

# Dakota County Technical College

## NANO 2131: Manufacturing Quality Assurance

### A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 2

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will cover multiple manufacturing methodologies (chemical solutions, electro filament, molding, coating, rolling etc. first in the traditional sense and second as these techniques apply to the nanoscale. Quality Assurance (Six Sigma) practices will be discussed with an emphasis on QA and reliability at the nanoscale. Design of experiments, measurements, approaches, data tracking, process improvement and statistical analysis and reporting will be discussed. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, NANO1211 and NANO1210.

**B. COURSE EFFECTIVE DATES:** 08/21/2006 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. apply a Six Sigma methodology to tracking and application results
2. apply design of experiments methodology to various situations
3. describe changes that must be implemented when applying traditional manufacturing methods to nanoscale systems
4. determine and apply the appropriate quality assurance methodologies as they apply to the nanoscale
5. evaluate and apply various reliability and failure analysis methods for nanoscale implementation

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted