



# Charting Process Behavior (SPC)

## *Course Overview and Learning Objectives*

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### **SUMMARY**

This course provides the necessary tools to chart and understand process behavior over time. The body of knowledge covered by this course of study is also known as Statistical Process Control (SPC) and Statistical Quality Control (SQC). Course materials are presented within the context of a Six Sigma improvement project, where process behavior charts (control charts) are often used in the Measure, Analyze, and Control phases of the D-M-A-I-C process. However, involvement in a Six Sigma project is not a prerequisite, and no prior knowledge of Six Sigma is assumed.

This course is comprised of multiple lessons, followed by an online Quiz. All Lessons can be completed as a self-study assignment and should take you approximately 12 hours to complete. The course is designed so that you can cover individual lessons over a period of time. You may start or stop at any time. When re-entering the course, you will enter at the point where you left.

As you become proficient in all of the tools necessary chart process behavior over time, quantify variability, and assess process capability, you will be prepared to play an important role as part of an process improvement team.

### **LEARNING OBJECTIVES**

After completing this session, the participant should fully understand the following topics, recognize when to apply the tools and techniques to complete the MEASURE, ANALYZE, or CONTROL phase of a Six Sigma project, and perform calculations as required:

- Introduction to the Six Sigma DMAIC process.
- Basics of measurement.
- Construction and interpretation of a histogram.
- Evaluation of process performance over time using a Trend Chart.
- Development of a sub-grouping strategy.
- Construction and interpretation of Statistical Process Control charts for variable and attribute data.
- Capability analysis

### **COURSE STRUCTURE AND REQUIREMENTS**

MoreSteam courses provide content-on-demand to offer the highest degree of student flexibility. You can set your own schedule and progress at your own speed, terminating and re-entering sessions whenever you wish.

All course sessions use a mix of multimedia to present material, including text, synchronized audio slide shows, diagrams, charts, audio lectures, and simulations. Links to outside research

resources are provided to explore chosen subjects in greater detail. Course access is provided for **90 days** beginning at the time of enrollment.

As you work through the course you will be asked to demonstrate knowledge and understanding in four ways:

- Interactive **Practice Exercises** will be presented throughout each session so that you can try your new skills and get immediate feedback.
- **Quizzes** will be conducted at the end of every session. Quizzes are interactive, and provide immediate feedback to close the learning loop.

## **COURSE SEQUENCE**

The course is presented in a logical sequence to follow the Six Sigma DMAIC improvement process. We believe that you will learn most efficiently by following the sequence presented. The lessons are modular, and we encourage you to explore the material. You are free to move forward and backward throughout the course. You can skip ahead or go back and review material that you already covered. The course map feature allows you to move point to point, from anywhere to anywhere. The course map status column will tell you which pages you have visited.

## **HOW TO NAVIGATE AND USE RESOURCES**

Navigation aids are located in the Navigation Frame to the left of the text screen, and can be activated by clicking on the icon or text.

- Return to the MoreSteam University home page by clicking on the icon in the upper left corner of the navigation frame.
- Click on **Course Overview** (the course name) in the navigation box to return to this page to review course requirements or other general information.
- Consult the dynamic **Course Map** to identify your current location or to move around the course. The Course Map bookmarking feature will take you back to the point where you last terminated your session.
- Join a Virtual Classroom Discussion through the **Discuss** link. The Virtual Classroom Discussion is a threaded discussion forum among all current students, with input from the instructor.
- Access the MoreSteam **Toolbox** through the navigation box to research process improvement tools.
- Outside Research **Resources** provides links to useful websites and recommended books.
- The **"Instructor"** link provides a shortcut to send an email to the course instructor.
- Access a notepad to record your class notes by clicking on **"Notes"** link in the navigation box. Notes will be indexed by your current course location for easy reference, and can be printed in summary form.
- The **"Account Info."** link provides a vehicle to update your email address, phone number, or location, and shows the number of access days remaining.
- The **"Quiz Stats"** link provides a summary of quiz results by session, including detail on any skipped or missed questions.
- The **"SigmaPedia"** link opens SigmaPedia, online Lean Six Sigma encyclopedia.
- The **"StatMaster"** link opens an interactive wizard to guide statistical analysis.

- From any point in the course you can open a D-M-A-I-C flowchart by clicking on the **Six Sigma icon** in the lower left corner of the navigation bar.
- The **Help** icon in the lower left corner of the navigation bar opens an Internal Search Function and a Glossary of Terms:
- Synchronized audio slide shows will display without use of a separate media player, but you must enable your browser to read Java (Tools/Internet Options/Advanced/Microsoft VM/Check All Boxes). When you see a slide show icon displayed in the right margin of the course, click on the icon to load the media.

## **CERTIFICATE OF COMPLETION**

Upon completion of this course (review of all lessons and completion of quiz modules) a certificate of completion will be provided

## **COURSE MATERIALS**

### **Materials Provided by MoreSteam**

The course includes Microsoft® Excel® templates for problem solving and statistical analysis. The templates are available as downloads within the course material.

### **Materials Provided by Student/Company**

- General-purpose statistics software is useful but not necessary. Excel templates are provided by the course for statistical analysis. If you do not have a statistics package, options range from free internet downloads to higher-end packages like Minitab, Statistica, JMP etc. You can download a 30-day evaluation copy of most statistics packages over the web.
- Microsoft Office (Word, Excel, PowerPoint). Office 2003 or higher is recommended. Office 97 and 2000 do not take advantage of all Excel template features.

## **SUPPORT**

- Use the on-screen Help feature for a glossary of terms and site search.
- You can also contact the Course Instructor by email.

Updated: 1/1/10