## Clemson University - Center for Corporate Learning
## 1 North Main Street, 7th Floor,
## Greenville, SC 29601
## http://www.clemson.edu/online/
## Contact: Juanita Durham│ 864.656.3984│jdrhm@clemson.edu

# Six Sigma Black Belt (CSSBB)

Format:                          Self-Pace Online / eLearning
Program Duration:                6 Months
Course Contact Hours:            375

### The Six Sigma Black Belt (CSSBB) Professional

The Six Sigma Professional program is designed for high-performance employees and leaders of business improvement projects.  Whether in healthcare, finance, government, manufacturing or any other industry, Six Sigma Black Belt training is ideal for current professionals looking toward advancement in their current position as well as individuals looking to gain employment with any firm that utilizes these concepts and techniques. Experienced professionals who are able to master these techniques and gain certification in Six Sigma Black Belt are in significant demand by employers looking to ensure the most efficient use of their resources.

### The Six Sigma Black Belt (CSSBB) Program

Building upon participants' existing knowledge and practice, the Six Sigma Black Belt course will help participants to master advanced statistical analysis tools, identify opportunities with solutions that can be implemented immediately and to deliver measurable results right away in order to increase an organization's return on investment.  Participants who complete this course will be able to lead Six Sigma projects meant to enhance the capability of both internal and external processes in order to better meet customer expectations. With the comprehensive understanding of process analysis and improvement individuals gain from Six Sigma Black Belt certification, professionals with these skills with makes a significant impact on any organization and be well-positioned for advancement in their chosen fields.

### Education and National Certifications

- Students should have or be pursuing a high school diploma or GED.
- There are no state approval and/or state requirements associated with this program.
- National Certification:
  - ➢ **American Society for Quality (ASQ) Certified Six Sigma Black Belt (CSSBB) Exam**
    - o **NOTE:** Six Sigma Black Belt requires 2 completed projects with signed affidavits **OR** 1 completed project with signed affidavit and 3 years of work experience in one or more areas of the Six Sigma Body of Knowledge.
    - o Candidates do NOT need to be a Certified Six Sigma Green Belt.

## Program Objectives

At the conclusion of this program, students will be able to:

- ➢ Apply the Lean Six Sigma (LSS) model to create breakthrough in profitability and growth
- ➢ Manage projects by defining metrics, following and employing the Define-Measure-Analyze-Improve-Control (DMAIC) methodology
- ➢ Design effective teams to execute projects using tools & techniques of Lean Six Sigma
- ➢ Implement a sustainable process breakthrough using the DMAIC methodology
- ➢ Differentiate DMAIC and Design for Six Sigma (DFSS) frameworks
- ➢ Analyze a business process and engender support from executive management for using the tools and techniques relevant to the Lean Six Sigma methodology
- ➢ Sustain process breakthrough improvements in the control phase of the LSS initiative
- ➢ Use Microsoft Office

# Certified Six Sigma Black Belt (CSSBB) Program Detailed Student Objectives:

**DEPLOYING LEAN SIX SIGMA**
- Describe a Six Sigma business model
- Describe a Lean business model
- Demonstrate how LSS applies in service industries and manufacturing
- Explain how Lean and Six Sigma work together

**LEAN SIX SIGMA LEADERSHIP**
- Differentiate leadership from management
- Describe the four different styles of leadership
- Distinguish situations when each of the four styles of leadership apply
- Explain the leader's role in motivating people
- Explain the leader's role in a change process

**LEAN SIX SIGMA STRATEGIC PLANNING**
- Use the skills necessary to create a strategic plan
- Describe the importance of implementing a strategic plan
- Conduct a gap or SWOT analysis

**LEAN SIX SIGMA TEAMS**
- Describe the roles of Lean Six Sigma team members
- Identify required skills of Lean Six Sigma team members
- Explain how to give and receive appropriate feedback

**IMPROVEMENT TO GENERATE PROCESS BREAKTHROUGH**
- Describe metrics
- Use process metrics to measure business process performance
- Identify key performance metrics for business processes in a given enterprise
- Explain the six-step benchmarking process

**LEAN SIX SIGMA PROJECT PLANS**
- Explain how a Lean Six Sigma project is selected
- Use a project proposal to define a Lean Six Sigma project
- Explain how project plans guide Lean Six Sigma projects

**KEY LEAN SIX SIGMA CONCEPTS**

- Indicate the origins of waste in a process
- Explain the just-in-time system
- Describe how a pull-system supports just-in-time
- Describe how continuous flow processing supports just-in-time
- Calculate task time

**LEAN SIX SIGMA WORK OPTIMIZATION**
- Describe how line balancing affects work optimization
- Explain how setup time reduction affects work optimization
- Recognize how single piece flow supports work optimization
- Describe the relationship between level scheduling and work optimization
- Explain standardized work
- Describe the role of visual management in work optimization

**INTRODUCING LEAN SIX SIGMA DESIGN OF EXPERIMENTS**
- Identify the components of experiment design
- Define the terminology for experiment design
- Describe the structure of a design experiment
- Explain analysis of means and analysis of variance