

## **OPT 2205 MANUFACTURING PROCESSES**

SINCLAIR COMMUNITY COLLEGE

**OPT 2205** Manufacturing Processes  
Three credit hours - two lecture, two lab

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**Office Hours:** M-F (By appointment)

**Text:** Manufacturing Processes Reference Guide, by Todd, Allen and Alting, Industrial Press Inc., 1994. (This can be purchased used on the internet)  
Student Notes packet, by David G. Myer, PhD, PE  
29CFR1910 (OSHA) Regulations (optional)

### **Course Description**

Survey of modern manufacturing processes including casting, molding, shearing, forming, machining, joining, and finishing for metallic and nonmetallic materials. Special emphasis on equipment, tooling, capabilities and process planning.

OSHA (10hr) outreach card program, this will cover some of the federally required health and safety regulations.

### **Course Objectives**

After completing this course, students should be able to demonstrate the following competencies:

1. Describe, compare and contrast several types of manufacturing processes and equipment.
2. Develop process plans by selecting and sequencing appropriate processes for production manufactured products.
3. Observe and evaluate the use of manufacturing processes in industrial settings through plant tours.
4. Complete a process engineering course project.
5. Review manufactured products and learn about new processes.

### **Keys to Success**

**Show up** – attend every class, be punctual.

**Come ready to learn** – participate, ask questions, answer questions, bring paper, pencil and text, take notes.

**Do the work** – Complete the assignments on time, prepare for exams, take advantage of Sinclair's support services.

### Homework assignments

| <b>Week</b> | <b>Due on this day</b>                     | <b>Topics for the day</b>  |
|-------------|--|--|
| <b>2</b>    | OSHA Training                              | Introduction pt 1, syllabus, pre-test<br>Introduction to OSHA & NIOSH ws         |
| <b>4</b>    | OSHA Training                              | Sub D,E, & L   |
| <b>5</b>    | OSHA Training<br>Bhopal paper due          | Sub S, Z (HazCom)  |
| <b>6</b>    | OSHA Training                              | Sub I, Z (Bloodborne Pathogens)  |
| <b>7</b>    | OSHA Training<br>Fire paper due            | Sub H<br>OSHA post test & (collection of \$5.00 from all who want the OSHA card) |
| <b>8</b>    | Course introduction pt 2                   | manufacturing foundations  |
| <b>9</b>    | Study for Taxonomy quiz<br>Assign – 1 due  | Mechanical Reducing<br>Process review #1   |
| <b>10</b>   | Taxonomy quiz<br>Assign -2 due             | Thermal Reducing, Chemical Reducing,<br>Consolidation,                           |
| <b>11</b>   | Process review #1 report<br>Assign – 3 due | Plastics Processes, Measuring Instruments<br>Process review #2                   |
| <b>12</b>   | Assign – 4 due                             | Measuring Instruments  |
| <b>13</b>   | Process review #2 report<br>Assign – 5 due | Deformation  |
| <b>14</b>   | Assign – 6 due                             | Thermal Joining, Chemical Joining,<br>Study for Final Exam                       |
| <b>15</b>   | <b>Final exam</b>                          |  |

### COURSE GRADING STRUCTURE

The final grade for the course will be made up of seven components:

|    |                               |           |
|----|-------------------------------|-----------|
| 1. | OSHA outreach                 | 25 points |
| 2. | 2 Process review Reports      | 10 points |
| 3. | Class Participation           | 10 points |
| 4. | Quizzes, in-class assignments | 5 points  |
| 5. | 6 work sheets                 | 30 points |
| 6. | Final Exam                    | 20 points |
| 7. |                               |           |

**TOTAL**

**100 points**

### GRADING SCALE

|   |          |
|---|----------|
| A | 91 - 100 |
| B | 81 – 90  |
| C | 71 - 80  |
| D | 61 - 70  |
| F | 0 - 60   |

## **HOW ASSIGNMENTS and PROJECTS WILL BE GRADED**

The instructor may assign any grade between 0% and 100%. The guidelines for grading papers are:

**A = HIGHLY COMPETENT, VERY GOOD.** A paper that completely fulfills the assignment, is VERY neat and professionally done (text is word processed or typed), and provides results beyond those actually needed to complete the assignment (additional examples or insights or opinions or charts or diagrams, etc.). Points are logically made, very well justified and well written.

**B = CORRECT, COMPLETE, GOOD.** A paper that completely fulfills the assignment, is neat, professionally done and well written. Points are logically made and justified.

**C = NEEDS IMPROVEMENT.** A paper that fulfills most of the assignment and is neat.

**D = NEEDS MUCH IMPROVEMENT.** A paper that fulfills most of the assignment, but has one or two major errors or is poorly presented.

Example Question: Define the term "kaizen."

| example answers   | comments  | grade |
|---|---|-------|
| Kaizen means high-volume production.  | Incorrect.  | F     |
| Kaizen means process improvement.   | Incomplete. Kaizen is a type of process improvement, but it's more specific than that.  | C     |
| Kaizen is a Japanese term meaning small, incremental, continuous improvement.   | Correct and complete  | B     |
| Kaizen is a Japanese term meaning small, incremental, continuous improvement. Kaizen refers to constant, day-to-day improvements and not to big, one-time changes like major equipment purchases. | Correct, complete and provides relevant information beyond that required by the question. Shows that the student has a deeper understanding of the subject. | A     |

You  
try

### **GRADING EXAMPLE**

Using this course's grading policy, grade the following:

Question: Name a manufacturing process that can be used to make holes.

Answer: *Drilling is a manufacturing process that can be used to make holes.*

How would you grade that answer?

Grade:

### **ADDITIONAL POLICIES ON ASSIGNMENTS**

- We encourage you to use word processing for your assignments. The grades for assignments that are handwritten will be reduced by 10%.
- The grades for late assignments will be reduced by 10% for each class session late.

### **ATTENDANCE & PROFESSIONALISM**

Today, employers are looking for more than just technical skills. They are looking for people with professionalism. Professionalism includes such items as positive attitude, good effort, constructive participation, respect for others, attendance and punctuality. Specifically, employers consider unexcused absences to be very unprofessional, often leading to dismissal. To better prepare you for the workplace, the consequences for absences in this course will be:

- **1 point off** your course total for each **lateness**.
- **2 points off** your course total for each **unexcused absence**.

For example, if a student's point total at the end of the quarter is 84 (out of a possible 100), but the student had two unexcused absences, then the student's point total would be reduced by 4 points to 80. This would reduce the student's final grade from a B to a C.

About Absences: In order to have an absence excused, you must notify the instructor with a valid excuse before the class session being missed. The instructor will determine the validity of the excuse. If circumstances prevent you from notifying the instructor before the class session, then notify the instructor as soon as possible.

About Lateness: If you come to class AFTER attendance has been taken, you are considered to be late.

### **EXAMS**

The Mid-Term and Final exams will be a combination of short answer, multiple choice and fill-in-the-blank. Both exams will be open-book, open-note.

### **PROJECT**

Students are to select a product and write a report describing how the product is manufactured.

- The report should include a process plan for the manufacture of the product.
- At least 6 references should be used.
- The report should be at least 4 pages long, double-spaced.
- See the course schedule for due dates.
- More details will be given in class.

### **STUDENT ACCESS OF GRADES – (3 Ways to Get Grades)**

1- Email – Grade reports will be sent by email to all students via their My.Sinclair email address - will contain student name and Sinclair ID and is considered an official grade report.

2- Web Advisor – receive an official grade report through Web Advisor account accessed through My.Sinclair portal. Click on “Grades by Term” link – will contain the student name and is considered an official grade report.

3- Telephone - Grades will be available by telephone on the *Wednesday* after the end of each quarter. Beginning at 8:00 a.m., students may call **1-866-512-5454**, 24 hours a day from anywhere in the U.S. – follow voice prompts.

### **STATEMENT OF STUDENT RIGHTS:**

Any student with a documented disability who may require special accommodations should self-identify to the instructor as early in the quarter as possible to receive effective and timely accommodations.