

## Design of Experiments (DOE) 2-day Course

Learn how to design industrial experiments that model optimized process limits.

Design of Experiment (DOE) is an advanced statistical tool that identifies the effects and interactions of critical process inputs and outputs. Content includes:

- How to design, conduct and analyze Full and Fractional Factorial Designs,
- Introduction to Minitab statistical software,
- Industry related cases integrating learning and practical examples.

### Day 1

- Introduction
  - Overview
  - Industry application
  - Advanced problem solving model
  - DOE Terminology
  - Response
  - Factors
  - Levels
  - Treatments
  - Design
  - Replication
  - Blocking
  - Confounding
  - Randomization
- Minitab
  - Overview of functionality
  - Basic Statistics Review
  - How we can use Minitab with DOE
- Introduction to Factorial Designs
  - Designing the experiment
  - Running the experiment
  - Collection of data
  - Interpretation of results
  - Drawing conclusions
  - Application/Use Case

### Day 2

- Introduction to Fractional Factorial Designs

- Designing the experiment
  - Running the experiment
  - Collection of data
  - Interpretation of results
  - Drawing conclusions
  - Application/Use Case
- Overview of Advanced Methods
    - Response Surface Methodology
    - Process Optimization
    - Prediction Modeling

### Who should attend

Chemical professionals who understand basic concepts in statistics.

Certificate of Completion from Mohawk College Enterprise/CI360 can be made available upon completion.

## Instructor

**Samantha Waytowich**

**Principal Consultant/Partner at CI360**



- Samantha Waytowich is a certified Lean Six Sigma Master Black Belt with 18 years of progressive experience in training, facilitation/coaching and leading teams using various continuous improvement methodologies (in Chemical/Manufacturing/Automotive/Laboratory/Health Care and Service sectors).
- After graduating from the University of Guelph with a B.A.Sc. In 1994, Samantha obtained a diploma in Chemical Engineering Technology from Mohawk College in 1999. In 2005 she became a certified Black Belt with the American Society for Quality (ASQ) and in April 2015 received her Master Black Belt certification from Villanova University.
- As a passionate change agent in Lean Six Sigma methodologies, she is skilled at facilitating teams through change and implementing sustaining improvements demonstrating a proven track record.
- Her professional career has taken her across Canada and into the US with many diverse facilitation opportunities utilizing a Lean Six Sigma thinking approach.

- Samantha has trained thousands of employees in Lean Six Sigma, facilitated over 50 successful projects and coached just as many.
- Key engagements include: Lean Six Sigma Black Belt Consultant for Leading Edge Group, Black Belt for Life Labs, TRW and Wescast Industries
- Certifications: Lean Six Sigma BB & MBB, Design for Six Sigma, Design of Experiments, Quality Function Deployment, Value Stream Mapping, Train the Trainer, Return on Investment, Project Management