

DEPARTMENT OF PRODUCTION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	M. Tech. & Industrial Engineering & Management, I Semester		
Course Title	Total Quality Management and Six Sigma		
Course Code	PR677	No. of Credits	03
Course Code of Pre-requisite subject(s)	PR678	---	---
Session	July 2023	Section (if, applicable)	-
Name of Faculty	Dr. Santosh Kumar Mishra	Department	Production Engineering
Email	santosh@nitt.edu	Telephone No.	+91 8877115103
Name of Course Coordinator(s) (if, applicable)	-		
E-mail	-	Telephone No.	-
Course Type	<input type="checkbox"/> Core course <input checked="" type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
PR677 Total Quality Management and Six Sigma			
Principles of Quality Management, Quality Management Gurus and their contributions, Introduction to Total Quality Management (TQM), Concepts of TQM, Obstacles to TQM implementation, Benefits of TQM implementation.			
Basic and Advanced Quality Control tools, Quality Function Deployment, Failure Mode and Effect Analysis – Scope, steps, illustrative examples and applications.			
ISO 9000 standards, ISO 9001:2008 Quality Management System – Eight clauses, Registration, Implementation steps, Quality Audit, Product and Process audit – Scope, Steps and Benefits			
Introduction to Six Sigma, Six Sigma DMAIC and DMADV Methodologies, Six Sigma and Lean Management, Benchmarking.			
Quality Costing – Cost categories, Prevention, Appraisal and Failure cost, construction of PAF model, TQM and Six Sigma in Service Sector, Application case studies of TQM and Six Sigma, Advancements in Six Sigma methodologies			
COURSE OBJECTIVES			

<ul style="list-style-type: none"> To realize the importance of TQM in industrial scenario. To gain competence on applying TQM tool for the problems. To deploy various phases of Six Sigma for real time projects 	
Mapping of COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers Only)
Recognize the importance of TQM in industrial scenario	1,3,5,6
Competence to apply specific TQM tool for the problems	1,2,3,5,6,9,11
Execute various phases of Six Sigma for real time projects	1,2,3,4,5,6,7,9,10,11

COURSE PLAN – PART II			
COURSE OVERVIEW			
The aim of this course is to realize the importance of TQM in industrial scenario and to gain competence on applying TQM tool for the problems. It is needed to spread various phases of Six Sigma for real time projects			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week-1	Principles of Quality Management,	PPT/Chalk and Talk
		Quality Management Gurus and their contributions,	
		Quality Management Gurus and their contributions,	
2	Week-2	Quality Management Gurus and their contributions,	PPT/Chalk and Talk
		Introduction to Total Quality Management (TQM),	
		Concepts of TQM,	
3	Week-3	Obstacles to TQM implementation,	PPT/Chalk and Talk
		Benefits of TQM implementation.	
		Benefits of TQM implementation.	
4	Week-4	Basic Quality Control tools,	PPT/Chalk and Talk
		Advanced Quality Control tools,	
		Quality Function Deployment,	
5	Week-5	Failure Mode and Effect Analysis –	PPT/Chalk and Talk
		Scope, steps of Failure Mode and Effect Analysis	
		Illustrative examples and applications of Failure Mode and Effect Analysis	
6	Week-6	ISO 9000 standards,	PPT/Chalk and Talk
		ISO 9001:2008 Quality Management System –	

		ISO 9001:2008 Quality Management System- Eight clauses, Registration		
7	Week-7	ISO 9001:2008 Quality Management System Implementation steps,	PPT/Chalk and Talk	
		Quality Audit– Scope, Steps and Benefits		
		Product and Process audit – Scope, Steps and Benefits		
8	Week-8	Introduction to Six Sigma	PPT/Chalk and Talk	
		Six Sigma DMAIC		
		DMADV Methodologies		
9	Week-9	Six Sigma	PPT/Chalk and Talk	
		Lean Management		
		Benchmarking		
10	Week-10	Quality Costing	PPT/Chalk and Talk	
		Quality costing Cost categories,		
		Prevention, Appraisal		
11	Week-11	Failure cost	PPT/Chalk and Talk	
		construction of PAF model		
		TQM and Six Sigma in Service Sector		
12	Week-12	Application case studies of TQM	PPT/Chalk and Talk	
		Application case studies of Six Sigma		
		Advancements in Six Sigma methodologies		
COURSE ASSESSMENT METHODS (shall range from 4 to 6)				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle test-1	Week-7	1 Hour	20%
2	Cycle test -2	Week-11	1 Hour	20%
3	Assignment/Seminar/Quiz	Week-10	-----	10%
CPA	Compensation Assessment*	Week-16	1 Hour	20%
4	Final Assessment *	Week-17	3 Hours	50%
*mandatory; refer to guidelines on page 5				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)				
<ul style="list-style-type: none"> • Feedback from the students during class committee meetings • Anonymous feedback through questionnaire (Mid of the semester & End of the semester) optional 				
COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)				
MODE OF CORRESPONDENCE (email/ phone etc)				

- Queries may be emailed to the course coordinator directly at santosh@nitt.edu.

COMPENSATION ASSESSMENT POLICY

- If any of the students is absent for continuous assessment due to genuine reason, those absentees are allowed to attend the Compensatory assessment.
- In any case, Compensation Assessment* will not be considered as an improvement test.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- **At least 75% attendance in each course is mandatory.**
- **A maximum of 10% shall be allowed under On Duty (OD) category.**
- Students with **less than 65% of attendance** shall be prevented from writing the final assessment and **shall be awarded 'V' grade.**

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION

Students should refer more books for in-depth knowledge about the course.

FOR APPROVAL

Course Faculty

Santosh

CC-Chairperson

S. P. M.

HOD

c.s.h.N