

**CUYAMACA COLLEGE**  
**COURSE OUTLINE OF RECORD**

**CADD TECHNOLOGY 140 – INTRODUCTION TO ADVANCED CADD/MANUFACTURING**

2 hours lecture, 2 units

**Catalog Description**

Concept of manufacturing, provide in depth the fundamental differences between manufacturing and advanced manufacturing processes. Role of artificial intelligence (AI) in manufacturing– robotics, automation, numerical control, quality control, etc.

**Prerequisite**

None

**Course Content**

- 1) History development of manufacturing from handcraft to high tech.
- 2) Types of manufacturing process
- 3) Automation – Introduction and its significant application
- 4) Robotics – introduction, aspects and applications
- 5) Robotics in interdisciplinary branch of engineering
- 6) Concepts of CNC-machines
- 7) Advanced manufacturing and its role in production

**Course Objectives**

Students will be able to:

- 1) Explain the various types of Manufacturing.
- 2) Understand the automation process and control systems in manufacturing.
- 3) Define the interdisciplinary roles of robots in various branch of engineering operation.
- 4) Describe the applications of numerical control (NC) of machining tools.
- 5) Explain the applications of numerical control (NC) of machining tools.

**Method of Evaluation**

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in the subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Midterm or final exams that measures the student's ability to describe the applications of numerical control (NC) of machining tools as well as describe the applications of numerical control (NC) of machining tools.
- 2) In-class activities (written/oral) that measure the student's ability to articulate the various types of manufacturing as well as the automation process and control systems in manufacturing

**Special Materials Required of Student**

None

**Minimum Instructional Facilities**

CADD computer lab

**Method of Instruction**

Lecture demonstration

**Out-of-Class Assignments**

Weekly group Assignment – Mini Project

**Texts and References**

- 1) Required (representative example): None
- 2) Supplemental: Weekly Handouts

**Student Learning Outcomes**

Upon successful completion of this course, students will be able to:

- 1) Explain the evolution of Manufacturing through history.
- 2) Describe the significance of Artificial Intelligence (AI) in Advanced Manufacturing.
- 3) Differentiate between Manufacturing and Advanced Manufacturing.
- 4) Discuss the effects of automation on mass production.