 8:00 AM to 4:00 PM

Summer Semester: M-Th, 8:00 AM to 4:00 PM, Closed Friday

Mailing Address:
Santa Rosa Junior College
Disability Resources Department.
1501 Mendocino Avenue
Santa Rosa, CA 95401-4395

College Skills/Tutoring Department

- ESL (English as a second language)
- Math skills improvement
- Writing skills classes

The College Skills Department is located in Analy Village, on the west side of campus.
The Academic Skills Lab is located in Building H, Rm 601.
The Math Lab is in Building F, Rm 615.
The Department Office is in Building G, Rm 605.
The Phone Number is (707) 527-4834.

Counseling Department

Santa Rosa Campus
Bertolini Student Center, 2nd Floor
(707) 527-4451

M, T, Th, F, 8:00 AM - 5:00 PM
W, 8:00 AM - 7:00 PM

Closed Fridays during June & July

"As a new student, seeing a counselor is probably the most important thing you can do". You don't need to go through SRJC without a clue! Hook up with a counselor. You may just find a friend, guide and advocate in the Counseling Department. At the least, you will formulate a plan of study and explore your interests and life possibilities.

Doyle Library

- Tutoring
- Computer use (free)
- Coffee shop
- Quiet study space

Special Needs

Students with disabilities who believe they need accommodations in this class are encouraged to contact Disability Resources (527-4278), as soon as possible to better ensure such accommodations are implemented in a timely fashion.

Semester: Spring 2021 Section: 6091 Course: MACH 161

The following deadline dates have been established for this section:

Day Class Begins:	Wednesday, January 20, 2021
Day Class Ends:	Friday, May 21, 2021
Day/Time of Final Exam:	To be Arranged
Last Day to Add without instructor's approval:	Tuesday, January 26, 2021
Last Day to Add with instructor's approval:	Sunday, February 7, 2021
Last Day to Drop and be eligible for enrollment/course fee refund:	Sunday, January 31, 2021
Last Day to Drop without a 'W' symbol:	Sunday, February 7, 2021
Last Day to Drop with a 'W' symbol:	Sunday, April 25, 2021
Last Day to Opt for Pass/No Pass:	
First Census Date:	Monday, February 8, 2021
Mid-Term Date:	3/29/2021 - 4/25/2021