

QSO 620: Six Sigma Project Plan Guidelines and Grading Guide

Overview

The final project for this course is the creation of a detailed Six Sigma Project Plan to improve an existing process at an organization of the student's choice, such as his or her workplace. Students will use the knowledge that they have gained in this course, coupled with their previous knowledge, to create a 10-12 page paper. The Six Sigma Paper Project should be written in the student's own words and include his/her own critical analysis. The Six Sigma Project represents an authentic demonstration of competency because it will grant students hands-on experience with implementation of DMAIC (Define-Measure-Analyze-Improve-Control) methodology. The project is divided into **8 milestones**, which will be submitted at various points throughout the course to scaffold learning and ensure quality final submissions. These milestones will be submitted in **Modules One, Three, Four, Five, Six, Seven, Eight, and Nine**.

Main Elements

The Six Sigma Paper Project should contain the following elements:

- Cover page
- Abstract (executive summary)
- Table of contents
- Company background
 - History of the company
 - Development of the company
 - Growth of the company
- Eight project components
 - Problem statement
 - Project Scope Statement and SIPOC
 - Define phase
 - Repeatability and reproducibility
 - Statistical process control
 - Measure phase
 - Analyze phase
 - Improve and Control phases
- References
- Appendices

The paper project should be 10 to 12 pages in length, using 12-point Times New Roman Font with 1.5 line spacing.

Format

Milestone One: Six Sigma Problem Statement

In **1-3**, you will submit a **Six Sigma Problem Statement**. You should select a process at a business of your choice that needs improvement. Submit the 2-3 page Six Sigma Problem Statement to your instructor. This milestone will be graded using the Final Project Rubric.

Milestone Two: The Define Phase

In **3-4**, you will submit two items: a **Project Scope Statement and an SIPOC**. The Project Scope Statement should be 2-3 pages in length and relate to the main problem that you identified in 1-3. This milestone will be graded using the Final Project Rubric.

Milestone Three: Repeatability and Reproducibility

In **4-4**, you will submit a **Repeatability and Reproducibility of the Measurement System Report**. The report should be 200-400 words in length and address the following issues: What data must you collect? Who will collect the data? How do you trust that the data is accurate? This milestone will be graded using the Final Project Rubric.

Milestone Four: The Measure Phase

In **5-3**, you will **set values and calculate them for the process**. You should set the following values process target (τ), upper specification (U), and lower specification (L). Then take appropriate samples to estimate the process mean (μ) and the process standard deviation (σ).

Calculate the following for your process:

- Defectives per Million Opportunities (DPMO)
- Yield
- Process capability ratio (C_p)
- Process capability index (C_{pk})

You should submit the values to your instructor. This milestone will be graded using the Final Project Rubric.

Milestone Five: The Analyze Phase

In **6-4**, you will submit the **Root Cause of the Problem** you are trying to solve. Use Minitab® and/or a cause-and-effect diagram to format your submission. Identify the root cause of the problem you are trying to solve and construct a main effects plot, if applicable. This milestone will be graded using the Final Project Rubric.

Milestone Six: Statistical Process Control

In **7-3**, you will submit a **Control Chart**. Using the process that you chose in 1-3, identify the type of data (variable or attribute) you have collected for the outputs of interest. The format of the Control Chart should be appropriate for your data, based on the knowledge that you gained from the Module Six lecture. This milestone will be graded using the Final Project Rubric.

Milestone Seven: The Improve and Control Phases

In **8-3**, you will submit a **Plan to Improve the Process** by eliminating the root cause. The plan should include an estimate of the time and cost involved, the potential risks during the improvement process, and risk responses. This milestone will be graded using the Final Project Rubric.

Course Project: Submit for Grading

In **9-5**, you will submit your **Six Sigma Final Project**. It should be a complete, polished artifact containing **all** of the main elements of the final product. It should reflect the incorporation of feedback gained throughout the course. This milestone will be graded using the Final Product Rubric.

Deliverable Milestones

Milestone	Deliverables	Module Due	Grading
1	Problem Statement	One	Graded separately; Final Project Rubric
2	Project Scope Statement and an SIPOC	Three	Graded separately; Final Project Rubric
3	Repeatability and Reproducibility of the Measurement System Report	Four	Graded separately; Final Project Rubric
4	Values for the Process	Five	Graded separately; Final Project Rubric
5	Root Cause of the Problem	Six	Graded separately; Final Project Rubric
6	Control Chart	Seven	Graded separately; Final Project Rubric
7	Plan to Improve the Process	Eight	Graded separately; Final Project Rubric
8	Final Product: Six Sigma Project	Nine	Graded separately; Final Product Rubric

Rubric

Requirements of submission: Written components of projects must follow these formatting guidelines: 10-12 pages in length (not including cover page, abstract, table of contents, references, and appendices), 1.5 spacing, 12-point Times New Roman font, one-inch margins, and APA citations.

Critical Elements	Exemplary (100%)	Proficient (90%)	Needs Improvement (70%)	Not Evident (0%)	Value
Main Elements	Includes almost all of the main elements and requirements and cites multiple examples to illustrate each element	Includes most of the main elements and requirements and cites many examples to illustrate each element	Includes some of the main elements and requirements	Does not include any of the main elements and requirements	25
Inquiry and Analysis	Explores multiple issues through extensive collection and in-depth analysis of evidence to make informed conclusions	Explores some issues through collection and in-depth analysis of evidence to make informed conclusions	Explores minimal issues through collection and analysis of evidence to make informed conclusions	Does not explore issues through collection and analysis of evidence and does not make informed conclusions	20
Integration and Application	All of the course concepts are correctly applied	Most of the course concepts are correctly applied	Some of the course concepts are correctly applied	Does not correctly apply any of the course concepts	10
Critical Thinking	Demonstrates comprehensive exploration of issues and ideas before accepting or forming an opinion or conclusion	Demonstrates moderate exploration of issues and ideas before accepting or forming an opinion or conclusion	Demonstrates minimal exploration of issues and ideas before accepting or forming an opinion or conclusion	Does not demonstrate exploration of issues and ideas before accepting or forming an opinion or conclusion	20
Recommendation	Offers extensive alternative solutions via plan of action by applying respective theories	Offers extensive alternative solutions via plan of action	Attempts to offer an alternative solution via plan of action	Fails to offer an alternative solution via plan of action	15
Writing (Mechanics/Citations)	No errors related to organization, grammar and style, and citations	Minor errors related to organization, grammar and style, and citations	Some errors related to organization, grammar and style, and citations	Major errors related to organization, grammar and style, and citations	10
Total					100%