

COURSE OUTLINE

Basic Catia

Course Description:

IT 218. Basic Catia. 3 hours credit. Prerequisite: IT 120 with a C or better, or departmental consent. This course will enable the student to use Catia as both a design and manufacturing software in the machining of 2-D parts.

Course Relevance: The principles learned in this course will enable the student to use current Catia software to manufacture in the machine shop of today and tomorrow.

Required Materials:

CATIA V5 Workbook. (2004). Shroft Publications. Shawnee Mission, KS. ISBN 1-58503-205-0

Learning Outcomes:

The intention is for the student to be able to:

1. Identify basic manufacturing strategies
2. Demonstrate the ability to document and record manufacturing files
3. Demonstrate the ability to manufacture basic parts using Mastercam software

Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course:

Through the student involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Critical Thinking
 - Through the development of point-specific strategies the student will manufacture basic machine shop parts.
2. Problem Solving
 - Through the assessment of manufacturing needs the student will build specific parts.
3. Field-Related Training
 - Through the manufacture of basic parts for actual customers the student will demonstrate field-related training.

Secondary skills (developed but not documented):

Health Management
Reading

Major Summative Assessment Task(s):

These learning outcomes and primary Learning PACT skills will be demonstrated by:

1. Completing a hands-on project with an actual end user of machined parts
2. Designing an actual part for an industrial user

3. Completing a certification test as the final

Course Content:

- I. Themes - Key recurring concepts that run throughout this course:
 - A. Quality
 - B. Predictability
 - C. Repeatability
- II. Issues - Key issues that will be addressed in this course: areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Understanding the proper use of automated manufacturing principles, not using automation for the sake of automation
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Automatic manufacturing is a basic key to enhancing production and the workplace environment
- IV. Skills / Competencies - Actions that are essential to achieve the course outcomes:
 - A. Identify basic machining strategies.
 - B. Understand the advantages and the disadvantages of manufacturing software.

Learning Units:

- I. Computer Essentials
- II. Basic CAD Drawings
- III. Geometric Modifications and Transformations
- IV. Advanced CAD Drawings
- V. Basic Contouring
- VI. Basic Pocketing
- VII. Drill Toolpaths
- VIII. Toolpath Modifications and Verification
- IX. Advanced Contouring
- X. Advanced Pocketing
- XI. Working with CAD Data
- XII. Post Processors
- XIII. Introduction to Solid Modeling

Learning Activities:

Learning activities are geared towards designed hands-on exercises. Classroom lecture is designed to enable the student to understand the key principles in process analysis, fundamentals, and correct use of associated equipment.

Grade Determination:

The student will be graded on satisfactory completion of assessment tasks, learning activities, attendance, and certification exam.