

Six Sigma Green Belt

SSGB

Course Syllabus

36.50 Hours

Course Description

This module introduces students to Six Sigma Green Belt and provides the basic knowledge to utilize the Six Sigma methods. Six Sigma was originally developed by Motorola in the mid-1980s as a way to help manufacturers reduce defects. Since then it has expanded to a many sectors and is best known as a business management strategy that seeks to improve the quality of process outputs. This course covers the objectives for the certification exam:

- **Six Sigma Green Belt (SSGB)**

Learning Objectives

Upon completion of the course, students will understand:

- Key Six Sigma concepts and how they help achieve organizational goals; key Lean concepts and principles used on improvement projects; relationship between Lean and Six Sigma and common Lean tools and techniques; how Six Sigma combines DFSS and tools such as FMEA to reach organizational goals, key DFSS and FMEA methodologies and concepts, distinguishing DFSS methodologies from Six Sigma DMAIC, and prioritizing process and design risks using FMEA
- Key considerations around selection of projects and methodology; process elements, project benchmarking, and the process inputs and outputs; project stakeholders, differences between internal and external customers, concepts and tools for collecting and analyzing customer information and feedback, and eliminating data biases; how customer requirements are translated into deliverable goals; project management tools used in a successful Six Sigma project, creating a project charter and how project scope and metrics are developed; tools used to plan and implement a Six Sigma improvement initiative
- Management and planning tools that are used on Six Sigma projects; metrics, using cost of poor quality to assess potential gains to the company; team roles and responsibilities, tools for effective team management, and strategies for overcoming challenges
- Key tools and techniques used to model and analyze existing processes; how to calculate probability involving independent events, mutually exclusive events, multiplication rules, permutations, and combinations; different types of distributions; basic types of data and measurement scales; how to plan data collection and how to use data sampling techniques and data collection tools
- Basic statistical tools for describing, presenting, and analyzing data; process of preparing and presenting sample data using graphical methods and making valid inferences about the population represented by the sample; how to analyze a measurement system, key elements of measurement system capability; key concepts related to process capability and performance, methods of measuring and interpreting common performance indices; how to verify the stability and normality of a given process and identify key considerations for measuring process capability
- Basic statistical tools for describing, presenting, and analyzing data; process of preparing and presenting sample data using graphical methods and making valid inferences about the population represented by the sample; how to analyze a measurement system, key elements of measurement system capability; key concepts related to process capability and performance, methods of measuring and interpreting common performance indices; how to verify the stability and normality of a given process and identify key considerations for measuring process capability
- Key tools used for exploratory data analysis in Six Sigma, correlation coefficient and its statistical significance; interpreting the linear regression equation, understanding the steps in hypothesis testing for regression statistics, explore the use of a regression model for prediction and estimation of outcomes; advanced hypothesis tests used in Six Sigma and how to use Paired-comparison t-test and chi-square tests for validating hypotheses

- Design of Experiments methodology and main effects, interaction effects, and their plots; how to use various tools for conducting root cause analysis and reducing waste; common lean tools for cycle time reduction and continuous improvement
- Statistical process control methodology, key elements of a control plan, and steps for developing an effective plan; methods for identifying, selecting, creating, and interpreting control charts for variables and attributes data, recognizing when a process has become unstable and is out of control; how TPM can be used to control the improved process and maintain process gains, elements of a visual factory and how the visual factory provides at-a-glance information about process status, targets, and performance

Course Format

SSGB) is a self-paced, online course delivered through the learning management system Skillsoft. The site to access the coursework is su.skillport.com. Login credentials will be provided to you on the cohort launch date. If you do not receive them by the launch date, please check your Spam/Junk folder of your email and/or contact your advisor or O2O program coordinator. Once you have logged into your account, you can locate the coursework by selecting “View My Learning Plan.”

Coursework is delivered through videos, tutorials, and tests. No textbooks are required for the course; however, students are encouraged to utilize additional resources to assist with certification preparation. Resource Guides with lists of supplemental study materials for each certification are available at <http://libguide.get-vet.syr.edu/curriculum/>.

Course Completion Requirements

SSGB coursework is due within 90 days from the assignment date. The course hours listed at the top of the syllabus reflect the time it would take to click through the slides and do not account for taking notes or the end of module tests. You must complete all three modules listed within Topic 1, all six modules in Topic 2, all six modules in Topic 3, all three modules in Topic 4, all three modules in Topic 5, and all three modules in Topic 6. Successful completion of a module is marked after you review the lesson videos and score 80% or higher on the end of module tests.

At the beginning of a module, you will be asked to take a pre-test. Scoring 80% or higher on the pre-test signifies competence in the information that will be covered; you will therefore be waived from completing the module. A non-credit certificate of completion will be awarded for successful completion of the coursework.

Industry Certification Requirements

In order for the program to fund your SSGB certification exam you will need to meet the SSGB practice exam requirements. Your advisor or O2O program coordinator will provide you with access to the practice exam as well as completion instructions once you have finished the coursework.

Support

- For technical support, please contact Skillsoft Support at support.skillsoft.com
- For course content support, please utilize Skillsoft’s “Ask My Mentor” tool, located in the left-hand Menu within the module course player
- For program support or questions, please contact your advisor or O2O program coordinator

Course Outline

Topic 1: Six Sigma Green Belt: Six Sigma and the Organization

- 1.1 Six Sigma and Organizational Goals
- 1.2 Lean Principles and Six Sigma Projects
- 1.3 Design for Six Sigma and FMEA

Topic 2: Six Sigma Green Belt: Define

- 2.1 Six Sigma Project Identification
- 2.2 Voice of the Customer in Six Sigma
- 2.3 Basics of Six Sigma Project Management
- 2.4 Six Sigma Management and Planning Tools
- 2.5 Performance Metrics for Six Sigma
- 2.6 Six Sigma Team Dynamics and Performance

Topic 3: Six Sigma Green Belt: Measure

- 3.1 Process Documentation and Analysis in Six Sigma
- 3.2 Basic Probability and Statistical Distribution in Six Sigma
- 3.3 Data Classification, Sampling, and Collection in Six Sigma
- 3.4 Statistics and Graphical Presentation in Six Sigma
- 3.5 Measurement System Analysis in Six Sigma
- 3.6 Process and Performance Capability Measurement in Six Sigma

Topic 4: Six Sigma Green Belt: Analyze

- 4.1 Multi-vari Studies, Correlation, and Linear Regression in Six Sigma
- 4.2 Introduction to Hypothesis Testing and Tests for Means in Six Sigma
- 4.3 Hypothesis Tests for Variances and Proportions in Six Sigma

Topic 5: Six Sigma Green Belt: Improve

- 5.1 Design of Experiments in Six Sigma
- 5.2 Root Cause Analysis and Waste Elimination in Six Sigma
- 5.3 Cycle Time Reduction and Kaizen in Six Sigma

Topic 6: Six Sigma Green Belt: Control

- 6.1 Statistical Process Control and Control Plans in Six Sigma
- 6.2 Creating and Using Control Charts in Six Sigma
- 6.3 Lean Tools for Process Control in Six Sigma