

6th Semester

OEME 14601 Total Quality Management

Internal Marks: 40

External Marks: 60

Total Marks: 100

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Course Outcomes

After studying this course, students shall be able to:

- Understand the meaning of total quality management.
- Understand the meaning of quality and industrial applications of total quality control.
- Apply the various quality control tools.
- Get the knowledge about different quality standards and their applications.

Section - A

Detailed Contents:

1. Quality and Total Quality Management; Historical development of TQM, Excellence in manufacturing/service, factors of excellence, relevance of TQM, Applications of TQM. **2 hrs**

2. Concept and definition of quality; total quality control (TQC) and Total Quality Management (TQM), salient features of TQC and TQM. Total Quality Management Models, benefits of TQM. SPC and SQC techniques. **4 hrs**

3. Just-in-time (JIT): Definition: Elements, benefits, equipment layout for JIT system, Kanban system MRP (Material Requirement planning) v/s JIT system, Waste elimination, workers involvement through JIT: JIT cause and effect chain, JIT implementation. DOL system. **3 hrs**

4. Customer complaints: Customer satisfaction, data collection and complaint, redressal mechanism, corrective and preventive actions. **3 hrs**

5. Planning Process: Policy development and implementation; plan formulation and implementation. **3 hrs**

Section - B

6. Process Management: Factors affecting process management, Quality function development (QFD), QFD teams to solve the critical problems and quality assurance system. **4 hrs**

7. Total Employees Involvement (TEI): Empowering employees: team building; quality circles; reward and Recognition; education and training, Suggestion schemes. **3 hrs**

8. Problems solving: Defining problem; Problem identification and solving process; QC tools. **3 hrs**

9. Benchmarking: Definition, concept, process and types of benchmarking. **2 hrs**

10. Quality Systems: Concept of quality system standards: relevance and origin of ISO 9000; Benefits; Elements of ISO 9001, ISO 9002, ISO 9003. TS 16949.ISO-14001,OHSAS **4 hrs**

11. Advanced techniques of TQM: Design of experiments: failure mode effect analysis: Taguchi methods. APQP, PPAP. **4 hrs**

Topics for Self Learning (TSL)

1.	TQM: Industrial applications of TQM.
2.	Concept of quality: Uses of SQC techniques.
3.	Customer complaints: Study Procedure to handle the customer complaints.
4.	QC Tools: study of basic and new qc tools.
5.	ISO Quality standards: study the ISO 9000 standards.

Suggested Books/Readings:

1. Sunder Raju, “Total Quality Management”, Tata Mc-graw Hill, 13th Edition, 2008.
2. M. Zairi, “TQM for Engineers “, Aditya Books, 1st Edition, 1991.
3. J.L. Hradeskym, “Total Quality Management Handbook “, MC-graw Hill, 1st Edition, 1944.
4. Dr. D. D. Sharma, “Total quality Management” , Sultan Chand & Sons , 2nd Edition 2009.
5. Subburaj Ramaswamy “Total quality management” , Tata McGraw-Hill, 4th Edition 2010.

6th Semester

OEME 14602 Industrial Engineering

Internal Marks: 40

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P

External Marks: 60

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Total Marks: 100

Course Outcomes

After studying this course, students shall be able to:

1. Know the functions and required qualities of an industrial engineer for good production rates.
2. Learn various management theories for motivation of the employees in the industry.
3. Importance and Relevance of organization structure
4. Various types of layouts and its applications in the work place.
5. Apply work sampling and time study techniques for productivity improvement.
6. Apply value engineering concepts in goods.

Detailed Contents:

Section - A

1. Introduction: Definition and scope of industrial engineering, Functions of industrial engineering department and its organization, Qualities of an industrial engineer. **3**

hrs

2. Concepts of Management: Functions of Management, Evolution of Management Thought Taylor’s Scientific Management, Fayol’s Principles of Management, Hertzberg’s Two Factor Theory of Motivation, Maslow’s Hierarchy of Human Needs –Systems Approach to Management. **6**

hrs

3. Designing Organizational Structures: Concept, Importance and characteristics of organization, Types of organization - Project, matrix and informal organization. Span of control. **5 hrs**

4. Management Planning, Decision Making and Control Steps, hierarchy, principles and dimensions of planning function, Approaches to decision making, Decision support systems.

4 hrs

5. Plant Location & Layout: Plant location definition, factors affecting the plant location, comparison of rural and urban sites-methods for selection. Plant layout Needs for a good layout, Different types viz. Product, process and combination layouts, Development of plant layout. Line balancing.

5 hrs

Section - B

6. Productivity: Definition, concept of production and productivity, reasons for low productivity, methods to improve productivity, relation between work-study and productivity.

3 hrs

7. Work Analysis: Definition need and scope of Work Analysis. Method-study Definition, objectives, step-by-step procedure, questioning techniques, charts and diagrams for recording data. Principles of motion economy, Introduction to Ergonomics Development and installation of new method. Work-measurement Definition, various techniques of work-measurement such as work-sampling, stopwatch time study & its procedure, Equipment and Forms used for work measurement, need for rating operator, methods of rating, allowances and their types, standard time. Standard data techniques.

7 hrs

8. Value Engineering: Definition, Types of values, concept, phases and application of value engineering. **3**

hrs

Topics for Self Learning (TSL)

- 1. Douglas Mc-Gregor's Theory X and Theory Y, Mayo's Hawthorne Experiments.*
- 2. Delegation of authority.*
- 3. Basic control process, control parameters, principles of control.*
- 4. Introduction to layouts based on the GT, JIT and cellular manufacturing systems.*
- 5. Job selection, Job description and job satisfaction. Employee boredom.*

Suggested Books/Readings:

1. Philip E Hick, "*Industrial Engineering & Management*", Tata McGraw Hill
2. Lawrence D. Miles, "*Techniques of Value Analysis and Engineering*", McGraw Hill, 3rd Edition, 1989.
3. R.N. Nauhria, Rajnish Parkash, "*Management of Systems*", Wheeler Publishers, 1995.
4. Elwood S. Buffa, "*Modern Production Management*", John Wiley, 8th Edition 1987.
5. H.S. Shan, "*Work Study and Ergonomics*", Dhanpat Rai and Co. (P) Ltd.