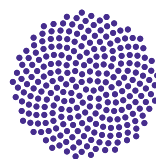




# Continuous Improvement in Manufacturing

QQI Award NFQ Level 5  
Developed by the industry  
for the industry



**Irish Medtech**  
Association  
**ibec**

[irishmedtechskillnet.ie](http://irishmedtechskillnet.ie)

## Continuous Improvement in Manufacturing

QQI Award NFQ Level 5

### Introduction

**Irish Medtech Skillnet** is an approved provider of a programme leading to the Continuous Improvement in Manufacturing QQI Award Level 5 of the National Framework of Qualifications.



### ABOUT THE COURSE

The primary objective of this Continuous Improvement (CI) blended learning programme is to train and certify employees, within the Life Sciences sector, in CI methodologies and tools (Lean & Six Sigma). The skills and knowledge gained is expected to lead to fewer errors, higher performance, less waste, lower costs and higher efficiencies in the sector. It is expected that participants will gain a thorough understanding of Lean Principles and be able to implement 'lean' improvements in their areas of responsibility, thereby assisting in the transformation of their organisation into a leaner and more competitive enterprise leading to added value to products and services.

### ABOUT IRISH MEDTECH SKILLNET

Working in partnership with Skillnets Ireland and our contracting organisation, the Irish Medtech Association (Ibec sector), the Irish Medtech Skillnet has over the past number of years grown substantially in direct response to the training needs of Industry. Total expenditure (2008 - 2017) is over €6.3 million with 42% contribution from member companies and the remaining 58% funded by the State. Targets of over 8,900 trainees and 46,000 training days have been achieved.

### ABOUT IRISH MEDTECH

The Irish Medtech Association is a business sector within Ibec that represents the Medical Technology sector and is a proactive membership organisation with over 180 members located throughout Ireland. It works directly with government and policy makers nationally and internationally, to shape business conditions and drive economic growth. Led by a board of 18 industry leaders, and facilitated by a dedicated professional executive staff, our working groups, forums and task forces are the primary enablers of Irish Medtech's Association strategy.

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## COURSE OUTLINE

The course is delivered in 7 units. The following modules are designed to provide participants with knowledge, skills and Competencies in CI tools:

1. Introduction to Continuous Improvement
2. Value Stream
3. 5S and the Visual Factory
4. Problem Solving / Mistake Proofing
5. Control of Variances
6. Equipment Effectiveness & Performance (TPM, OEE, SMED)
7. Sustaining Progress

The course will be taught by a training facilitator or in-house experts who have completed the Train the Trainer course. The course delivery consists of a mix of formal sessions, group sessions, breakout sessions, demonstration, practical tasks and multimedia/PowerPoint presentations. Participants will receive a comprehensive Irish Medtech Skillnet Training Manual as they begin their course.

## Entry Requirements

There are no minimum entry requirements for the course. However, it is expected that participants will have experience working in the Life Sciences sector, in the areas of manufacturing and/or manufacturing support functions such as Materials, Quality, Finance and Engineering. It is also expected that one has a keen interest in developing skills in CI tools. A good level of English is required.

## Certification and Assessment

This is a QQI certified course and successful participants will receive the Certificate in Continuous Improvement in Manufacturing (Code 5N1915) at Level 5 on the National Framework of Qualifications (NFQ).

Assessment consists of a Theory Test (40%) and the preparation and submission of a Portfolio of Coursework (60%).

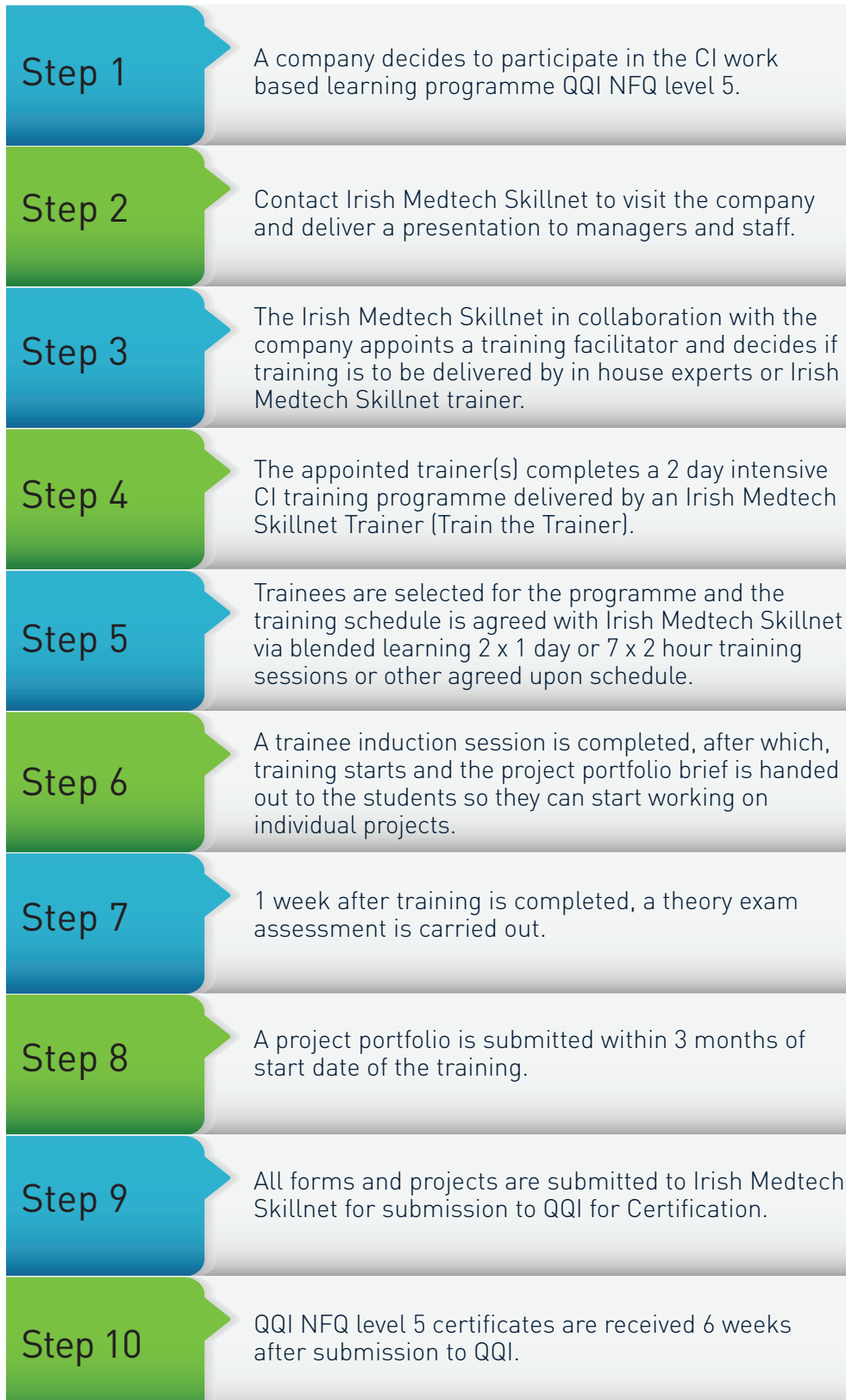
Participants are expected to complete some study/ learning outside of the formal delivery of the course to successfully complete the required assessments.



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## HOW THE PROGRAMME WORKS



## COURSE DETAILS

### Schedule

Flexible delivery -  
Recommended 7 x 2 hour  
modules or 2 x 1 day

### Training Location

Available nationally

### Course Cost

Irish Medtech Skillnet Member:  
€3,000 incl. certification (based  
on 12 people with external  
trainer 2 x 1 day).

A company can nominate an  
internal trainer to reduce costs  
of training during roll out.

### Learner Support

Course participants will receive  
learning support, for the  
duration of the course, from their  
in-company course coordinator.  
The specific details, in this  
regard, will be outlined on course  
commencement.

### Training with Irish Medtech Skillnet

For further information, contact  
Michelle.Reinecke-Quain@ibec.ie  
or visit our website at  
[www.irishmedtechskillnet.ie](http://www.irishmedtechskillnet.ie)

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## LEARNING OUTCOMES

### 1. Introduction to Continuous Improvement

- Meaning and Objectives of Continuous Improvement
- Various forms of waste TIMWOOD – and waste reduction opportunities
- 'Who does Lean' within the organisation
- Understand the term 'Kaizen' and what is a Kaizen (blitz, event, burst)
- Distinguish between Value Added (VA), Non VA and Non VA but Necessary activity
- The 6 Sigma approach and its impact on variation
- The DMAIC cycle

### 2. Value Stream

- Value Stream Mapping and its process steps
- Typical Shop floor layouts
- Lean Principles and Flow
- Inventory and its associated problems
- Kanbans Push/ Pull
- Economic Lot sizing and how to reduce lot sizes

### 3. 5s and the Visual Factory

- Understand the principles of 5S
- Describe the 5 key concepts of 5S.
- Implementation of one of the 5S principles
- What are shadow boards and opportunities for their use
- Purpose of Visual Systems and their role
- How to sustain 5S

### 4. Problem Solving / Mistake Proofing

- Problem solving tools: Pareto Principle; 5 Why's; Brainstorming; Cause & Effect Diagram (C&E); Failure Mode & Effects Analysis (FMEA).
- Poka-Yoke and the 3 elements to Mistake Proofing
- Mistake Proofing Techniques

### 5. Control of Variances

- Six Sigma and the DMAIC methodology
- Impact of variation and how to control it
- Statistical Process Control
- Need for good data
- Need for robust control process

### 6. Equipment / Effectiveness and Performance (TPM, OEE, SMED)

- Principal Characteristics of TPM
- Duties in TPM & shift start up check routine
- TPM maintenance activity
- OEE and how to calculate OEE
- Principle of SMED and its implementation

### 7. Sustaining Progress

- Identify the benefits of CI activity
- How to sustain progress in CI
- Understand the CI manufacturing tools
- Appropriate methods (tool) to be used for future Continuous Improvement plans
- How CI initiatives/ activities contribute to profit and where CI initiatives may impact a profit and loss account

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### CASE STUDY

## Manufacturing Excellence - an Integer case study

Paula O'Brien, Training Supervisor at Integer, New Ross, talks about the value of rolling out Continuous Improvement in Manufacturing QQI Award NFQ Level 5 programme.

In June 2012, Integer's operation in New Ross Co. Wexford achieved the distinction of becoming the first medical device manufacturing plant in Europe to achieve the prestigious Shingo accreditation.

This achievement was subsequently honoured by the Irish Medical Devices Association when they crowned Integer as Ireland's MedTech Company of the year for 2012. Anxious to build on the momentum and enthusiasm of their employees, the company looked at how they could increase their internal operational excellence capabilities. The ideal programmes would have to meet the following criteria:

- Provide a new layer of C.I expertise rather than expanding programs already in place at Integer.
- Have a practical application.
- Deliver a recognized qualification.
- Be cost effective.

After reviewing many options, the Continuous Improvement in Manufacturing, QQI Award at NFQ Level 5 provided by the Irish Medtech Skillnet was selected. As this was a national level 5 certification, there was a requirement to first train five internal facilitators who would be responsible for delivering the seven CI training modules. The internal facilitators selected were already experienced in C.I. with some already holding a Lean Manufacturing qualification. Their training was delivered at Integer over two days using a combination of class based, videos & web based teaching aids.

Ten employees including team leaders, trainers and back office support staff were selected as the first wave of trainees. Each of the seven CI modules: Introduction to Continuous Improvement, Value Stream Mapping, 5S & Visual Management, Problem Solving, Control of Variances, TPM and Sustaining Progress were delivered by the internal facilitators in two hourly sessions each week over a seven week period. This was followed, a week later, with a written exam.

The next phase of the course required each trainee to carry out a workplace C.I. project incorporating the lean tools & techniques e.g. Problem Solving, SMED & TPM and on completion write up a portfolio detailing the learning outcomes. For most of the trainees the challenge of leading a project and writing such a comprehensive report was alleviated by the fact that they were partnered with one of the internal facilitators who was always on hand to offer support and direction.

The timeline between training on the first module to the project report submission was aggressive, however necessary in order to make the gap between learning in the classroom and implementing in the workplace as short as possible. All ten of our 2013 CI students passed with seven of them achieving distinction level. This year we have had another ten successfully complete the course (nine at distinction level) with another group scheduling to commence training in December. In fact, such has been the success of this training program that we now have a waiting list of employees wanting to participate & our goal is to qualify 20 employees per year going forward.

The course has certainly met the criteria set out originally. It has provided a new layer of expertise at the team leaders and supervisor level within Integer which helps to embed continuous improvement into the DNA of the company while also providing this key group with additional skills to drive the company forward.

One unexpected dividend from the course was the personal development of the internal facilitators. The fact that some of them were mentoring people outside of their own departments helped to forge strong working relationships which will last long after the QQI award is attained. Finally, the blended learning format of the programme lends to a very cost effective method of certifying our people.

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“The course detail was excellent and gave me a true understanding of CI and lean principles. Now when errors occur, I look at them as ‘turning mistakes into opportunities for improvement’ both at work and at home. Having the QQI level 5 qualification gives me greater confidence in my own ability as well as changing other people’s perceptions of how much more I can contribute.”

Kate Moore, Assembly Supervisor,  
Integer, New Ross, Co. Wexford

“This course brings the perfect balance between training & application of continuous improvement principles. The training is excellently structured and presented in a highly professional manner.”

Peter Keating, OpEx Program Lead,  
Abbott Diabetes Care, Donegal

Peter Keating, Op Ex Lead and  
Pauline O’Flanagan, Irish Medtech  
Skillnet reviewing Continuous  
Improvement in Manufacturing  
NFQ 5 projects displayed as  
A3 posters in Abbott Diabetes  
Care, Donegal





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Irish Medtech Association is a business sector within Ibec

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An Roinn Oideachais  
agus Scileanna  
Department of  
Education and Skills

