ADVANCED PROBLEM DEFINITION & ANALYSIS USING MINITAB

3 x 2-day interactive workshops

1. Minitab

Data based problem solving skills are of value to engineers, technicians, operations personnel, development chemists and laboratory analysts, who must gather, collate and interpret data, and present analysis findings in a comprehensive professional fashion on a regular basis. This six-day course is designed to provide participants with a solid foundation in the collection, representation, analysis and reporting of data. It will also provide a solid foundation for using data to resolve process problems.

Minitab® Statistical Software is a popular statistical analysis application manufactured by Minitab Inc of State College, Pennsylvania, USA. It is a world leader in data analysis applications and particularly popular in Irish companies (see http://www.minitab.co.uk). Lean Ireland consultants are experienced in the training and coaching of personnel from a wide variety of sectors, in the use of Minitab for the statistical measurement, analysis and control of process problems.

2. Learning Objective and Deliverables

The course is structured as 3 separate modules of 2 days each, spaced approximately 4 weeks apart. At the end of the course attendees will be enabled to:

> use Minitab as an everyday tool in support of quality, product development, production, and engineering activities, and
> understand when and where each statistical tool is best applied.

The course will be most effective if data from the candidates' own areas are used during training. Spacing of the modules will enable candidates to learn and then apply the techniques they learned in the workshops, before returning to the next workshop. Lean Ireland will supply 5 laptops with Minitab, and personnel will work in pairs at each laptop. The course is outlined in the agenda below.

3. Agenda

Modules	Content	Comment
Mod 1 (2 days)	Graphing techniques	The techniques in this module includes essential tools for ensuring measurement systems are in line with process and customer requirements. The module also includes tools to picture how processes are behaving and if and where they require improvement.
	Descriptive statistics	
	Measurement system Analysis - Intro	
	Measurement system Analysis - variable	
	Process capability analysis - intro	
	Control charts - Intro	
	Control charts - Variable	
Mod 2 (2 days)	Hypothesis testing - intro	The techniques in module 2 are useful for establishing if a difference in data samples true exists, and if a correlation exists between process input/ output variable measurements.
	Hypothesis testing - means	
	Hypothesis testing - variation	
	Hypothesis testing - proportions	
	Confidence Intervals	
	Correlation and Simple linear regression	
	Multiple regression and residual analysis	
	ANOVA	

Mod 3 (2 days)	Intro to DOE	DOE enables the effective selection and setting of process input variables to ensure the desired output is achieved. DOE can shorten product development time by 50% or more.
	DOE Analysis	
	Centre points and blocking	
	Fractional Factorial designs	
	Response Surface Designs	

4. Who Should attend?

The course is designed for those with a good working knowledge of statistics, and who use statistical methods on a regular basis in the workplace e.g. statisticians, laboratory analysts, development chemists, engineers, actuaries and quality personnel. Due to the intensive nature of the statistical workshops, a maximum of 8 candidates will be accommodated on the course.

If candidates are not well versed in basic statistical methodology then a preparatory 2-day workshop on statistics is advisable.

5. Contact

Bernie Rushe, Managing Director & Consultant, Lean Ireland,

Galway Technology Centre, Mervue Business Park, Wellpark Road, Galway H91 D932.
Tel: +353 91 870708, email: Bernie@LeanIreland.ie, web: www.LeanIreland.ie