



## Lean training (3+1 days)

Participants will get to know the essence of lean thinking, the tools of lean house, and become capable suggest improvements to the values stream, so as material quicker flow. lead time and inventory will decrease.

	Morning (4 hours)	Afternoon (4 hours)
<b>Day 1</b>	<p><b>Introduction</b></p> <p><b>Lean foundations</b></p> <ul style="list-style-type: none"> <li>• Simulation game</li> <li>• The 5 lean principles: value, value stream, flow, pull, perfection</li> <li>• The logics of lean production, context, goals</li> <li>• The relationship among inventory, material flow and lead time</li> </ul>	<p><b>Lean foundations (cont'd)</b></p> <ul style="list-style-type: none"> <li>• The brief history of TPS and lean</li> <li>• The 7 wastes (7 Muda)</li> <li>• The house of lean: structure and methods</li> </ul> <p><b>VSM (Value Stream Mapping)</b></p> <ul style="list-style-type: none"> <li>• VSM foundations</li> <li>• VSM case study, drawing the present state</li> <li>• Planning the future state</li> <li>• Levelled production in the value stream</li> </ul>
<b>Day 2</b>	<p><b>Jidoka</b></p> <ul style="list-style-type: none"> <li>• Automatic machine stop</li> <li>• Operator line stop</li> <li>• Perfect quality at the source</li> <li>• Poka-Yoke – error proofing</li> </ul> <p><b>Production and inventories</b></p> <ul style="list-style-type: none"> <li>• Products and product families</li> <li>• Alternatives: Make-to-Stock (MTS), Make-to-Order (MTO)</li> <li>• Inventory categories</li> </ul>	<p><b>Cellular manufacturing</b></p> <ul style="list-style-type: none"> <li>• Selecting the products</li> <li>• Process analysis and the Operator Balance Chart (OBC)</li> <li>• The physical design of cells, materials supply, ergonomics</li> <li>• 6 alternatives for distributing the work among the operators</li> <li>• Responding to changing customer demand, cell modes</li> <li>• Realization, improvement, support</li> </ul>
<b>Day 3</b>	<p><b>Kanban system</b></p> <ul style="list-style-type: none"> <li>• Kanban principles and types</li> <li>• In-process Kanban and ways of realization</li> <li>• The calculation of Kanban quantities – sizing supermarkets</li> <li>• Signal Kanban (triangle Kanban, lot-making board)</li> <li>• Extension to the whole facility</li> <li>• Ways to improve the system</li> <li>• Responding to changing customer demand</li> <li>• Kanban video</li> </ul> <p><b>Sequential pull systems</b></p> <ul style="list-style-type: none"> <li>• FIFO pull</li> <li>• FIFO line</li> </ul>	<p><b>Heijunka</b></p> <ul style="list-style-type: none"> <li>• Selecting the pacemaker, determining the pitch, scheduling</li> <li>• Developing and loading the Heijunka board (algorithm)</li> </ul> <p><b>Logistics and materials storage</b></p> <ul style="list-style-type: none"> <li>• Plan for Every Part (PFEP), market places for inventory</li> <li>• Internal (Mizusumashi) logistics: route planning, work standardization</li> </ul> <p><b>Summary and outlook</b></p> <ul style="list-style-type: none"> <li>• The extension of lean to the complete supply chain</li> <li>• Introducing lean: guidelines, strategic approach, expected benefits</li> <li>• Preparation of lean action plan</li> </ul>
<b>Day 4</b>	<b>Production simulation game (optional)</b>	