

SAN JOSE STATE UNIVERSITY
Department of Aviation and Technology

Tech 046: Machine Operation and Management
Spring 2017

Course Syllabus

Semester and Year: Spring, 2016
Course Sections: 2 & 11
Class days & Times: Lab Mon. 3:00-5:45
Lecture Mon. 1:00 -2:45
Class Locations: IS 121 & 122
Instructor: D. Muntz
Office Room: IS 130
Office Hours: MON. NOON TO 1:00 (and by Arrangement)
Office phone (408) 924-4372
E-mail Address: douglas.muntz@sjsu.edu
Web Address: <http://www.sjsu.edu/people/douglas.muntz>

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

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.

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	4 x 15 points*	45
Lathe Project		100
Mill Project		100
Final Project		200
Shop foreman		50
Safe Practice		100
Mid-term		100
Final		150
Outside reading synopsis		75
Total		920

Total/920 points for final LAB Grade

*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 (150) 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

Joining

Conditioning

Material selection

TECH 046 **SCHEDULE OF COURSE SEMESTER LAB ACTIVITIES** **D. Muntz**

WEEK OF:	TOPICS TO BE DISCUSSED	Shop Managers	DUE
JAN. 30	ORIENTATION		
FEB. 6	GENERAL SAFETY		
FEB. 13	TOOL BIT Grinding		
FEB. 20	LATHE INTRO		
FEB. 27	LEAD CONTAINER INTRO		
MAR. 6	LAB		
MAR.13	MILL SAMPLE DEMO		
MAR. 20	MILL SAMPLE reading synopsis #1		
APRIL 3	HAMMER HANDLE DEMO		
APRIL 10	HAMMER HEAD DEMO		
APRIL 17	LAB WORK HAMMER reading synopsis #2		
APRIL 24	LAB WORK HAMMER		
MAY 1	ALL PROCESS		
MAY 8	ALL PROCESSES reading synopsis #3	Turn in final project Everything	
MAY 15	Pick up all work and take Final		

