

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



MASTER SYLLABUS

BSAD 421 – Six Sigma and Lean Manufacturing

For available course numbers, contact the Registrar's Office at registrar@canton.edu

CIP Code: 52.0201

For assistance determining CIP Code, please refer to this webpage

<https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55>

or reach out to Sarah Todd at todds@canton.edu

Created by: Dr. Charles R. Fenner

Updated by: Dr. Lucas Craig

School: SBLA

Department: Business Administration

Implementation Semester/Year: Spring 2026

A. TITLE: Six Sigma and Lean Manufacturing

B. COURSE NUMBER: BSAD 421

C. CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):

# Credit Hours per Week	3
# Lecture Hours per Week	
# Lab Hours per Week	
Other per Week	

D. WRITING INTENSIVE COURSE:

Yes	
No	x

E. GER CATEGORY:

Does course satisfy a GER category(ies)? If so, please select all that apply.

[1-2] Communication	
[3] Diversity: Equity, Inclusion & Social Justice	
[4] Mathematics & Quantitative Reasoning	
[5] Natural Science & Scientific Reasoning	
[6] Humanities	
[7] Social Sciences	
[8] Arts	
[9] US History & Civic Engagement	
[10] World History & Global Awareness	
[11] World Languages	

F. SEMESTER(S) OFFERED:

Fall	
Spring	x
Fall and Spring	

G. COURSE 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

H. PRE-REQUISITES: MATH 141 and BSAD 301 or MECH 350
CO-REQUISITES:

I. STUDENT LEARNING OUTCOMES:

Course Student Learning Outcome [SLO]	Program Student Learning Outcome [PSLO]	GER	ISLO & Subsets
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 (IA) 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			5. Industry, Professional, Discipline Specific Knowledge and Skills

KEY	<u>Institutional Student Learning Outcomes</u> <u>[ISLO 1 – 5]</u>
ISLO #	ISLO & Subsets
1	Communication Skills Oral [O], Written [W]
2	Critical Thinking <i>Critical Analysis [CA], Inquiry & Analysis [IA] , Problem Solving [PS]</i>
3	Foundational Skills <i>Information Management [IM], Quantitative Lit, /Reasoning [QTR]</i>
4	Social Responsibility <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
5	Industry, Professional, Discipline Specific Knowledge and Skills

J. APPLIED LEARNING COMPONENT:

Yes	☒
No	☐

If yes, select [X] one or more of the following categories:

Classroom / Lab	x	Community Service	
Internship		Civic Engagement	
Clinical Practicum		Creative Works/Senior Project	
Practicum		Research	
Service Learning		Entrepreneurship [program, class, project]	

K. TEXTS:

Evans, J. & Davis, B., & Lockwood, A. (2012). An Introduction to Six Sigma and Process Improvement,(2d ed.). New York, NY: Cengage. ISBN: 978113360458

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

P. DETAILED COURSE OUTLINE:

- 1) History of Quality Management
 - a) Overview
 - b) Industrial Revolution
 - c) Post War Japan
 - d) Emergency of TQM and Six Sigma
- 2) The DMAIC Process
 - a) Define
 - b) Measure
 - c) Analyze
 - d) Improve
 - e) Control
 - i) Plan
 - ii) Do
 - iii) Check
 - iv) Act
- 3) Six Sigma Tools
 - a) Quantitative Tools
 - b) Qualitative Tools
 - c) Project Management Selection
 - d) Six Sigma in Practice.
- 4) IV Six Sigma and Lean Manufacturing Process Management
 - a) Data Measurement Design
 - b) Data Collection Design
 - c) Goal Setting

5) Process Analysis and Improvement

- a) Statistical Analysis
- b) Human Analysis
- c) System Analysis
- d) Process Improvement Tools
 - i) Kaizan
 - ii) Poka-yoke
 - iii) International Methods

6) Process Controls

- a) Statistical Control
- b) Management Control
- c) Systemness

Q. LABORATORY OUTLINE: None