

Module Details	
Module Title:	Six Sigma for Business Excellence
Module Code:	ENB6005-A
Academic Year:	2019-20
Credit Rating:	10
School:	Department of Chemical Engineering
Subject Area:	Engineering Business
FHEQ Level:	FHEQ Level 6
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	Hours
Lectures	12
Tutorials	12
Directed Study	76

Availability	
Occurrence	Location / Period
MSA	Management Development Institute of Singapore (MDIS) / Semester 1 (Sep - Jan)
BDB	University of Bradford / Semester 1 (Sep - Jan)
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims
The students will be able to acquire a deep understanding of the theories and practices of six sigma and associated quality assurance and management principles, and directly apply them to a variety of product and service industries. The students will also develop a deep conceptual knowledge of total quality management philosophies and critically evaluate their effectiveness in a variety of product and service industries.

Outline Syllabus

Introduction to Six Sigma. Value Streams Philosophy. Quality definitions. The customer-supply chain. History of Six Sigma. Principles of Six Sigma. The Define, Measure, Analyse, Improve and Control (DMAIC) Philosophy. Six Sigma tools and techniques. Data collection and presentation. Process problem solving. Statistical Process Control (SPC) versus 100% inspection. Variables and process variation. Control charts for variables: Mean and Range Charts. Process capability indices. Control charts for attributes: np, p, c and u Charts. Quality costs models. Quality Function Deployment (QFD), Balance Score Cards. Six Sigma Management Models. Quality gurus and philosophies. Six Sigma and team-based problem solving methodologies. Management commitment. ISO9000:2000/TS16949. Quality awards. Continuous improvement/Kaizen. Software quality assurance and standards. Executive leader, Champion/Sponsor, Master Black Belts, Green Belts. Six Sigma organisation and teamwork. Six Sigma Implementation: Leadership and people management. Systems and process management including benchmarking and self-assessment. Business Excellence. Code of ethics for successful Six Sigma change management. Sustainability and concepts of value stream mapping.

Learning Outcomes

1	critically evaluate the principles and practices Six Sigma (quality assurance and management), and critically assess the conditions for their successful implementation in product and service industries.
2	apply Six Sigma tools including Statistical Process Control and Quality Management concepts to manage complex product and service quality and improve processes.
3	to strengthen your skills in data management; data presentation; scientific method; data interpretation; systematic problem solving; creative problem solving; communication; teamwork & leadership; and life long learning.

Learning, Teaching and Assessment Strategy

Concepts, theories and principles explored in formal lectures supported by video presentations and case studies, and practiced in tutorials. Practical, cognitive and personal skills developed in problem solving exercises, tackled by working in small groups supported by members of academic staff. Oral feedback is given during tutorials. The assessment will examine the wider learning outcomes expressed in the descriptor.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Examination - closed book	Exam	2 hours	100%

Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>.

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.