CIM250

INTRODUCTION TO 3D CONTOURING

3 Credit Hours

Revised by
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August 16, 2012

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CIM250 Introduction to 3D Contouring

I. CATALOGUE DESCRIPTION


Pre-requisite: CIM225 Advanced CNC Programming and reading proficiency

B. 3 Credit Hours

C. In this course the students will learn different types of programming processes using the aid of Surfcam 3D module, combined with CAD drawing produced in AutoCad. Students will perform tooling selection, part setups, and program the machine tool to produce a finished part. (S)

II. EXPECTED LEARNING OUTCOMES / ASSESSMENT MEASURE

<table>
<thead>
<tr>
<th>Students will use vocabulary peculiar to the trade</th>
<th>Quizzes and In-Class Discussion</th>
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<tr>
<td>Students will modify part drawings using CAD software/3D modules</td>
<td>Instructor Observation and Final Exam</td>
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<tr>
<td>Students will be able to create tool paths using CAM software/3D surface contouring</td>
<td>Computer Simulation Models, Instructor Observation, and Final Exam</td>
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<td>Students will select proper tooling for 3D surface machining</td>
<td>Computer Simulation Models, Instructor Observation, and Final Exam</td>
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<td>Students will correct geometry for 3D machining</td>
<td>Computer Simulation Models, Instructor Observation, and Final Exam</td>
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<td>Students will set up and machine a 3D surface on the CNC Mill</td>
<td>Product Critique, Program Printout, Dimension Measurements</td>
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III. OUTLINE OF TOPICS

A. CAD/3D Module
   1. Part Origin
   2. Drawing Origin
   3. C Views
   4. Tools
5. Drawing set-up  
6. Splines  
7. Wire frame  
8. DWG. Files  
9. DXF. Files  
10. Solid modeling

B. CAM/3D Surface Contouring  
1. Geometry selection  
2. Tooling selection  
3. Order of sequence  
4. Material selection  
5. Surfaces  
6. Blend  
7. Verification  
8. File transfer  
9. Dry run

IV. METHOD(S) OF INSTRUCTION

A. Lecture  

B. Discussion  

C. Lab

V. REQUIRED TEXTBOOK(S)

Mattson, Mike, *CNC Programming Principles and Applications*, (Current Edition), Cengage

VI. REQUIRED MATERIALS

A. Textbooks  

B. Pencil  

C. Calculator  

D. Safety Glasses
E. Flash Drive
F. Composition Notebook
G. Spiral Notebook

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

VIII. METHOD OF EVALUATION
A. Attendance 10%
B. Lab Assignments 50%
C. Final Examination 20%
D. Tests 20%

IX. ADA AA STATEMENT
Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library 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.