NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF _MME (Meta)_

COURSE PLAN – PART I			
Name of the programme and specialization	**BTech MME (Meta)**		
Course Title	**Introduction to Quality Management, Open elective**		
Course Code	**MT OE 15**	**No. of Credits**	**three**
Course Code of Prerequisite subject(s)	**NIL**		
Session	**Acad Yr 2019 2020 – Even semester**	**Section (if, applicable)**	**One section only**
Name of Faculty	**SankaraRaman Sankaranarayanan**	**Department**	**Meta (MME)**
Official Email	**raman@nitt.edu**	**Telephone No.**	**9894702353**
Name of Course Coordinator(s) (if, applicable)	**MME: SRS**		
Official E-mail	**raman@nitt.edu**	**Telephone No.**	**9894702353**
Course Type (please tick appropriately**)**	☐	☐ **Elective course**	

Syllabus (approved in BoS)

Quality –introduction; philosophical approach; cost of quality; overview of the works of Juran, Deming, Crosby, Taguchi; PDCA cycle; quality control; quality assurance

Quality organization; quality management; quality system; quality audit; vendor quality assurance; total quality management; quality awards; quality certification; typical procedure for ISO9000, ISO14000, QS9000.

Variations; analysis of variance, statistical tools, statistical quality control; control charts; process capability analysis; statistical process control.

Inspection; inspection by sampling; acceptance sampling; statistical approaches; single, double and multiple sampling plans.

Reliability –concept; difference between reliability and quality; different measures of reliability; time to failure distributions; MTBF.

Books:

1. Multiple online resources
2. J.M.Juran and F.M.Gryna, 'Quality Planning and Analysis', McGraw Hill,New York, 2nd Edition, 1980.
3. B.L. Hansen, P.M. Ghare, 'Quality Control and Application', Prentice Hall of India –Eastern Economy Edition, 1997.

COURSE OBJECTIVES

Course Learning Objectives:

- To learn important concepts in quality;

•To learn about quality philosophy; and

•To learn about statistical tools used in quality

MAPPING OF COs with POs

Course Outcomes	**Programme Outcomes (PO)** (Enter Numbers only)
Upon completion of the course, the student will be able to:……	
Understand the significance of quality management	**[1]**
Actively participate in quality systems certification initiatives	[3, 4, 5, 6, 7]

Qualitatively use quality concepts to real applications	[2, 5]
Perform basic calculations in SQC / SPC	[3, 5]
Appreciate the benefits of advanced concepts such as Six Sigma	[1, 10, 6]
Perform simple calculations in reliability	[2, 5, 11]

COURSE PLAN – PART II
COURSE OVERVIEW
Indicative sequence Introduction to the course, objectives, preparation, references, self-learning, assessment Highlighting the scope and role of quality management in manufacturing and service sectors; unusual examples as in Coffee spill / fast food service (legal issue / quality perspective) Historical Evolution of Quality – emphasis on WW II Japan, War economy, mass manufacturing as in auto sector, major players Quality – Philosophy / Concepts; developments; applications; statistical approach to quality – overview Terminology – such as QC, QA, QM, QS, TQM, SQC, SPC… Works of Deming, Juran, Crosby……; emphasis on CoQ cost of quality; Relation b/n quality, cost, and profits; Discussion on PDCA, Kaizen, QC, QA, QM, QS, Q audit, VQA Quality Certification, emphasis on quality system, ISO series, Quality awards (some specifics), Traceability, examples such as vehicle recalls; Statistical and probabilistic approach to quality; Why? How? SQC; SPC; basic quality tools; PDFs; level of competence needed, with examples;

(basics of stats and probability will not be covered in this course)
Variations; Analysis; Process capability;

Control charts; varieties; examples; use of warning limts; numerical calculations / construction;

Dodge Romig tables, MIL / ABC Tables, levels of inspection, efforts for inspection, use of sampling procedures;

Acceptance Sampling, Sampling Plans, varieties, applications, numerical calculations, construction of OC curves, interpretations, outgoing quality;

Introduction to Six Sigma;

Introduction to Reliability;

LINKAGES BETWEEN DIFFERENT CONCEPTS / APPROACHES; SIMPLE EXAMPLES FROM ROUTINE ACTIVITIES; APPRECIATING THE ROLE OF QUALITY; CHANGING SCENARIO wrt COST REDUCTION AND QUALITY IMPROVEMENT (multiple occasions)

COURSE TEACHING AND LEARNING ACTIVITIES **(** Add more rows)

S.No.	Week/Contact Hours	Topic	Mode of Delivery
		See course overview	

COURSE ASSESSMENT METHODS (shall range from 4 to 6**)**

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	First assignment	Early March	(Five hours)	**20**
2	Mid - term test	Mid - March	One hour	**20**
3	Second assignment	Early April	(Five hours)	**20**
4	End Semester exam (final *) Full syllabus	Vide common schedule	Three hours	**40**
CPA	Compensation Assessment*	Vide common schedule	One hour	As applicable

***mandatory; refer to guidelines on page 4**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)
To be defined
COURSE POLICY (including compensation assessment to be specified**)**
Compensatory assessment – for those who missed regular test on genuine reasons

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

- 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 (common guidelines)

- 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, IF ANY Significant extent of Self learning expected
FOR APPROVAL

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Course Faculty _____ **CC- Chairperson** _____ **HOD** _____

Guidelines (common)

a) The number of assessments for any theory course shall range from 4 to 6.

b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.

c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.

d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				**P.G.**
2018	**2017**	**2016**	**2015**	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.

f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.

g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.