Instructors

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The Online Six Sigma Black Belt Manufacturing Focus course focuses on the manufacturing industry using manufacturing case examples to reinforce six sigma principles. This focus is also available Live. See Option 2 below.

Prerequisites
- A bachelor’s degree
- Successful completion of the Green Belt course for the purpose of reviewing lectures presented at the basic level
- Necessary documentation provided per requested Technical Requirements
- High-speed internet access, Microsoft Excel, Real Player Basic Release 8 or higher
- DE course requires MS Excel 2000 or later
- Will be provided for statistical analyses and course exercises

Modules/Course Topics*
1. Course Introduction—Six Sigma Overview
2. Define: Six Sigma Project
3. Measure: Six Sigma Basic Statistics
4. Analyze: Visualize and Communicate Data
5. Design: Quality Engineering Design
6. Improve: Six Sigma Tools for Innovation
7. Control: Assess and Maintain Six Sigma Process

*Note: Problem-solving tools and statistical example by course module

Option 2: [MFG 461] Three-Credit Course AND
- Final certification is granted based on passing the final certification exam (50 questions, online) with >80% and successful completion of the project
- Participants should have working knowledge of:
  - Basic probability distribution fitting (e.g., normal)
  - Basic quality tools
  - Process capability
  - Design of experiments
  - Lean manufacturing
  - Quality improvement tools
- High-speed internet access, Microsoft Excel, Real Player Basic Release 8 or higher
- Will be provided for statistical analyses and course exercises

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*Note: Problem-solving tools and statistical example by course module

Course Overview
Both courses are available online for convenient “anytime, anywhere” learning. Participants complete the 40-hour course within 60 days of starting. Students pursuing the green belt certification have an additional 60 days after their online training to submit a project report. The course consists of 22 modules with exercises, providing a strong foundation in six sigma, with a focus on how to apply six sigma methodologies.

Course Content
Each module consists of one to two hours of web-based instruction, with an accompanying exercise. Exercises are a combination of multiple choice and data analysis problem sets. The exercises used throughout the course are based on real world Six Sigma projects.

NEW Green Belt Feature: DE Tools
All University of Michigan Green Belt courses now include a DE tools statistical analysis software tool. DE tools is highly functional, easy-to-use, Excel-based add-in tool designed for the Six Sigma Green Belt. Students who complete the course will apply all the problem solving tools and statistical analysis methods for a Six Sigma project.
The Online Six Sigma Black Belt Transactional-Safety Service course provides participants with the necessary tools to succeed for this certificate. Three months after the beginning of the course, participants are expected to complete all required exercises (multiple choice questions and short answers from solving cases). Final certification is granted based on passing the final certification exam (50 questions, online) with >80% and successful completion of the project. Continuing Professional Education (CPE) credits are earned. Participants can earn 132 credits toward their chosen recertification program. Necessary documentation provided prior to request.

Technical Requirements
- High-speed internet access, Microsoft Excel, Real Player Basic 8.0 or higher
- QE Tools: Includes Excel 2000 or later
- Will be provided for statistical analyses and course exercises.

NEW Green Belt Feature: OE Tools

All University of Michigan Green Belt courses now include a copy of OE Tools statistical analysis software. OE Tools is a functional, user-friendly, Excel-based add-in tool designed for the Six Sigma Green Belt. Students will apply the various problem solving tools and statistical analysis methods for a Six Sigma project.

Course Overview
Both courses are available online for convenient ‘anytime, anywhere’ online learning. Participants complete the full course within 60 days of starting. Students pursuing the green belt certification have an additional 60 days after their online training to complete a project report. The course consists of 22 modules with exercises, providing a strong foundation in six sigma, with a focus on how to apply six sigma methodologies.

Course Content
Each module consists of one to two hours of web-based instruction, with an accompanying exercise. Exercises are a combination of multiple choice and data analysis problem sets. The exercises used throughout the course are based on real world Six Sigma projects.

Modules/Course Topics
1. Six Sigma Overview
2. Define
3. Six Sigma DMAIC Problem Solving Model
4. Process Mapping
5. Voice of the Customer—Collecting Data
6. Measure—Current State Analysis
7. Analyze
8. Design of Experiments
9. Improve
10. Control

Course Features
- Anytime, anywhere learning
- All lectures, exercises, course materials, and quizzes online
- Interactive with instructors online
- Video/audio files can be placed on corporate intranets (large group training)
- Professional certification from the University of Michigan

Professional Certification
Continuing Professional Education (CPE) credits can be earned from the University of Michigan.

Technical Requirements
- High-speed internet access
- Microsoft Excel, Real Player Basic 8.0 or higher
- QE Tools: Includes Excel 2000 or later

Courses/Module Topics
1. Course Introduction—Six Sigma Overview
2. DMAIC Problem Solving Process
3. Measure
4. Measuring the Current State of the Process
5. Basic Quality Tools
6. Process Capability
7. Assessing Process Stability—Variable Control Charts
8. Statistical Process Control—Attributes Control Charts
9. Problem Solving Session
11. Process Capability—Non-Normal Distributions
12. Problem Solving Session
13. Two Variable Analysis—Correlation Analysis
14. Two Variable Analysis—Scatter plot, histogram, pareto
15. Basic linear regression / correlation (fitting a line to data)
16. Advanced Experiments—Analysis of Variance
17. Basic Microsoft Excel (and/or statistical software) skills
18. All Black belt participants are given entry into the Green Belt course for the purpose of reviewing lectures presented at the basic level.

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The Online Six Sigma Black Belt Translational-Service Focus course offers six sigma tools in a non-manufacturing context. This course focuses on more common transnational measures, such as reducing internal process time, improving customer satisfaction scores, and reducing service costs. 

The Online Six Sigma Black Belt Manufacturing Focus course focuses on the manufacturing industry using manufacturing case examples to reinforce six sigma principles. A unique feature of this course is that it is available in nine languages: English, Spanish, German, Mandarin, Japanese, French, Italian, Swedish, and Dutch.

Course Overview

Both courses are available online for convenient ‘anytime, anyplace’ online learning. Participants complete the 40-hour course within 60 days of starting. Students pursuing the green belt certification have an additional 60 days after their online training to complete a project report. 

The course consists of 22 modules with exercises, providing a strong foundation in six sigma, with a focus on how to apply six sigma tools and methodologies.

Course Content

Each module consists of one to two hours of web-based instruction, with an accompanying exercise. Exercises are a combination of multiple choice and data analysis problem sets. The examples used throughout the course are based on real world Six Sigma projects.

Technical Requirements

- High-speed internet access, Microsoft Excel, Real Player Basic 8 or higher
- DE or MPC (9th generation with Windows XP, or later) will be provided for statistical analysis and course exercises.

Modules/Module Topics

1. Six Sigma Overview
2. SEIF®: Six Sigma Project
3. Six Sigma DMAIC Problem Solving Model
4. Process Mapping
5. Voice of the Customer—Collecting Data
6. MEASURE: Current State of a Process
7. Creating Check Sheets
8. Pareto Analysis
9. ANALYZE: Qualitative Process Analysis
10. Cause and Effect Diagram
11. Interpretative Pareto Analysis
12. Statistical Significance

Online Six Sigma Black Belt Certificate
Choose from Translational-Service Focus or Manufacturing Focus $2,300

The Online Six Sigma Black Belt Translational-Service Focus course uses many of the same six sigma tools used in manufacturing, but presents them in a transnational service-focused way. The program focuses on improving internal processes, increasing customer satisfaction scores, and reducing service costs. Multiple case studies are used to illustrate Six Sigma concepts and tools. The Online Six Sigma Black Belt Manufacturing Focus course provides participants with the necessary analytical and problem solving techniques to develop effective quality and efficiency strategies and techniques. This course is available online with a variety of tools and techniques. This focus is also available live. See Option 2 below.

Prerequisites

- Six Sigma Green Belt Certification
- Completion of all 56 modules
- 4 CEU credits
- 20 hours of coursework

Course Options

Option 1: Six Sigma Black Belt Certification Program (Available Live or Online for the Manufacturing Focus)

Most participants opt to take this program as a non-credit Six Sigma Black Belt Certification Program, providing the flexibility that our program provides. Participants are expected to complete the lectures and exercises within five months from their start date. The industry-focused project will be due within six months from completion of the modules. Participants spend 120 hours reviewing lectures and completing exercises. IEMS expects participants to complete the entire program within one year from the start date. The average program completion time is eight months. The program cost for this option is $6,000, with a minimum included.

Option 2: [MFG 461] Three-Credit Course And Black Belt Certification (Available Live or Online for the Manufacturing Focus)

Qualified participants may register for MFG 461, Where Engineering Principles and Analytics—As a module of a course. Students must pass the course exam to earn academic credit. This course requires university-level distance learning tuition rate [in-state or out-of-state tuition] plus a $2000 certificate fee. Tuition rates increase by the five per cent the following year. Unlike Option 1, students are on a timetable to submit homework, take exams and quizzes, and complete projects. Please contact the online school for our course website.

Technical Requirements

- Real Player Basic 8.0 or higher
- Microsoft Excel, Real Player Basic 8 or higher
- DE or MPC (9th generation with Windows XP, or later) will be provided for statistical analysis and coursework exercises.

Course Features

- Anytime, anywhere learning
- All lectures, exercises, course materials, and quizzes online
- Interactive with instructors online
- Video/audio files can be placed on corporate intranets (large group training)
- Professional certification from the University of Michigan

Professional Certification

Complete all courses with a cumulative average greater than 80%
Complete a Green Belt project (with instructor and industry sponsor approval)

This e-learning course is not for academic credit. Upon successful completion of the course, participants receive a ‘Six Sigma Green Belt’ Certification as approved by the University of Michigan. Credits are earned. Participants can earn 48 CEU credits toward their chosen recertification program. Qualiﬁed participants may register for MFG 461, Quality Engineering Principles and Analytics—As a module of a course. Students must pass the course exam to earn academic credit. This course requires university-level distance learning tuition rate [in-state or out-of-state tuition] plus a $2000 certificate fee. Tuition rates increase by the five per cent the following year. Unlike Option 1, students are on a timetable to submit homework, take exams and quizzes, and complete projects. Please contact the online school for our course website.

Descriptive statistics (mean, std. deviation, etc.)
- Basic probability distribution fitting (e.g., normal)
- Basic linear regression / correlation (fitting a line)
- Descriptive statistics (mean, std. deviation, etc.)
- Choose and use the right tool for the right problem

LIVE Design for Six Sigma (DFSS)
Green Belt Certificate Program

Course Overview

This course provides the quality analysis skills to systematically improve new products and services as well as continuously improve existing design and business processes. This course is built around design business process improvement and product and service optimization and robustness.

Modules/Course Topics

- Course Introduction: Six Sigma Overview
- Six Sigma for Engineering and Service
- Problem Solving Session
- Project Charter
- Problem Definition Session
- Project Planning and Control
- Project Team Focus and Manufacturing Focus
- Design FMEA Analysis
- Design Verification and Validation
- Case Studies
- DFSS Project Case Study Examples

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Online Credit Options

- Master of Engineering in Business
- Master of Engineering in Automotive Engineering
- Online Six Sigma Graduate Certificate
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The UM Six Sigma Online Black Belt program was designed to help professionals reach their goal of leading organizational improvement efforts. This challenging and in-depth program—in a world-class curriculum, team-based learning environment and dynamic online format—will help you develop the advanced Six Sigma tools and techniques you need to significantly improve the performance of your organization.

The CPD offers public courses, onsite training, graduate distance learning, and web-based training to engineering and management professionals throughout the world.

The University of Michigan, as an equal opportunity/affirmative action employer, complies with all applicable federal and state laws regarding nondiscrimination and affirmative action, including Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973. The University of Michigan is committed to a policy of nondiscrimination and equal opportunity for all persons regardless of race, sex, color, religion, creed, national origin or ancestry, age, marital status, sexual orientation, disability, or Vietnam-era veteran status in employment, educational programs and activities, and admissions.