

# WM9PL-15 Lean Six Sigma and Process Improvement

**24/25**

**Department**

WMG

**Level**

Taught Postgraduate Level

**Module leader**

Graeme Knowles

**Credit value**

15

**Module duration**

4 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

Modern organizations need to evolve quickly in order to deliver rapidly changing customer requirements, and to achieve levels of efficiency and effectiveness which will generate a sustainable market position. This module is designed to equip participants with the knowledge and skills to contribute to excellence within organizations by reducing waste and variation using robust approaches such as Lean and Six Sigma, and their associated tools. The application of process improvement approaches fits within the 'Execution' section of the model with particular impact in creating sustainable value and driving performance and transformation.

### Module aims

The module aims to enable participants to understand how organizations manage and improve processes to support policy and strategy and fully satisfy, and generate increasing value for customers and other stakeholders. In particular it focuses on the reduction of waste, variability and associated costs through Lean Six Sigma approaches.

### Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

1. Linking improvement activities to customer satisfaction and company policy and strategy.
2. The importance of customer-focused, process-oriented improvement approaches
3. Six Sigma Define, Measure, Analyse, Improve, Control methodology and associated tools.
4. Principles of Lean.
5. Principles of Six Sigma.
6. The significance for business performance of waste and variability in processes.
7. Supplier-Input-Process-Output-Customer analysis to establish key contributors to process performance.
8. Waste analysis and reduction techniques including the seven wastes, quality costs and cause and value adding analysis.
9. Variability reduction techniques such as SPC and Taguchi Methods.
10. Measurement of process performance.
11. Measurement systems capability.
12. Human aspects of improvement activities.
13. Setting-up, running and evaluating improvement projects.

## **Learning outcomes**

By the end of the module, students should be able to:

- Synthesise the fundamental concepts of variability and waste reduction and apply them to organizational situations.
- Critically analyse business process performance and the impact of waste and variability.
- Work as a team to apply a structured improvement process and appropriate methodologies and tools for organizational benefit.
- Critique different approaches to process improvement and select an appropriate approach for an organization.
- Plan and manage the effective implementation of Lean Six Sigma deliver company policy and strategy including human, financial and business implications.

## **Indicative reading list**

Six Sigma, Knowles, G. (2011) Bookboon ISBN: 978877681852-4

Quality Management, Knowles, G. (2011) Bookboon ISBN: 978877681875-3

Six Sigma Practitioners Guide to Data Analysis, Wheeler, D.J. (2010) SPC Press  
ISBN: 9780945320715

The Six Sigma Way, Pande, P.S., Neuman, P., Cavanagh R.R. (2014) MacGraw-Hill ISBN:  
9780945320715

The Six Sigma Handbook (6th Edition), Pyzdek, T. & Keller, P. (2023) MacGraw-Hill Education  
ISBN: 9781260121827

Quality Management for Operational Excellence, Goetsch, D.L. & Davis, Davis, S. (2016) Pearson  
ISBN: 9780133791853

Smart Manufacturing: the Lean Six Sigma Way, Tarantino, A. (2022) Wiley, ISBN: 1119846617

Quality Management: Reconsidered for the Digital Economy, Beckford, A. (2022) Routledge ISBN:  
9780367863029

[View reading list on Talis Aspire](#)

## Subject specific skills

Variation reduction using process control, experimental design, data analysis, process improvement using DMAIC system, customer focus, waste reduction, benefit evaluation, improvement initiative design & conduct, Lean, Six Sigma

## Transferable skills

Analytical skills, numeracy, team working, reflective practice, communications skills, research skills

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## Study

### Study time

Type	Required
Lectures	9 sessions of 1 hour (6%)
Seminars	5 sessions of 1 hour (3%)
Supervised practical classes	17 sessions of 1 hour (11%)
Online learning (scheduled sessions)	(0%)
Online learning (independent)	36 sessions of 1 hour (24%)
Other activity	15 hours (10%)
Private study	8 hours (5%)
Assessment	60 hours (40%)
Total	150 hours

### Private study description

Online learning system for Lean Six Sigma Yellow Belt.

### Other activity description

Research work in teams on subjects set by tutor

### Costs

No further costs have been identified for this module.

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## Assessment

You must pass all assessment components to pass the module.

## Assessment group A

	<b>Weighting</b>	<b>Study time</b>
Post Module Assignment	60%	40 hours
Written report on a case study to demonstrate the achievement of the learning outcomes.		
Implementation of Lean Six Sigma Projects	20%	10 hours
The group will be given an aspect of Lean Six Sigma project implementation to research and present to their colleagues		
Impact of Lean Six Sigma learning on practice	20%	10 hours
Students will be assigned an aspect of the module learning to reflect upon and develop a plan for how they will integrate this learning into their future practice		

## Feedback on assessment

Marks returned for the in-module assessments and mark & written feedback given on the written post module assignment.

### In module assessment feedback

During the module immediate formative oral feedback is provided on the in-module presentation. This focuses on the content of the presentation, and how this has achieved the learning outcomes of the module. The Marks are included in the feedback given on the written post module assignment with written comments reflecting the verbal comments provided earlier.

### Written assignment feedback

Written feedback of a minimum of 250 words each are provided for the written post module assignment and the reflective piece using the WMG feedback template. This feedback will be focussed upon the strengths and weaknesses of the work with regard to the module learning outcomes and the post-module assignment marking guidelines. Suggestions for improvement will also be provided.

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## Availability

## Courses

This module is Core for:

- Year 1 of TWMS-H1S9 Postgraduate Taught Management for Business Excellence (Full-time)