Syllabus Outline: Lean Six Sigma Green Belt Certification Course 2: Simulated Project, course#: 53 620 558 90, Spring 2025

Course Overview

This course is designed for practical application of the concepts, tools and strategies learned in "Part I - LSS Green Belt Training" and includes the implementation of a realworld process improvement project, with the coaching of a Rutgers Black Belt throughout. The completed project from this course can be included in a learning portfolio that you share with current or future employers.

Learning Objectives

- Execute a Lean Six Sigma Green Belt project through all five DMAIC phases (define, measure, analyze, improve, control).
- Identify and charter relevant Lean Six Sigma project consistent with defined organizational needs.
- Collect and analyze data for specified Green Belt project.
- Assess appropriate Lean Six Sigma tools during the execution of a Green Belt project (i.e., be able to apply tools to your unique situation).
- Employ software programs to analyze data to verify and validate root cause and associated solutions.

Week 1: Introduction & Project Selection

- Review Lean Six Sigma Project Scenarios
- Form teams to complete the project

Week 2: Define

- Lean Six Sigma DMAIC Review
- Grounding for DMAIC Recognizing
- Identify the opportunities with high potential for improvement
- Outline the scope of the project

- Create a value stream map VSM to document every step in the process
- Develop a voice of the customer table VOCT to pinpoint the customer needs
- Identify all stakeholders
- Estimate project impact and completion
- Identify and document business opportunity
- Draw out other related processes

Week 3: Measure

- Develop the data collection methods to be used to measure success
- Recognize input, processes, and output indicators
- Collect and examine current state data
- Outline the failure modes and effects analysis
- Implement process capability analysis

Week 4: Analyze

- Perform a complete root cause analysis (RCA), which covers a broad range of techniques and methodologies, including change analysis, events and causal factor analysis
- Conduct failure mode and effects analysis (FMEA) to identify all possible problem areas, inefficiencies, flaws, defects, and shortcomings
- Get a visual representation of the variations within a given process
- Implement process control
- Develop a plan for improvement

Week 5: Improve

- Brainstorm and put forth solution ideas
- Develop a design of experiments (DOE) to determine the expected benefits of a solution
- Revise process maps and plans according to the data collected in the previous stage

- Outline a test solution and plan
- Implement Kaizen events to improve the process
- Inform all stakeholders about the solution

Week 6: Control

- Identify and document the new work standard
- Develop a quality control plan which ensures the entire team is working with the same techniques and metrics
- Confirm reduction in failures due to the targeted cause
- Use statistical process control (SPC) to monitor process execution and identify any issues that arise
- Determine additional improvements, if needed, to meet process objectives
- Streamline process improvements using the "Five S's" of Lean
- Integrate, document, and communicate the lessons learned

Week 7: Final Presentation

• Share final presentation and provide/receive feedback from the class

Learning Format

Throughout the program, you will work both independently and collaboratively in a virtual environment. The hallmark of this program is applied learning, so you can expect each module to be highly participative, involving a combination of real-time and asynchronous learning and activity.

Netiquette

Interactions in a virtual community can feel different from face-to-face communications. The following guidelines should be followed in the threaded discussions and your email communications in order to facilitate a positive and productive learning experience and build a respectful community of learners:

In all of your interactions, remember there is a person behind image or written post.

Be careful with humor and sarcasm. Because the visual cues are absent, many people cannot tell if your comments are meant seriously or facetiously.

Contribute to a meaningful discussion by presenting your "best self" in the course environment.

Take the time to explain your ideas respectfully and completely. However, also keep brevity in mind. You want to make your point clearly, but also make it concisely.

If a peer misinterprets your meaning, acknowledge this without being rude or defensive. It can be challenging to communicate some ideas in writing. This is your opportunity to practice clarifying your ideas to others.

Academic Integrity

As an academic community dedicated to the creation, dissemination, and application of knowledge, Rutgers University is committed to fostering an intellectual and ethical environment based on the principles of academic integrity. Academic integrity is essential to the success of the University's educational and research missions, and violations of academic integrity constitute serious offenses against the entire academic community. This academic integrity policy is designed to guide students as they prepare assignments, take examinations, and perform the work necessary to complete their degree requirements.

The principles of academic integrity require that a student:

- Properly acknowledge and cite all use of the ideas, results, or words of others.
- Properly acknowledge all contributors to a given piece of work.
- Make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of unsanctioned materials or unsanctioned collaboration.
- Obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- Treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- Uphold the canons of the ethical or professional code of his or her profession.

Adherence to these principles is necessary in order to ensure that:

- Everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- All student work is fairly evaluated, and no student has an inappropriate advantage over others.
- The academic and ethical development of all students is fostered.
- The reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.
- Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.