

SAN JOSE STATE UNIVERSITY
Department of Aviation and Technology

Tech 046: Machine Operation and Management
Spring 2018

Course Syllabus

Semester and Year: Spring 2018
Course Sections: 1 and 02
Class days & Times: Lab Monday 3:00-5:45
Lecture Monday 12-1:45
Class Locations: IS 121 & 122
Instructor: D. Muntz
Office Room: IS 130
Office Hours: Wednesday 3:30 to ? (and by Arrangement)
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Course Catalog Description

Manual machining processes including turning, milling, drilling, grinding, and sawing machines. Manual and computer-aided part programming. Management of machining environment including processes, tooling, instruments, equipment, personnel, safety. (Lecture 2 hours, lab 3 hours) 3 units.

A short quiz could be given at the start of each class (15 points) (don't be late)

Prerequisite

Tech 20 or equivalent (should be Tech 41 also)

Purpose of Course

The purpose of this course is to develop fundamental skills needed for advanced study in manufacturing technology machine tool processes and management. To this end, areas of study will include: measurement, layout and inspection, bench work, metal-cutting saws and processes, drilling machines and processes, turning machines and processes, milling machines and processes, abrasive machining safety, computer-numerical control, and related management.

Course flow:

Lecture 1.75 hrs, 1 hour break, Lab 2.75 hrs. 15 meetings,
one midterm test and a final on May 16 at 9:45. Three outside reading assignments.

Required Textbooks & Materials

- 1) Kibbe, R. R., Neely, J. E., Meyer, R. O., & White, W. T. (2010). Machine tool practices, (9th ed.) Prentice Hall: NJ.
- 2) Valentino, J. V. & Goldenberg, J. (2012). Introduction to Computer Numerical Control (CNC) (5th. Edition). Prentice Hall: NJ. (Recommended)
- 3) Safety Glasses
- 5) Small hard back 3 ring binder with 60 sheets of blank printer paper
- 6) One set of precision dial or digital calipers
- 7) Two shop rags

References

DeGarmo, E. Paul, Black, J. Temple & Kohser, Ronald A. (latest edition). Materials and Processes in Manufacturing. Macmillan, New York.

Groover, M. P. (2012). Fundamentals of Modern Manufacturing: Materials, Processes and Systems. John Wiley & Sons, New York.

Machinery Handbook & Current journal and magazine technical articles.

Thusty, G. (2000). Manufacturing Processes and Equipment. Prentice Hall, New Jersey.

Outline of Course Content and Unit Objectives

Dailey quiz	3 x 15 points*	45
Cylinder		100
Piston		100
Crankshaft		100
Standard		100
Flywheel		100
Step washer, spring and Barb		80
Mid-term		100
Final		200
Running		200
Outside reading synopsis		75
Notebook		200
Total		1400

*Lowest score will be dropped

Lecture class and grade will depend on class participation and:

Two Formal Exams during the semester: A midterm test (100 points) and a comprehensive final (200) points. The materials to be included in these tests will be announced by the instructor.

Three outside “reading synopsis” assignments TBA 25 points each

Total 75 points

SAFETY- SAFETY- SAFETY

A **Major Safety violation** is a possible grade lower. OUCH!

Example of a major safety violation: _____

Make-up date: _____ (_____)

General safety violation: _____ -10 pts.

Lecture Objectives (Units and reading assignments):

Part I: Measurement, Inspection and General shop Management

Reading Assignment: Kibbe et al pp.87-191

Part II: Bench work, shop safety, Layout, Tool Management.

Reading Assignment: Kibbe et al pp. 6-85;235-299

Part III: Turning Machines, Processes and Management

Reading assignment: Kibbe et al pp.383-506

Part IV: Milling Machines

Reading Assignments: Kibbe et al pp.511-584

Part V: Other machines: Metal cutting saws, Drilling Machines, Grinding and abrasive Machines

Reading Assignments: Kibbe et al pp. 301-381 and pp.585- 658

Main study areas:

Communication

Work holding

Measurement

Layout

Separating (speeds and feeds)

Joining

Conditioning

Material selection

Time line (subject to change)

WEEK OF:	TOPICS TO BE DISCUSSED
Jan. 29	ORIENTATION/ General safety
Feb. 5	LATHE
Feb. 12	Flywheel
Feb. 19	Crank Shaft
Feb.26	MILLING MACHINE (OSR #1 Due)
March 5	Piston
March 12	Cylinder (MIDTERM)
March 19	Standard (OSR # 2 Due)
April 2	Barb, washers, spring
April 9	All Processes
April 16	All processes
April 23	All Processes
April 30	All processes
May 7	All processes (OSR #3 Due)
May 14	Review. Turn in final project. Everything due.
May 16	Final, pick up graded items

Academic Integrity Standards and Policies

Academic honesty is expected without question in this course. Students who are found to have submitted materials that do not adhere to SJSU standards of academic integrity will suffer the following two consequences:

- a. A grade of zero [0] will be given for the assignment in question; and
- b. A report of the incident will be filed with the university. This report may stay on your permanent collegiate record.
- c. You may also be subject to further disciplinary action being taken by the university.

For the SJSU policy on Academic Integrity, refer to:

<http://www.sjsu.edu/senate/F06-2.pdf>

a) Academic integrity statement (from the Office of Student Conduct and Ethical Development):

“Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University’s Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct.

b) Campus policy in compliance with the Americans with Disabilities Act:

“If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their disability.”

More about Cheating. At SJSU, cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means. Cheating at SJSU includes but is not limited to:

Copying in part or in whole, from another’s test or other evaluation instrument; Submitting work previously graded in another course unless this has been approved by the course instructor or by departmental policy. Submitting work simultaneously presented in two courses, unless this has been approved by both course instructors or by departmental policy. Altering or interfering with grading or grading instructions; Sitting for an examination by a surrogate, or as a surrogate; any other act committed by a student in the course of his or her academic work which defrauds or misrepresents, including aiding or abetting in any of the actions defined above.

More about Plagiarism. At SJSU plagiarism is the act of representing the work of another as one’s own (without giving appropriate credit) regardless of how that work was obtained, and submitting it to fulfill academic requirements.

Plagiarism at SJSU includes but is not limited to the act of incorporating the ideas, words, sentences, paragraphs, or parts thereof, or the specific substances of another’s work, without giving appropriate credit, and representing the product as one’s own work; and representing another’s artistic/scholarly works such as musical compositions, computer programs, photographs, painting, drawing, sculptures, or similar works as one’s own.

Students With Disabilities

Campus policy. In compliance with the Americans with Disabilities Act:

“If you need course adaptations or accommodations because of a Disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities register with DRC to establish a record of disability.”

Cell Phones

Students will turn their cell phones off or put them on vibrate mode while in class. They will not answer their phones in class. Students whose phones are disrupting the education process will be dealt with by:

Computer Use

In the classroom, you may use computers only for class-related activities such as taking notes on the lecture underway, following the lecture on Web-based Power Point slides that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture. Students who use their computers for other activities or who abuse equipment in any way, at a minimum, will be asked to leave the class and lose participation points for the day, and may be referred to the Judicial Affairs Officer of the University for prohibited uses of campus computers (Such referral can lead to suspension from the University). Students are urged to report to their instructors computer use that they regard as inappropriate (i.e., used for activities that are offensive or not class related).

Attendance

Attendance may not be taken at the start of each class, but a short sketch will be assigned during the first 5 minutes of class (don't be late). If you miss a class you are responsible for any material discussed or assignments given. A large portion of class will be used for problem solving in small groups. All students are expected to participate in class discussions and problem solving. Students who are often absent will find themselves at a disadvantage in the execution of the lab assignments but more importantly they will be a safety hazard to themselves and the others in the lab.