**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. IntroIV.     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 Outline2. 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 Quiz4. MAC Grading Rubric | * Syllabus and Outline
* Module 1 Lecture Notes: (ICNC)
* Module 1 Vocabulary
* MAC Grading Rubric
* PowerPoint: (CNCPP)
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| Module 2:Creating and Modifying 2D Geometry | III.V.VI. | 1. 2D CAD/CAM Drawing Packet2. Introduction to Mastercam  | 1. Complete Module 2 Drawing Packet  | * Module 2 Lecture Notes: (2DG)
* 2D Drawing Packet
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| 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)
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| Module 4:Virtual simulation for 2D manufacturing  | VIII. | 1. Mastercam 2. Lectures Within the Classroom Environment | 1. Complete virtual machine project2. Class discussion (verbal feedback) | * Module 4 Lecture Notes: (VM)
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