

# Bemidji State University

## TADT 4460: Design for Manufacturability

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

A study of the tools, techniques, and guidelines used to design parts and products, while minimizing costs, facilitating manufacturing operations, maximizing quality and functionality, and supporting modern production management techniques. Prerequisites: Junior status or consent of instructor.

**B. COURSE EFFECTIVE DATES:** 08/25/2014 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Concurrent Engineering
2. DFM Guidelines for Part Design
3. DFM Guidelines for Product Design
4. DFM Summary
5. Design for Lean & BTO
6. Design for Manufacturability  
Overview
7. Design for Quality
8. Design the Product
9. Implementing DFM
10. Minimizing Cost by Design
11. Standardization
12. Total Cost

#### **D. LEARNING OUTCOMES (General)**

1. describe which departments, types of personnel, and types of records to turn to when gathering information about process capabilities, machine characteristics, time and budget constraints, and the un-codified expertise of production and service personnel.
2. , given a set of customer requirements, work with an interdisciplinary team to translate these into product features, product characteristics, a list of manufacturing operations to control, engineering specifications, and manufacturing tolerances.
3. locate specific information related to the items listed in objective 6, from reference materials and from company personnel.
4. outline the product development and life cycles, and describe the functions and responsibilities of various personnel as they relate to managing activities during these cycles. as demonstrated through class assignments, discussions and exams.
5. describe how customer requirements are gathered
6. describe how part characteristics can be designed to work optimally with material handling systems, automated production equipment, machines, tools, fixtures, and measurement devices during the manufacturing process.
7. describe how customer requirements are translated all the way through to engineering specifications, manufacturing tolerances, and process control activities.
8. correctly apply the information described in objectives 5 and 6 to create part and product designs that are optimally manufacturable.

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

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted