



**COURSE DESCRIPTION**  
CENTRE FOR GRADUATE STUDIES  
**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**QUALITY SYSTEMS MANAGEMENT**

MPSW 5053 / PPSW 6053

Semester 1

SESI 2011/2012

**1.0 Synopsis**

This course presents the fundamental elements of Quality Management System including the importance of quality as a strategy for continuous improvement in business performance. It explains the strategies for competitive quality in design and manufacture as well as in terms of customer supply chain concept of total quality aspect. Such topics include Management systems ISO, variability, Six Sigma, Taguchi method, failure mode and effect analysis (FMEA) and quality function deployment. Several quality control tools such as Pareto chart, bar chart and scatter diagram will be cover in statistical data collection, measurement and analysis. Finally, concepts of benchmarking and ISO standards with respect to control elements will be integrated with the Total Quality Management (TQM) as part of quality Management system.

**2.0 Learning Outcomes**

After the completion of this course, the student will be able to:

- a. Explain the conceptual understanding of 'Quality.
- b. Develop a cohesive and robust project.
- c. Implement management techniques and tools within the given project.
- d. Develop an awareness of important of quality management.

**3.0 Practical Application**

Students will be required to produce and present a cohesive and robust project.

**4.0 Reference :**

- [1] Gitlow, H. S., Quality Management systems: A Practical Guide, St. Lucie Press, 2001.
- [2] Mukherjee, P. N., Total Quality Management, Prentice Hall, 2006.
- [3] Oakland, J. S., TQM with Cases, 3<sup>rd</sup> Ed., Butterworth-Heinemann, 2003.
- [4] Kolarik, Creating Quality Concepts, Systems, Strategies & Tools, McGraw Hill, 1995.
- [5] Bergman and Klefsjo, Quality From Customer Needs To Customer Satisfaction, McGraw Hill, 1994.
- [6] Journal of Quality Engineering, UK.
- [7] Journal of Production and Operation Management, UK.
- [8] Emerald international journal of Quality & Reliability Management, UK.

## 5.0 Course Implementation

- a. Lecture = 38 hrs  
b. Tutorial/Case Study = 4 hrs

## 6.0 Course Assessment

a. Assignments	2 x 20%	=	40%
b. Test	1 x 20%	=	20%
c. Project	1 x 40%	=	40%
Total			100%

## 7.0 Detail Syllabus and Teaching Plan

Week	Date	Hours	Contents	Lecturers / Remarks
1	25/9/2011	2 2-4 pm	<b>1. INTRODUCTION</b> 1.1 Definition 1.2 Basic approach 1.3 Awareness 1.4 Defining quality 1.5 Historical review 1.6 The Deming philosophy	Course Outline Briefing.  <b>Dr. Tay</b>
2	2/10/2011	4 2-6 pm	<b>2. CUSTOMER SATISFACTION</b> 2.1 Introduction 2.2 Who is the customer? 2.3 Customer perception of quality 2.4 Feedback 2.5 Using customer complaints 2.6 Service quality 2.7 Translating needs into requirements 2.8 Customer retention	<b>Dr. Punesh</b>
3	9/10/2011	2 2-4 pm	<b>3. PERFORMANCE MEASURES</b> 3.1 Introduction 3.2 Basic concepts 3.3 Strategy 3.4 Performance measure presentation 3.5 Quality cost 3.6 Malcolm Baldrige National Quality Award	<b>Dr. Punesh</b>  <b>Assignment 1</b>

		2 4-6 pm	<b>4. TAGUCHI'S QUALITY ENGINEERING</b> 4.1 Introduction 4.2 Loss function 4.3 Orthogonal arrays 4.4 Signal-to-noise ratio parameter design 4.5 Tolerance design	<b>Dr. Punesh</b>
5	12/11/2011	4 2-6 pm	<b>5. FAILURE MODE AND EFFECT ANALYSIS (FMEA)</b> 5.1 Introduction 5.2 Reliability 5.3 Reliability requirements 5.4 Failure rate 5.5 Intent of FMEA 5.6 FMEA team 5.7 FMEA documentation 5.8 Stages of FMEA 5.9 The design FMEA document 5.10 The process of FMEA document 5.11 Example of FMEA document preparation	<b>Dr. Punesh</b>
4	30/10/2011	2 2-4 pm	<b>6. STATISTICAL PROCESS CONTROL</b> 6.1 Introduction 6.2 Pareto Diagram 6.3 Process flow diagram 6.4 Cause and effect diagram 6.5 Check sheets 6.6 Histogram 6.7 Statistical fundamentals 6.8 Introduction to control charts 6.9 Variable control chart 6.10 State of control 6.11 Out of control process 6.12 Process capability 6.13 Different control charts for variables 6.14 Control chart for attributes 6.15 Scatter diagram	<b>Dr. Tay</b>
		2 4-6 pm	<b>7. EXPERIMENTAL DESIGN</b> 7.1 Introduction 7.2 Basic statistics 7.3 Hypothesis 7.4 t- Test 7.5 F – Test 7.6 One factor at a time 7.7 Orthogonal Design 7.8 Point of interval estimate 7.9 Two factors 7.10 Full factorials	<b>Dr. Tay Test</b>

6	13/11/2011	2 2-4 pm	<b>8. BENCHMARKING</b> 8.1 Introduction 8.2 Benchmarking defined 8.3 Reasons to benchmarking 8.4 Process 8.5 Deciding what to be benchmark 8.6 Understanding current performance 8.7 Planning 8.8 Studying others 8.9 Learning from the data 8.10 Using the finding 8.11 Pitfalls and criticisms of benchmarking	Dr. Suhaimi
		2 4-6 pm	<b>9. ISO 14000</b> 9.1 Introduction 9.2 ISO 14000 series standards 9.3 Concepts of ISO 14001 9.4 EMS benefits	Dr. Suhaimi  <b>Assignment 2</b>
8	20/11/2011	4 2-6 pm	<b>10. CONTINUOUS PROCESS IMPROVEMENT</b> 10.1 Introduction 10.2 Process 10.3 The Juran trilogy 10.4 Improvement strategies 10.5 Type of problems 10.6 The PDCA cycle 10.7 Problem-solving method 10.8 Kaizen 10.9 Reengineering	PM Shahdan
7	19/11/2011	4 2-6 pm	<b>11. PRODUCT LIABILITY</b> 11.1 Introduction 11.2 History 11.3 Product safety law 11.4 Product liability law 11.5 Defenses 11.6 Proof and the expert witness 11.7 Financial loss 11.8 The future of product liability 11.9 Prevention	Dr. Suhaimi
9	4/12/2011	2 2-4 pm	<b>12. QUALITY SYSTEM</b> 12.1 Introduction 12.2 ISO 9000 series of standards 12.3 Other quality systems 12.4 Implementation 12.5 Documentation	PM Shahdan  <b>Project</b>

			12.6 ISO/QS 9000 elements 12.7 Writing the documents 12.8 Internal audits 12.9 Registration	
		2 4-6 pm	<b>13. TOTAL PRODUCTIVE MAINTENANCE</b> 13.1 Introduction 13.2 The plan 13.3 Learning the new philosophy 13.4 Promoting the philosophy 13.5 Training 13.6 Improvement needs 13.7 Goal 13.8 Developing plans 13.9 Autonomous work group	<b>PM Shahdan</b>
10	11/12/2011	2 2-4 pm	<b>14. QUALITY FUNCTION DEPLOYMENT (QFD)</b> 14.1 Introduction 14.2 The QFD team 14.3 Benefits of QFD 14.4 The voice of customers 14.5 Organization of information 14.6 House of quality 14.7 Building a house of QFD process	<b>Prof. Dr. Mohd Razali Bin Muhamad</b>
		2 4-6 pm	<b>15. QUALITY BY DESIGN</b> 15.1 Introduction 15.2 Rational for implementation 15.3 Benefits 15.4 Teams 15.5 Communication models 15.6 Implementation 15.7 Tools 15.8 Misconceptions and pitfalls	<b>Prof. Dr. Mohd Razali Bin Muhamad</b>
11	18/12/2011	4 2-6 pm	<b>16. MANAGEMENT TOOLS</b> 16.1 Introduction 16.2 Forced field analysis 16.3 Nominal group techniques 16.4 Affinity diagram 16.5 Interrelationship diagraph (ID) 16.6 Tree diagram 16.7 Matrix diagram 16.8 Prioritisation matrices 16.9 Process decision programme chart (PDPC) 16.10 Activity network diagram	<b>Dr. Suhaimi</b>

**Notice to Subject Coordinator and Lecturers:**

- i) This schedule is valid for lectures conducted on Sundays ONLY.**
- ii) MODIFICATIONS are required for lectures conducted during the weekdays and for Off-Shore programs.**
- iii) The number of hours for each topic is INDICATIVE only. The actual number of hours may vary, BUT it must be implemented within the stipulated number of weeks.**

DEKAN

PUSAT PENGAJIAN SISWAZAH