JEFFERSON COLLEGE

COURSE SYLLABUS

CIM205
ADVANCED MACHINING PROCEDURES

3 Credit Hours

Revised by
Michael D. McKinney
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CIM205 Advanced Machining Procedures

I. CATALOGUE DESCRIPTION

A. Pre-requisite: CIM150 Machining Procedures and Reading Proficiency

B. 3 Credit Hours

C. Advanced Machining Procedures consists of complex high tolerance machining and theory using a variety of machines. Areas covered will include safety, sawing, drill presses, vertical milling machine, tool room lathe, surface grinding set up and operation. (F)

II. EXPECTED LEARNING OUTCOMES / ASSESSMENT MEASURE

<table>
<thead>
<tr>
<th>Students will use vocabulary peculiar to high tolerance machining</th>
<th>In-class discussion</th>
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<tr>
<td>Students will identify proper safety procedures</td>
<td>Class demonstrations, homework, quizzes</td>
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<td>Students will calculate speeds and feeds for specific cutters and applications</td>
<td>Homework, Surface speed charts, lab exercises and final exam</td>
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<tr>
<td>Students will calculate tap drill sizes for specific tap sizes</td>
<td>Homework, tap drill charts, lab exercises and final exam</td>
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<td>Students will select proper layout procedures and tools for part layout</td>
<td>Lab exercises and final exam</td>
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<td>Students will perform precision measuring using micrometers and calipers</td>
<td>Blueprints, lab exercises and final exams</td>
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<td>Students will operate band saw, and cut off saw to perform complex operations</td>
<td>Blueprints, lab exercises, final exams</td>
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<tr>
<td>Students will operate tool room lathe to perform high tolerance operations</td>
<td>Blueprints, lab exercises, final exams</td>
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<tr>
<td>Students will operate vertical milling machine to perform high tolerance operations</td>
<td>Blueprints, lab exercises, final exams</td>
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<tr>
<td>Students will operate surface grinders to perform high tolerance operations</td>
<td>Blueprints, lab exercises, final exams</td>
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<tr>
<td>Students will select and sharpen cutting tools to perform high tolerance operations</td>
<td>Lab exercises and final exams</td>
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III. OUTLINE OF TOPICS

A. Safety
1. Eye protection
2. Long hair
3. Proper clothing
4. Jewelry
5. Lock out
6. Machine hazards

B. Layout
1. Layout bench
2. Height gage
3. Squares and scribes

C. Measuring Tools
1. Micrometer
2. Calipers
3. Height gages
4. Rules

D. Tool Room Lathes
1. Turning
2. Turning with carbide
3. Drilling
4. Boring
5. Threading

E. Vertical Milling Machine
1. End milling
2. Slot milling
3. Side milling
4. Face milling
5. Drilling
6. Reaming
7. Power tapping
8. Boring head

F. Surface Grinding
1. Wheel selection
2. Coolant
3. Accuracy
IV. **METHOD(S) OF INSTRUCTION**

A. Lecture

B. Discussion

C. Lab

V. **REQUIRED TEXTBOOK(S)**

Hoffman, Peter, *Precision Machining Technology*, (Current Edition), Delmar Publishing

VI. **REQUIRED MATERIALS**

A. Textbooks

B. Pencil

C. Calculator

D. Safety Glasses

E. Calipers

F. Edge Finder

G. Indicator

H. Allen Wrenches

I. Adjustable Wrench

J. 6” Scale

K. 5/16” Lathe Bit (2)

L. #2 Center Drill (2)

M. 8” Flat Mill File

N. Center Gage

O. Pocket Scribe
M. 8” Flat Mill File
N. Center Gage
O. Pocket Scribe
P. 0-1 Micrometer
Q. De-Burring Tool
R. Flash Drive
S. Composition Notebook
T. Spiral Notebook

VII. SUPPLEMENTAL REFERENCES
A. Machine Manuals are located at the machine tools in the lab.

VIII. METHOD OF EVALUATION
A. Attendance, 15%
B. Homework, 10%
C. Lab Assignments, 50%
D. Final Examination, 15%
E. Quizzes 10%

IX. ADA AA STATEMENT
Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).
X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, http://www.jeffco.edu).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.