

# ES438-15 Quality Systems

**24/25**

**Department**

School of Engineering

**Level**

Undergraduate Level 4

**Module leader**

Graeme Knowles

**Credit value**

15

**Module duration**

10 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

ES438-15 Quality Systems

[Module web page](#)

### Module aims

To be successful engineering organizations must combine technical skills with organizational and managerial competencies. This module links key theories of leadership, change management, motivation and robust decision-making to industrial practice; it will develop the understanding and capabilities of students to contribute effectively in developing and delivering strategies for excellence and change in complex organizational situations.

### 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.

Introduction:

Quality philosophies and systems: DSoPK, Deliberately Developmental Organizations, Customer Driven Organizations

Initiating and Managing Change: Organisational change; human aspects.  
People (motivation, management, importance to success)  
Leadership (what it is, why it matters, key theories, impact)  
EFQM Model (how it helps, how it works, strengths and weaknesses)  
Strategy (treating quality as a strategic initiative, linking quality to business goals and processes)  
Service Quality (links to Manufacturing, unique features, SERVQUAL, Customer Journey)  
Management Decision Making (emotional context, use of data)  
Partnerships and Resources (Looking outside the organization to customers and suppliers, managing by the means)  
Organisational Learning (what it is, how to measure it, how to support and measure it)

## **Learning outcomes**

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

- Evaluate a range of quality philosophies and models; compare their strengths and limitations, and assess the potential impact on organizational performance.
- Synthesise effective approaches to leading and managing in engineering organizations from a range of principles and practice.
- Make robust decisions considering a range of factors including numerical data, human factors and business principles.
- Design effective change management approaches incorporating systems thinking, individual motivation and appropriate change models.
- Create and deploy quality strategies to deliver business improvement.
- Assess the quality of their own work and reflect upon their experiences and practice.
- Effectively present their understanding and ideas in both oral and written form.

## **Indicative reading list**

Quality Management e-book (2011); Graeme Knowles; <http://bookboon.com/en/quality-management-ebook> ISBN: 0-945320-45-0 (free downloadable PDF written specifically to support the course)

Six Sigma e-book (2011); Graeme Knowles; <http://bookboon.com/en/six-sigma-ebook> ISBN: 0-945320-45-0 (free downloadable PDF written specifically to support the course)

Quality Management for Organizational Excellence: Introduction to Total Quality 8th Edition (2016); D.L. Goetsch & S. Davis; Pearson; ISBN-13: 9780133791853

Out of the Crisis: Quality Productivity and Competitive Position.(2000); Deming, W.E; MIT Press; ISBN 9780262541152

Leaders Eat Last: Why Some Teams Pull Together and Others Don't (2014); S. Sinek; Penguin Random House; ISBN 2901591845323

Drive: The Surprising Truth About What Motivates Us (2011); D. Pink; Riverhead Books; ISBN 9781594484803

## **Subject specific skills**

Integrate data and emotional/socio-political elements into effective decision-making processes.  
Apply leadership and change management principles to successfully develop and deliver strategic

change.

Apply the principles of the European Foundation for Quality Management Excellence Model to evaluate organizational quality and formulate improvement plans.

Select and apply ethical models to organizational decision making.

Evaluate and manage stakeholder value.

Motivate and engage staff in delivering organizational excellence.

## **Transferable skills**

Numeracy: apply appropriate analytical approaches to make robust decisions from data

Apply problem solving skills to complex 'wicked' problems incorporating data, process and psycho-social components

Communicate (written and oral; to technical and non-technical audiences) and work with others

Plan self-learning and improve performance, as the foundation for lifelong learning/CPD; reflect upon their learning and formulate improved future actions

Exercise initiative and personal responsibility, including time management, which may be as a team member or leader

Awareness of the nature of business and enterprise in the creation of economic and social value

Overcome difficulties by employing skills, knowledge and understanding in a flexible manner

Ability to formulate and operate within appropriate codes of conduct, when faced with an ethical issue

Be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

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## **Study**

### **Study time**

<b>Type</b>	<b>Required</b>
Lectures	26 sessions of 1 hour (17%)
Seminars	1 session of 3 hours (2%)
Practical classes	3 sessions of 1 hour (2%)
Private study	118 hours (79%)
Total	150 hours

### **Private study description**

Guided independent learning 118 hours

### **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.

Students can register for this module without taking any assessment.

### Assessment group A1

	<b>Weighting</b>	<b>Study time</b>
Critical Assessment of the Literature	40%	
Critical Assessment of the Literature 2000 words		
Group Video Presentation	30%	
Group Video Presentation, including peer assessment		
Individual Reflective Writing	30%	

### Feedback on assessment

Written comments on submitted assignment including response to self- assessment and written group feedback.

Support through office hours.

Cohort level feedback on examinations.

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## Availability

### Courses

This module is Core for:

- Year 4 of UESA-H311 MEng Mechanical Engineering

This module is Optional for:

- Year 4 of UESA-H116 MEng Engineering with Exchange Year
- Year 5 of UESA-H115 MEng Engineering with Intercalated Year

This module is Option list A for:

- Year 4 of UESA-H336 MEng Automotive Engineering
- Year 5 of UESA-H337 MEng Automotive Engineering with Intercalated Year
- Year 4 of UESA-H163 MEng Biomedical Systems Engineering
- Year 5 of UESA-H636 MEng Electronic Engineering with Intercalated Year
- Year 4 of UESA-H114 MEng Engineering
- Year 4 of UESA-HH76 MEng Manufacturing and Mechanical Engineering

- Year 5 of UESA-HH38 MEng Manufacturing and Mechanical Engineering with Intercalated Year
- Year 5 of UESA-HH77 MEng Manufacturing and Mechanical Engineering with Intercalated Year
- Year 4 of UESA-H311 MEng Mechanical Engineering

This module is Option list B for:

- Year 4 of UESA-H336 MEng Automotive Engineering
- Year 5 of UESA-H337 MEng Automotive Engineering with Intercalated Year
- Year 4 of UESA-H217 MEng Civil Engineering
- Year 4 of UESA-H219 MEng Civil Engineering with Exchange Year
- Year 5 of UESA-H218 MEng Civil Engineering with Intercalated Year
- Year 5 of UESA-H636 MEng Electronic Engineering with Intercalated Year
- UESA-H311 MEng Mechanical Engineering
  - Year 4 of H311 Mechanical Engineering
  - Year 4 of H30P Mechanical Engineering with Fluid Dynamics
  - Year 4 of H30H Mechanical Engineering with Sustainability
  - Year 4 of H30N Mechanical Engineering with Systems Engineering
- Year 4 of UESA-H316 MEng Mechanical Engineering
- Year 4 of UESA-H318 MEng Mechanical Engineering with Exchange Year
- Year 5 of UESA-H317 MEng Mechanical Engineering with Intercalated Year
- Year 4 of UESA-HH31 MEng Systems Engineering
- Year 4 of UESA-HH33 MEng Systems Engineering with Exchange Year
- Year 5 of UESA-HH32 MEng Systems Engineering with Intercalated Year

This module is Option list C for:

- UESA-H311 MEng Mechanical Engineering
  - Year 4 of H30J Mechanical Engineering with Appropriate Technology
  - Year 4 of H30L Mechanical Engineering with Automotive Engineering
  - Year 4 of H30M Mechanical Engineering with Robotics