COMMON COURSE OUTLINE: Course discipline/number/title: CAD 2400: Reverse Engineering and Rapid Prototyping

A. CATALOG DESCRIPTION
   1. Credits: 2
   2. Hours/Week: 1 lecture, 2 lab
   3. Prerequisites (Course discipline/number): CAD 1039, CAD 2323, CAD 2358, CAD 2358, CAD 2460 or instructor’s permission
   4. Co-requisites (Course discipline/number): None
   5. MnTC Goals (if any): NA

This course will teach students how to reverse engineer parts using a digitizer, probe, and NextEngine laser scanner then recreate prototypes using a 3D printer and other CNC operations. This course will be taught in a state-of-the-art facility featuring the latest release of SolidWorks.

B. DATE LAST REVISED (Month, year): April, 2013

C. OUTLINE OF MAJOR CONTENT AREAS:
   1. Identifying the product or component which will be reverse engineered
   2. Observing or dissembling the information documenting how the original product works
   3. Implementing the technical data generated by reverse engineering in a replica or modified version of the original
   4. Re-create the product using a 3D printer.

D. LEARNING OUTCOMES (GENERAL): The student will be able to:
   1. Use a caliper to measure and draw existing parts.
   2. Create assemble drawing of existing parts.
   3. Draw, dimension, and design prototype parts.
   4. Demonstrate and understand the use of a 3D laser scanner.
   5. Recreate parts using the rapid prototype machine.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:
   1. Homework
   2. Lab assignments
   3. Quizzes
   4. Examinations

G. RCTC CORE OUTCOME(S) ADDRESSED:
   ☐ Communication ☐ Civic Responsibility
   ☐ Critical Thinking ☑ Personal/Professional Accountability
   ☐ Global Awareness/Diversity ☐ Aesthetic Response

H. SPECIAL INFORMATION (if any):
   Tuition differential