

GOVERNMENT POLYTECHNIC, PUNE
(An Autonomous Institute of Govt. of Maharashtra)

Programme	:	Diploma in CE/EE / ET/ ME/MT/ CM / IT
Programme Code	:	01/02/03/04/05/06/07/15/16/17/18/19/21
Name of Course	:	Total Quality Management
Course Code	:	MA 486

Teaching Scheme:

	Hours /Week	Total Hours
Theory	03	48
Practical / Tutorial	---	---

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests, each of 60 minutes	3Hrs.	--	--	--
Marks	20	80	--	--	--

Course Rationale:

In today's international market the quality is another name for universal acceptance for product and services. Hence the mechanical engineers must have consciousness about various quality aspects required for manufacturing /service sector.

To fulfill this need this subject about various factors and philosophies in quality development is introduced. So that student will have most of basic inputs before they enter their profession.

Course Objectives:

After studying this course, the student will be able to

	To understand the importance of Quality Standards and consumer need for quality items for price paid by him..
	To understand Quality Management Foundation and introduction to total quality management
	To know about Quality circle, Kaizen and various Quality improvement tools.
	To know about Quality Assurance Systems and Quality Management through ISO 9000 series.
	To know about Toyota way and Six Sigma concepts.

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Course Content:

Chapter No.	Name of Topic/Sub topic	Hrs	Marks
1.	Introduction		
	1.1 Basic concepts related with quality, Various definition of quality. Quality of design and quality of conformance, Service quality Vs product quality.	06	08
	1.2 Quality policy: definition and objectives. Quality audit.		
	1.3 Quality assurance: - definition, meaning it's various forms and advantages .Quality audit, quality mindedness, inspection and quality control.		
2.	Quality Management Foundation and introduction to total quality management.		
	2.1 Strategic quality management (HoshinKanri) Strategic quality planning, quality goals. The vision – future state of organization, good understanding by everyone, inspiration, achievable QCDF (Quality Cost Delivery Flexibility), Customer focus, sharing by all values of the leadership, organization and employees.	08	12
	2.2 Total Quality:- definition ,objectives, eight dimensional model of total quality.		
	2.3 Total Quality management:- definition , need ,mission, initiative and concept. Barriers, implementation and advantages..		
	2.4 TQM Models :-Juran trilogy , Deming programme , Mckinsey model, Crosby program..		
3.	Quality Management Processes		
	3.1 Quality planning Quality culture (Kaizen and Quality circle) Quality Circle: - concept, objective, structure, steps in formation of quality Circle. Roles of people involved in quality Circle. advantages of quality Circle.	12	20

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	3.2	<p>What is Kaizen.</p> <ul style="list-style-type: none"> - The concept, meaning and definition ,areas for Kaizen - 10 ground rules for change. - Traditional methods Vs Kaizen , Kaizen Vs innovation - Types of waste and Waste elimination, value added work, hidden waste and obvious waste, Identification of wastes. - 5S in housekeeping and their meaning - Improvement in work methods. <p>Achievement after Kaizen</p>		
	3.3	<p>Quality improvement Old statistical and analytical tools for quality.</p> <ul style="list-style-type: none"> i) Tally-sheet ii) Graphs iii) Histograms iv) Stratification v) Scatter diagram vi) Control chart vii) Pareto diagram 		
	3.4	<p>New tools of quality (At least one example to be introduced for each tool)</p> <ul style="list-style-type: none"> i) Ishikawa diagram ii) Arrow diagram iii) Relations diagram iv) Tree diagram v) Affinity diagram vi) Matrix diagram 		
	3.5	<p>Additional tools of quality improvement</p> <ul style="list-style-type: none"> i) Brains storming ii) Flow charts iii) 5W & 1H iv) 5 WHYS 		
4	Quality Management Infrastructure			
		<p>History of evolution of ISO 9000 standards. European economic community (EEC), need for quality system standards, International organization for standardization (ISO) adopted by Bureau of Indian Standards (BIS)</p>	12	16

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	ISO 9000: 2000 Quality system ISO 9000 series standards, ISO 9000 elements understanding requirement, assessment with respect to quality system. Documentation and implementation, quality manual, structure, internal quality audit, external audit and certification.		
	4. Various Quality Systems Vocabulary and features 3 ISO 9001:2008 Requirements for a quality management system ISO 9004 : 2009 Guidelines for the effectiveness and efficiency of the quality management system IS 14000: 2004 series, its importance ISO 19011: guidance on auditing and environmental management systems.		
5.	Principles of the Toyota way		
	5. Introduction to Toyota way, Toyota production system (TPS), lean production, '4' P model of Toyota way. 1	04	12
	5. Toyota way principles and their meaning. 2		
6.	Six Sigma		
	6. Introduction to six sigma, 1 Psychology of six sigma,	06	12
	6. Six sigma DMAIC process 2		
	6. The six sigma players, their roles and Responsibilities. 3 Champions , Master black Belts, Black belts, Green belts.		
	6. Factors to be considered while selecting a project for six sigma, 4 Do's and Don'ts for making six sigma effective. Advantages of six sigma. The zero defects concept.		
Total		48	80

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1.	Introduction	Lecture method
2.	Quality Management Foundation and introduction to total quality management.	Lecture method
3.	Quality Management Processes	Lecture method, Transparencies, Internet surfing.

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4.	Quality Management Infrastructure	Lecture method, Transparencies, Internet surfing.
5.	Principles of the Toyota way	Lecture, Ppt& Discussion
6.	Six Sigma	Lecture method, Ppt& Discussion

Text Books:

Sr. No	Author	Title	Publication
1.	Dr. K.C.Arora	Total Quality Management	S.K.Kataria and sons
2.	B.Janakiraman and R.K. Gopal	Total Quality Management Text and cases	Prentice Hall of India pvt. Ltd. New Delhi.
3.	Subburaj	Total Quality Management	Tata Mc - Graw Hill Co., New Delhi.
4.	Gupta, Srinivas N & B Valarmathi	Total Quality Management	Tata Mc - Graw Hill Co., New Delhi.

Reference Books:

Sr. No	Author	Title	Publication
1.	Peter S.Pande Robert P. Neuman Roland R.Cavanagh	Six Sigma way	Tata Mc - Graw Hill Co., New Delhi.
2.	Jeffrey K. Liker	The Toyota Way	Tata Mc - Graw Hill Co., New Delhi.
3.	Suganthi and Samuel	Total Quality Management	Prentice Hall of India pvt. Ltd. New Delhi

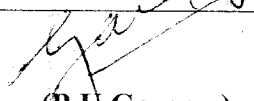

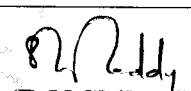
Learning Resources: Books, journals, Internet searches.

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Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1.	Introduction	08	--	--	08
2.	Quality Management Foundation and introduction to total quality management.	08	04	--	12
3.	Quality Management Processes	08	08	04	20
4.	Quality Management Infrastructure	08	08	--	16
5.	Principles of the Toyota way	08	04	--	12
6.	Six Sigma	08	04	--	12
Total		52	28	--	80

Prepared By:

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