

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK**



COURSE OUTLINE

SOET 421/BSAD 421 – Six Sigma and Lean Manufacturing

Prepared By: Dr. Charles R. Fenner

**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
Decision Systems
March 2018**

- A. **TITLE:** Six Sigma and Lean Manufacturing
- B. **COURSE NUMBER:** SOET 421/BSAD 421
- C. **CREDIT HOURS:** 3
- D. **WRITING INTENSIVE COURSE:** No
- E. **COURSE LENGTH:** 15 weeks
- F. **SEMESTER(S) OFFERED:** Spring
- G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
3 lecture hours per week
- H. **CATALOG DESCRIPTION:** This course discusses the origin and implementation of six sigma processes into manufacturing. The course investigates both the management and leadership of successful continuous improvement projects. The course introduces the students to the DMAIC process and applies the DMAIC process to class projects. The course aids in student preparation toward a green belt in six sigma
- I. **PRE-REQUISITES/CO-REQUISITES:**
Pre-requisite(s): MATH 141 (Statistics) BSAD 301 or MECH 350
- J. **GOALS (STUDENT LEARNING OUTCOMES):**
By the end of this course, the student will be able to:

<u>Course Objective</u>	<u>Institutional SLO</u>
a. Discuss the history of quality improvement processes	5. Industry, Professional, Discipline-Specific Knowledge and Skills
b. Identify the DMAIC process	5. Industry, Professional, Discipline-Specific Knowledge and Skills
c. Apply the DMAIC process to operational activities	2. Critical Thinking 5. Industry, Professional, Discipline-Specific Knowledge and skills
d. Apply quantitative and qualitative tools in lean manufacturing	3. Foundational Skills
e. Apply DMAIC and lean manufacturing process to eliminate variation in customer service.	2. Critical Thinking 5. Industry, Professional, Discipline-Specific Knowledge and skills

K. TEXTS: Evans, J. & Davis, B., & Lockwood, A. (2012). An Introduction to Six Sigma and Process Improvement, (2d ed.). New York, NY: Cengage. ISBN: 9781133604587

L. REFERENCES: Harry, M., & Schroeder, R. (2000). *Six Sigma: The Breakthrough Management Strategy Revolutionizing the Worlds Top Corporation*. New York: Currency Doubleday

M. EQUIPMENT: technology enhanced classroom

N. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS: Exams, Quizzes, Discussion Boards, Papers and Projects

P. DETAILED COURSE OUTLINE:

- I. History of Quality Management
 - A. Overview
 - B. Industrial Revolution
 - C. Post War Japan
 - D. Emergency of TQM and Sig Sigma
- II. The DMAIC Process
 - A. Define
 - B. Measure
 - C. Analyze
 - D. Improve
 - E. Control
 1. Plan
 2. Do
 3. Check
 4. Act
- III. Six Sigma Tools
 - A. Quantitative Tools
 - B. Qualitative Tools
 - C. Project Management Selection
 - D. Six Sigma in Practice.
- IV Six Sigma and Lean Manufacturing Process Management
 - A. Data Measurement Design
 - B. Data Collection Design
 - C. Goal Setting
- V. Process Analysis and Improvement
 - A. Statistical Analysis
 - B. Human Analysis
 - C. System Analysis
 - D. Process Improvement Tools
 1. Kaizan
 2. Poka-yoke
 3. International Methods
- VI. Process Controls

- A. Statistical Control
- B. Management Control
- C. Systemness

Q. Applied Learning:

- I. Classroom/Lab