

## Design of Experiments (DOE)

Would you like to reduce engineering time and cost with powerful statistical tools?



**About the instructor:**

**Larry Rodgers** is a Certified Black Belt and is formerly with Honeywell Intl. He has 40 years of experience in product development and Six Sigma. He holds a PhD in Engineering from the University of Minnesota.

DOE statistical tools can be applied to improve quality, processes, designs and many Lean and 6 Sigma problems. It is a powerful statistical method to develop mathematical transfer functions (e.g.,  $V=IR$ , but too complex for first principles) or relationships of a result based on complex dependencies.

Engineers often use the logical, but expensive, method of changing one factor at a time (OFAT) while holding the rest constant. A better alternative is DOE, which reduces the number of experiments while returning more information with less effort and time.

**Bring a laptop with Minitab software loaded on it (do not access through a VPN). For a free 30-day trial version of Minitab, visit [www.minitab.com](http://www.minitab.com).**

### After completing this workshop participants will know:

- ◆ Define DOE and explain the purpose and benefits of using DOE.
- ◆ The different types of DOE (Full & Fractional) and their purposes.
- ◆ How to generate a Full & Fractional Factorial DOE's.
- ◆ Use of Excel and Minitab for DOE's.
- ◆ Understanding how DOE's work (the math)
- ◆ Application to Design challenges.

**Who Should Attend:** Individuals involved in R&D, product development engineering, and manufacturing.

**Wednesday, May 15, 2019 8:00 a.m. - 4:00 p.m.**

**Fee:** **MA members** \$329 per person **Non-MA members** \$449 per person  
**Receive a 10% discount if you register 14 days prior to the event!**

**Location:** **Manufacturers Alliance Training Center**  
8421 Wayzata Blvd, Suite 190  
Golden Valley, MN 55426  
(For directions and map go to [www.mfrall.com](http://www.mfrall.com))

**Register:** Registration is required. Reserve on-line at [www.mfrall.com](http://www.mfrall.com), by 3:00 pm on May 13, 2019. **Your satisfaction is guaranteed.**

**Cancellation Policy:** **No refunds** for cancellations after 3:00 p.m. on May 13, 2019, or for no-shows at workshop. *(Substitutions are accepted)*