**CHAMP Course Map**

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| **Course Name:** MAC 240 CAD/CAM 2D | |
| **Instructor Name:** Community College of Denver | **Date:** |
| Course Competencies:  I.      Describe the CNC programming processes.  II.     Describe basic 2-D geometry construction.  III.    Demonstrate how to modify existing geometry models. Intro  IV.     Demonstrate 2-axis toolpath generation.  V.      Demonstrate how to edit 2-D toolpaths.  VI.     Construct 3-D wire frame models.  VII.    Generate toolpaths for lathe programming.  VIII.   Use a complex direct numerical control (DNC). | |

**Course Materials (Text, Edition and any other publisher items)**

**Textbooks and/or Resources:** Precision Machining Technology 2nd Edition, Peter J. Hoffman Eric S. Hopewell Brian Janes, ISBN-13: 9781285444543

**Resources:**

| **Module # and Title** | **CCNS Competencies** | **Content, Activities or Challenges**  **(Learner Interaction**  **& Engagement)** | **Assessments, Rubrics (Feedback)** | **Publish to OER** |
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| Module 1:  Introduction to the CNC/NC Manufacturing Process | I.  II. | 1. Discuss Syllabus and Outline  2. Reading Assignments on Module 1 Introduction to the CNC/NC Manufacturing Process:   * Introduction * CAD software use * CAM software use * 2D contour Milling toolpaths   3. Discuss Module 1 Chapters  4. Complete Module 1 Vocabulary | 1. Module 1 Verbal Feedback to Classroom Lectures 2. Complete Module 1 Vocabulary   3. Module 1 CNC Basics Quiz  4. MAC Grading Rubric | * Syllabus and Outline * Module 1 Lecture Notes: (ICNC) * Module 1 Vocabulary * MAC Grading Rubric * PowerPoint: (CNCPP) |
| Module 2:  Creating and Modifying 2D Geometry | III.  V.  VI. | 1. 2D CAD/CAM Drawing Packet  2. Introduction to Mastercam | 1. Complete Module 2 Drawing Packet | * Module 2 Lecture Notes: (2DG) * 2D Drawing Packet |
| Module 3:  Creating and modifying 2D toolpaths | IV.  VII. | 1. Mastercam  2. Lectures Within the Classroom Environment | 1. Complete a Realistic Toolpath  2. Class discussion (verbal feedback) | * Module 3 Lecture Notes: (2DT) |
| Module 4:  Virtual simulation for 2D manufacturing | VIII. | 1. Mastercam  2. Lectures Within the Classroom Environment | 1. Complete virtual machine project  2. Class discussion (verbal feedback) | * Module 4 Lecture Notes: (VM) |