

DEPARTMENT OF MECHANICAL ENGINEERING  
EIN 3390L MANUFACTURING PROCESSES LAB  
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## SYLLABUS (Summer-A)

Welcome to Manufacturing Processes Lab. There will be 3 hands on projects assigned to you during this semester. One metal project, one plastic project, and one, IN-Class written project. Please note that a flash-drive, and closed toed shoes will be required for this course.

## GRADING

This is a “HANDS ON” course. Grading for this class is broken down as follows:

The FOUR components that make up YOUR total grade are:

- ATTENDANCE 70 pts (11.7 pts each lab) **NOTE:** 2 or more labs missed lose ALL 70 pts)
  - HOMEWORK 75 pts (3 @ 25 pts each) (see below)
  - QUIZ 10 pts (1 @ 10 pts each)
  - PROJECTS 75 pts (3 @ 25 pts each) (see below)
  - FINAL EXAM 100 pts
- TOTAL: 330 pts**

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### FINAL GRADE

A = 315-330 pts	
B+ = 308-314 pts	B= 300-307 pts
C+ = 291-299 pts	C= 230-290 pts
	D= 180-229 pts
	F= 179 pts or Below

#### NOTE:

Attendance: “Excused” absences will not lose points if approved by Instructor.  
Coming in Late or leaving early without approval will cost additional points.

Homework: Must be complete and turned in by DUE date to get full points. Homework is to be done on YOUR time not class time. LATE Homework will lose additional points.  
**\*\*Put YOUR name and Panther ID on the paper in order to get credit. \*\***

Projects: Must be 100 percent completed to get full points.

#### Feedback

If you wish to know your status at anytime during this course then ask me and I will be happy to give it to you.

## **Weekly Lab requirements**

### **LAB WEEK# 1**

- **INTRODUCTION TO EIN3390L.**
- **GET EMAIL AND CONTACT INFORMATION**
- **GO OVER HAND OUTS**
- **SAFETY BRIEFING**
- **DISCUSS THE 3 F's (Fit , Form and Function)**
- **ASSIGN NUMBER BLOCK, VISE or FIU CARD HOLDER PROJECT TO TEAMS. (Two members per team, one makes vise the other makes Card holder or Number block)**
- **ASSIGN MOLD SHAPE FOR FADAL PROJECT FOR EACH STUDENT**
- **HAND OUT COST ANALYSIS PROJECT (Project Tracking Sheet).**
- **MICROMETER AND DIAL CALIPER INSTRUCTION**
- **LAB TOUR**
- **START CUTTING BLOCKS TO SIZE**
- **BEGIN FILLING IN PROJECT TRACKING SHEET**
- **ASSIGN HOMEWORK #1 (Intro to CNC videos.)**

### **LAB WEEK# 2**

- **HOMEWORK #1 DUE**
- **REVIEW HOMEWORK #1**
- **DISCUSS IN DEPTH G-CODES AND MACHINING PRACTICES**
- **CUT BLOCKS TO SIZE-FINALIZE.**
- **INTRODUCTION TO USE OF C.N.C.CONTROL ON ANILAM MILLING MACHINE.**
- **Update PROJECT TRACKING SHEET**
- **ASSIGN HOMEWORK #2: (Write G-code for metal project )**

### **LAB WEEK# 3**

- **HOMEWORK #2 DUE**
- **CHECK AND DEBUG METAL PROJECT G-CODE (Homework #2)**
- **START CUTTING NUMBER BLOCK/FIU CARD HOLDER (Use Draw-> Path to verify)**
- **START CUTTING CLAMP/SLOT,CUT AND FINISH MOVABLE JAW**
- **APPLY LECTURE TECHNIQUES**
- **ASSIGN STEPS 1-8 OF HOMEWORK #3 (Plastic Mold Project. Watch videos, print out and dimension your mold project)**
- **FILL IN PROJECT TRACKING SHEET**

#### **LAB WEEK# 4**

- **ASSIGN REMAINING STEPS 9-16 OF HOMEWORK#3 (Plastic Mold)**
- **TEACH USE OF EMULATOR / INSTALLATION (CAN INSTALL ON XP OS)**
- **FINISH CLAMP - DRILL / TAP / FINISH**
- **DEMONSTRATE CNC LATHE**
- **MACHINE SCREWS ON CNC LATHE, HAVE STUDENT CUT OFF SCREW AND FINISH FACE.**
- **WORK ON PROJECTS – FINISH METAL PROJECTS**
- **BEGIN CHECKING FADAL PROGRAMS**
- **START MILLING FADAL MOLDS?**
- **FILL IN PROJECT TRACKING SHEET**

#### **LAB WEEK# 5**

- **HOMEWORK #3 DUE**
- **CHECK FADAL PROGRAMS**
- **DEBUG FIRST ON EMULATOR, THEN ON CONTROLLER**
- **RUN PROGRAMS**
- **FINISH CUTTING SCREWS ON CNC LATHE**
- **FINISH POLISH VISE AND BLOCK PROJECTS**
- **FILL IN PROJECT TRACKING SHEET (Complete 100%)**

#### **LAB WEEK# 6**

- **FINISH ALL PROJECTS**
- **TURN IN ALL HOMEWORK ASSIGNMENTS**
- **TRACKING SHEETS DUE (project 3)**
- **PROJECT TRACKING SHEET Discussion ( TOTAL COST AND MANUFACTURING ALTERNATIVES)**
- **FINAL EXAM REVIEW**
- **FINAL EXAM**
- **EVALUATIONS**
- **CLEAN-OUT LOCKERS and TAKE HOME PROJECTS**

**REMEMBER: Your attendance, participation and effort are key factors in your final grade so please come prepared and ready to work.**