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Course ID: S16

## **QUICK CHANGE OVER (SINGLE MINUTE EXCHANGE OF DIES - SMED)**

**Online course: 3 modules x 4 hours each, with onsite project work**

### **1. What is this course about?**

Developed by Shigeo Shingo, consultant with the Toyota Motor Company, SMED is a method for reducing waste in a manufacturing process. SMED provides guidelines for reducing the time to tear down and set up a machine, necessary steps to convert from manufacturing the current product to running the next product. SMED is also used for shortening clean down and line clearance times. SMED or quick changeover is key to increasing available production time, reducing production lot sizes and thereby improving flow.

This online course enables you to identify and implement improvements to the set-up/changeover process on a machine. Participants will learn how to run a full SMED exercise using appropriate lean tools such as video, process mapping, spaghetti mapping, error proofing and standard work. The course is facilitated over three online live webinars, and involves interactive exercises, quizzes and assignments. Ideally, you will commence a SMED exercise on site at the start of the course, and report on SMED success as an assignment following course completion.

### **2. What will I achieve?**

At the end of this workshop you will...

- understand the definition of changeover time and how it is measured;
- know how to use a range of lean tools to reduce changeover time;
- know how to establish a robust and standard set-up and changeover process on a specific machine, and
- have the ability and confidence to further improve and refine the machine changeover process on an ongoing basis.

### **3. How will I be supported?**

During this online course, you will

- a) be able to listen to and interact with the online course tutor and other participants;
- b) be able to ask questions and complete online quizzes to self-assess your understanding of the topic;
- c) be able to download all online lean course recorded webinars for your own future use, and
- d) be able to download soft copy presentation files, with data sets and case studies, for your own future use.

Total contact hours = 12 hours for all 3 webinars. In addition to the contact hours on webinars, participants will be required to work on assignments between modules. On completion, you will receive a Lean Ireland certificate of completion.

Before the course starts, you will select a SMED project on which to work during the course. The course tutor will be happy to help with project selection and scope. In addition to the contact hours

on webinars, you will work in a team on a changeover project. Project mentoring is provided by the tutor between webinar modules.

The webinars are hosted on the secure Lean Ireland learning platform.

#### 4. What topics will be covered?

Webinar ID	Content	Duration
<b>S16 E01</b>	<p>Introductions, Lean principles and the 7 wastes.            Introduction to SMED, video review &amp; discussion, external and internal activities.            Gemba walk and review of potential SMED application at the machine.            Documenting the current state: video, process map &amp; spaghetti map.            Establishing current SMED performance:</p> <ul style="list-style-type: none"> <li>- Review of video taken of SMED pre course start</li> <li>- Review of measurements</li> <li>- Time chart.</li> </ul> <p>Brainstorming of process problems:</p> <ul style="list-style-type: none"> <li>- Time stealers during set up</li> <li>- Time stealers during clean down.</li> </ul> <p>Production stops.</p>	4 hrs
<b>S16 E02</b>	<p>Review of progress with practical SMED project.            Categorizing external &amp; internal activities:</p> <ul style="list-style-type: none"> <li>- Identifying hazards</li> <li>- Identifying redundancy.</li> </ul> <p>Identifying complexity Improving the process &amp; brainstorming of ideas:</p> <ul style="list-style-type: none"> <li>- Error proofing</li> <li>- Tool location</li> <li>- Shadow boards.</li> </ul> <p>Standardization.</p>	4 hrs
<b>S16 E03</b>	<p>Review of progress with practical SMED project.            Control plan:</p> <ul style="list-style-type: none"> <li>- SPC charts &amp; visual controls.</li> </ul> <p>Overall equipment effectiveness (OEE) .            Total productive maintenance (TPM).            Success:</p> <ul style="list-style-type: none"> <li>Closing review with team, action items &amp; responsibilities</li> <li>Closing review with managers</li> <li>Celebrating success</li> <li>Deploying the methodology</li> <li>Establishing a successful SMED programme.</li> </ul>	4 hrs
<b>Total hours</b>		<b>12 hours</b>

The live webinars are spaced at suitable intervals to enable the practical SMED work to take place. Typical intervals are: E01 + 2-week interval + E02 + 4-week interval +- E3. Some weeks after the final live webinar, the team will forward the final before/after changeover performance measurements to the course tutor.

The course tutor will be available online to provide support as required during the SMED project.

## **5. Who is this course for?**

This series of live webinars is practical in nature and suitable for a cross functional team of operations managers, engineers, maintenance personnel, quality personnel, team leads, and general production operatives from the area. The participants should ideally be those who run the equipment on a daily basis, and the supporting engineering, maintenance and quality personnel. Minimum to maximum number of participants = 5 to 12

## **6. Certification standard and process**

Each candidate who attends all 3 modules in full, and who completes a SMED team project, will receive a Lean practitioner Level 2 certificate. This certification is based on compliance with the following ISO standard: *ISO 14085 Quantitative methods in process improvement — Six Sigma — Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation.*

The certifying project is formally evaluated by a Lean Ireland certified lean six sigma black belt. The certificate is awarded by Lean Ireland.

## **7. Tailor your course**

If you would like to customise a course e.g. use process data and a problem case study relevant to your organisation, this can be easily arranged. Also, the course can be hosted on any other suitable platform of your choice. Please contact us to discuss your needs.

## **8. Where can I find out more?**

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