INSTRUCTOR: Dr. Tomas Velasco, C.Q.E., C.S.S.B.B.  
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TEXTBOOK:  
CSSGB PRIMER, Quality Council of Indiana –  

REFERENCES: TEXTBOOKS

Objective:
The purpose of this course is to provide the student with a comprehensive coverage of the basic techniques, tools, and applications of the “Six Sigma” methodology at the green-belt level focusing on developing the framework that constitutes the Six Sigma philosophy.
Requirements:
Major emphasis will be placed on reading and understanding the material from the class, suggested books and reference material prior to class, and in homework assigned. Class attendance is required.

Grading:
- 3 Examinations, each of which counts 25% towards your grade.  
  *Last examination: Tuesday, December 13, from 8:00am to 9:45am.*
- Homework, Work in teams, and Quizzes, which count 25% towards your grade.

Standards:
Letter grades are assigned based on the total number of points accumulated.
- A : 90% and higher
- B : 80% - 89.99%
- C : 70% - 79.99%
- D : 60% - 69.99%
- F : Less than 60%

Grading Policy:
Missed examinations and assignments have a 10% penalty per day, imposed when turned in, unless an appropriate, prior excuse is provided to the instructor. The missed examination must be completed on the make-up date set by the instructor. Quizzes can not be made up, unless an appropriate excuse is provided to the instructor.

Academic Conduct:
Cheating on examinations, submitting work of other students as your own, or plagiarism in any form will result in penalties ranging from an F on the assignment to expulsion from the university, depending on the seriousness of the offense.

Office Hours:
11:00 am to 12:00 m on Mondays, 9:30 am to 11:30 m. on Tuesdays and Thursdays, 2:30 pm to 3:30 pm. on Wednesdays; other hours by appointment.

Equipment and Software:
Hand-held calculator and any computer-based spreadsheet. Excel is available in all the P.C. laboratories in Engineering including Industrial Technology labs, and College of Engineering labs.

Major Topics
- Six Sigma and the organization (Goals and Definition) – Chapter II
- Lean & DFSS – Chapter III
- Define Phase (Teams & Customers) – Chapter IV
- Define Phase (Projects, Tools & Results) – Chapter V
- Measure Phase (Data & Process Analysis) – Chapter VI
- Improve Phase – Chapter X (pp. X-2 to X-7)

SIU Policy on Incomplete Grades:
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within a time period designated by the instructor but not to exceed one semester from the close of the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, not to exceed one semester, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. Students should not reregister for courses in which an INC has been assigned with the intent of changing the INC grade. Re-registration will not prevent the INC from being changed to an F.

Mobile Technology Policy:
Cell phones should be turned off during class-time (including during tests).
**Inclusive Excellence:**
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ from you is an important part of your education in this class, as well as an essential preparation for any career.

**SIU Student Code of Conduct/Plagiarism:**
Please consult the following sites for information on the SIU’s student code of conduct and Morris Library’s guide on plagiarism:

- **SIU Student Code of Conduct:**

- **Morris Library Guide on Plagiarism:** [http://libguides.lib.siu.edu/plagiarism](http://libguides.lib.siu.edu/plagiarism)

**Emergency Procedures:**
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the S.I.U.C. Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT’s website at [www.bert.siu.edu](http://www.bert.siu.edu), Department of Public Safety’s website [www.dps.siu.edu](http://www.dps.siu.edu) (disaster drop down) and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

**Resources for Academic Assistance:**

- **Learning Support Services:** [http://tutoring.siu.edu/](http://tutoring.siu.edu/)
  - Provides academic assistance in courses/tutoring

- **Disability Support Services:** [http://disabilityservices.siu.edu/](http://disabilityservices.siu.edu/)
  - Provides the required academic and programmatic support services to students with permanent and temporary disabilities

- **SIUC Writing Center:** [http://write.siu.edu/](http://write.siu.edu/)
  - Offers free tutoring services to all SIUC undergraduate and graduate students and faculty.

**SIU Email Policy:**
Official SIU Student Email Policy: [http://policies.siu.edu/policies.email.htm](http://policies.siu.edu/policies.email.htm)

**Saluki Cares:**
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in distress. By working closely with faculty, staff, students and their families, SIU Carbondale continues to display a culture of care by demonstrating to our students and their families that they are an important part of the
community. To make a referral to Saluki Cares click, call, or send: http://salukicares.siu.edu/index.html, (618) 453-5714, or siucares@siu.edu.

Student Learning Objectives

At the end of the course, the student should be able to:

• Recognize why organizations use six sigma.
• Recognize key drivers for business.
• Understand the project selection process.
• Define and describe all concepts and tools in Lean Manufacturing.
• Describe how QFD fits into the overall DFSS.
• Describe and distinguish between DFMEA and FMEA.
• Describe and distinguish between DMADV, IDOV, and relation to DMAIC.
• Identify process owners, internal and external stakeholders.
• Use various methods to collect customer information.
• Use graphical and statistical methods to analyze data.
• Define and describe elements of a project in the Define phase.
• Define project metrics for a project.
• Use project management tools (Gantt, CPM, PERT)
• Use planning tools (affinity diagrams, interrelationship graphs, tree diagrams, prioritization matrices, matrix diagrams, PDPC charts, activity network diagrams.
• Calculate process performance matrices.
• Describe and define the roles and responsibilities of participants in a Six Sigma Program
• Define and apply team tools (Brainstorming, Nominal group technique, multi-voting)
• Develop and review process analysis tools (Process maps, Written procedures, Work instructions, Flowcharts)
• Identify variables for a SIPOC chart
• Document variable relationships through Cause & Effect diagrams and Relational matrices.
• Distinguish between descriptive and inferential statistics.
• Define the central limit theorem and describe its significance.
• Define basic probability concepts (independence, mutually exclusive, AND, OR statements)
• Identify and classify continuous and discrete variables
• Define and apply methods for collecting data (Check Sheets)
• Define and apply techniques for data accuracy (random sampling, stratified sampling, sample homogeneity)
• Define, compute and interpret measures for centrality and dispersion.
• Depict relationships by constructing and interpreting diagrams and charts (Histograms, Stem & Leaf Plots, Box Plots, Run Charts, Scatter Diagrams, Pareto Charts)