Session	Session Coverage	MindPro Modules
1	• Programme Introduction • History of Lean • Concept of Value • 3Ms (Muda, Mura, Muri) • Five Lean Principles • Eleven Types of Muda & Examples • Case Study • Equity vs Equality	Training Orientation • M06 Value Focus • M07 Lean Practices
2	• History of Six Sigma • Understanding Mura (Variation) • Lean Six Sigma • Lean Six Sigma Roles • Role of a Black Belt & Competencies (ISO 18404) • Basic Statistics	• M01 Breakthrough Vision • M02 Business Principles • M03 Process Management • M04 Installation Guidelines • M09 Basic Statistics

3	• Understanding Six Sigma
	• Approaches to reduce 3Ms
	• DMAIC methodology, The Logic equation
	• Understanding Data Types & Graphical Representation
	• DMAIC Steps (ISO 13053-2:2011)
	
	Define Phase
	Step 1 (Define) - Identify the customers and the third parties, understand their demands and translate them into measurable requirements. Set improvement objectives. (4.1.2.1)
	  • Understanding Customer & Voices
	  • Customer Feedback , Affinity Diagram
		• M01 Breakthrough Vision
		• M05 Application Projects
		• M17 Survey Methods
		• M08 Quality Tools

4	• Kano Model • House of Quality (QFD) • CTQ Drill down, AHP • Project Profitability Assessment (ROI, NPV)	• M08 Quality Tools • M20 DFSS Methods

5	• Hoshin Planning
	Step 2 (Define) - Define and set down the team objectives for the project: deadlines, stakes, constraints, risks, return on investment, competencies and scope of the project. (4.1.2.2)
	  • Project Charter
	  • Elevator Speech
	  • Selecting Team members (Belbin, MBTI, Tuckman's)
	  • Allocating Roles & Responsibilities (RACI, ARMI)
		• M05 Application Projects
		
		• M08 Quality Tools

6	• Stakeholder Analysis & Influence mapping
	Step 3 (Define) - Characterize the activity or the process. (4.1.2.3)
	  • Process mapping – Levels of mapping
	  • SIPOC
	  • Flow Chart, Deployment Flow Chart
		• M08 Quality Tools
		
		• M03 Process management

7	• Value Stream Mapping • Yamazumi, Spaghetti Diagram, A3 • Introduction to iGrafx Flow Charter	• M06 Value Focus • M07 Lean Practices • M08 Quality Tools • M20 DFSS Methods

8	• Introduction to TPM
	Measure Phase
	Step 4 (Measure) - Take the measurable requirements (Y) and select one or more critical variables (X) to improve (4.2.2.1)
	Step 5 (Measure) - Define the data to be collected in order to pinpoint the process variation drivers (X) (4.2.2.2)
	  • 5W1H, Five Why's
	  • Fishbone Diagram
	  • FMEA
	  • Initial Prioritization of Causes (Voting, C& E Control Impact matrix)
	Step 6 (Measure) - Double-check the fitness of the metrics selected. (4.2.2.3)
	  • Measurement System Analysis - Introduction
		• M08 Quality Tools
		
		• M08 Quality Tools
		
		• M21 Measurement Analysis

9	▪ Attribute R & R	▪ M21 Measurement Analysis
	▪ Gage R & R	
	Step 7 (Measure) - Develop a stratified data collection (X and Y) plan (4.2.2.4)	
	▪ Data Collection Plan, Operational Definition	
	▪ Sampling Strategy & Bias	
10	▪ Sample Size Calculation	▪ M11 Discrete Capability
	Step 8 (Measure) - Understand and validate the data (4.2.2.5)	
	▪ Pareto Chart	▪ M12 Hypothesis Testing
	▪ Box Plot	▪ M08 Quality Tools
	Step 9 (Measure) - Measure process performance and/or process capability. (4.2.2.6)	
	▪ Process Capability Determination - Discrete	▪ M03 Process Management
	▪ Run Chart	▪ M20 DFSS Methods
	▪ Anatomy of Defects Opportunity	
	▪ DPMO Calculation, Z Conversion	
11	▪ Process Capability Determination - Continuous	▪ M21 Measurement Analysis
	▪ Individual Distribution Identification	▪ M12 Hypothesis Testing
	▪ Cp, Cpk, Pp, Ppk	▪ M10 Continuous Capability
	Step 10 (Measure) - Confirm or readjust the improvement objectives	
	Analyze Phase	
	Step 11 (Analyze) - Analyze the process to pinpoint non value-adding activities or activities that need improvement. (4.3.2.1)	
	Step 12 (Analyze) - Chart potential links between X and Y. (4.3.2.2)	
	Step 13 (Analyze) - Quantify the impact of key process variables X and their potential interaction (4.3.2.3)	
	▪ Introduction to Hypothesis Testing	
12	▪ Analysis Planning & Test selection	▪ M12 Hypothesis Testing
	▪ Null & Alternate Hypothesis	▪ M13 Confidence Intervals
	▪ 2t Test	▪ M15 Parametric Methods
	▪ One-way ANOVA Test	▪ M18 Nonparametric Methods
	▪ Mann-Whitney Test	
	▪ Moods Median Test	
13	▪ 2 Variance Test	▪ M12 Hypothesis Testing
	▪ Test for Equal Variance Test	▪ M13 Confidence Intervals
	▪ 2P Test	▪ M15 Parametric Methods
	▪ Chi square Test	▪ M18 Nonparametric Methods
	▪ 1t, Wilcoxon, 1P and 1 Variance Test	▪ M16 Chi square Methods
14	▪ Linear Regression	▪ M15 Parametric Methods
	▪ Multiple Regression	▪ M19 Experimental Methods
	▪ Multicollinearity	
	▪ Binary Logistic Regression	
	▪ Main Effects Plot	
	▪ Interaction Plot	
	▪ Matrix Plot	
15	Step 14 (Analyze) - Further refine the assessed impact of key process variables by employing an experimental approach to find new factors. (4.3.2.4)	
	▪ Introduction to Design of Experiments	▪ M19 Experimental Methods
	▪ Full Factorial Experiments	
	▪ Response Optimization	
	▪ Fractional Factorial Experiments	
	▪ Introduction to RSM	
16	**Improve Phase**	
	Step 15 (Improve) - Determine the target process. (4.4.2.1)	
	Step 16 (Improve) - Generate solution ideas/redesign. (4.4.2.2)	
	Step 17 (Improve) - Test . (4.4.2.3)	
	▪ Ideation Tools	▪ M08 Quality Tools
	▪ SCAMPER	
	▪ Brainstorming, Brainwriting	

	▪ Assumption Busting, Process benchmarking	
	▪ Random Stimulus, TRIZ	
	▪ Application of Lean Tools e.g. 6S+, ECRS	
17	Step 18 (Improve) - Assess the Risks . (4.4.2.4)	
	Step 19 (Improve) - Select . (4.4.2.5)	
	▪ Prioritization Tools	
	▪ Criteria-based matrix	
	▪ Pay-off matrix	
	▪ N/3 voting	
	▪ Six thinking hats	
	▪ Paired comparison & Pugh matrix	
	Step 20 (Improve) - Organize solution deployment . (4.4.2.6)	
	Step 21 (Improve) - Implement . (4.4.2.7)	
18	Control Phase	
	Step 22 (Control) - Update the control plan (4.5.2.1)	
	▪ Process Control Plan	▪ M08 Quality Tools
	▪ Poka Yoke	
	Step 23 - (Control) Document the best-practice activities (4.5.2.2)	
	Step 24 - (Control) - Implement solution monitoring (4.5.2.3)	
	▪ Control Charts Selection	▪ M08 Quality Tools
	▪ Continuous Control Charts	▪ M14 Control Methods
	▪ I – MR chart	
	▪ X bar – R chart & X bar - S chart	
	▪ Discrete Control Charts	
	▪ Defects Charts – C charts & U chart	
	▪ Defective Charts – P and nP Charts	
	▪ OCAP	
	Step 25 (Control) - Double-check the improvement is effective and efficient (4.5.2.4)	
	Step 26 (Control) - Capitalize on the lessons learned (4.5.2.5)	
	Step 27 (Control) - Institutionalization. (4.5.2.6)	
	Step 28 (Control) - Project closure and celebrate completion.(4.5.2.7)	
	Programme Feedback	