

# North Central Michigan College

## NCMC MASTER COURSE SYLLABUS

Last Date Revised: 3/1/06

**DIVISION/AREA:** Business and Technology

**DEPARTMENT:**

**DIVISION DIRECTOR:** Robert J. Marsh

**ORIGINATOR:** Robert J. Marsh

**DEAN OF INSTRUCTION:** Timothy Dykstra

**HOURS OF INSTRUCTION:**

Credit hours: 3  
Lecture: 3  
Lab: 0  
Contact hours: 52.80

**COURSE TITLE:** Mechanical CAD

**COURSE ALPHA:** TDT      **COURSE NUMBER:** 150

**CATALOG DESCRIPTION:**

A further introduction to AutoCAD software, specializing in the Inventor module (formerly Mechanical Desktop). The basic skills and knowledge acquired in TDT 130 (or equivalent) will be expanded to develop three dimensional (3D) and more specialized drawings. Drawing types will include parts and components, assemblies, CNC work and residential and commercial infrastructure. Further experience in layout, design and printing will be gained. Advising Note: It is recommended that students have the abilities and knowledge of the topics covered in TDT 130 before enrolling in TDT 150.

**PREREQUISITE(S):** TDT 130 or AutoCAD experience

**COREQUISITE(S):**

**GENERAL EDUCATION/PROGRAM OUTCOMES:**

- Think critically and analytically
- Select and use mathematical tools for problem solving and decision making

**COURSE OBJECTIVES AND OUTCOMES:**

- Operate the Mechanical Desktop Software (MCAD).
- Operate the CAD workstation components (i.e. computer, input/pointing device, and output / hard copy device) using the MCAD software.
- Explain the features, limitations, and considerations associated with the commands and Characteristics of “2D and 3D” AutoCAD.
- Produce accurately scaled drawings using the printer/plotter.

**METHODS OF INSTRUCTION:**

Lecture, in-class hands on AutoCAD assignments, take home design projects, presentations

**METHODS OF EVALUATION:**

Homework assignments, exams, presentations

**REQUIRED TEXT AT TIME OF COURSE ADOPTION/REVISION:**

TEXTS: Mechanical Desktop 6: Visual Fast Start, by Stinchcomb. Prentice Hall

OPTIONAL SUPPLEMENTARY MATERIALS:

Reasonable accommodations can be provided to students with documented disabilities. Please speak to me to arrange these or contact Learning Support Services at 348-6817.

**SUGGESTED TIME ALLOWANCE AND SEQUENCE OF INSTRUCTION:**

*(List general content description of what is being covered each week)*

WEEK 1	Introduction, AutoCAD Review
WEEK 2	Constraining
WEEK 3	Developing 3D Feature Models
WEEK 4	Parts: creating, editing
WEEK 5	Revolving and Sweeping
WEEK 6	Shells
WEEK 7	Parametric Models
WEEK 8	Helix. Exam I
WEEK 9	Assemblies and Bills of Materials
WEEK 10	Symbols
WEEK 11	Mech Desktop Accessories: Power Pack, premodeled parts
WEEK 12	Finite Element Analysis (intro). Initial project presentation
WEEK 13	FEA, continued
WEEK 14	Presentation review and critique
WEEK 15	Mech Desktop Internet Tools
WEEK 16	Final Presentation and Evaluation

APPROVED FOR ADOPTION/REVISION BY THE CRD/AP COMMITTEE ON 3/1/06