

Lecture Plan

Department	Civil Engineering
Program/Year/Semester/Sec	B.Tech./3 rd /6 th /SF-24
Course Name/ Course Title	Quality Control & Reliability
Course Code	BOE-061
Name of Faculty	SHASHANK DHAR
Department of Faculty	CIVIL ENGINEERING

Pre-requisites for the Course	Students should have interest in learning about Quality
	Student should have basic knowledge of engineering materials

Type of Course	Theory/Lecture
Contact hours	40

Course Outcomes (COs)

At the end of this course students will demonstrate the ability to:	
CO1	Understand the fundamentals of Quality
CO2	Understand basic statistical concepts, decision preparatory of the control charts and applications
CO3	Understand the concepts of TQM
CO4	Understand the Reliability and its relationship with Availability and Maintainability
CO5	Understand the Reliability management

Unit	Topic & sub – topic	Topics Covered	COs	Lectures proposed	Lecture delivered	Date	No. of students present (57)	Sign. of faculty
1	Concept of Quality, Need, Factor influencing quality,		CO1	1				
	Types of Quality, Quality Control		CO1	1				
	Cost of Quality Control		CO1	1				
	Quality Assurance		CO1	1				
	Benefits, Modern concept,		CO1	2				
	Inspection and Quality Control		CO1	1				
	Quality Characteristics, Quality Circles		CO1	1				
Total Lectures				8				
2	Review of fundamental statistical concepts		CO2	1				
	Frequency distribution		CO2	1				
	Central tendency, measures of dispersion		CO2	1				
	Probability distributions		CO2	1				
	statistical Quality Control		CO2	1				
	Theory of Control charts		CO2	1				
	Control charts for variables and attributes (X, R, p, np and C chart)		CO2	1				
	their advantages and disadvantages, Applications		CO2	1				
Total Lectures				8				
3	Introduction		CO3	1				
	Concept of Total quality		CO3	2				
	Design of Continuous Slabs		CO3	1				
	Quality Function		CO3	1				
	Deployment tools for continuous quality improvement		CO3	1				
	The ISO 9000 family of standards Six Sigma and other extensions of TQM		CO3	2				
Total Lectures				8				
4	Concepts and definition of Reliability		CO4	2				

	Reliability engineering fundamentals;		CO4	2				
	Failure data analysis; Failure rate;		CO4	2				
	Mean time to failure (MTTF) Mean time between failure, (MTBF) and mean time to repair (MTTR)		CO4	2				
	Total Lectures			8				
5	Reliability testing: Time acceleration factor, influence of acceleration factor in test planning, application to acceleration test,		CO5	2				
	high temperature operating life acceleration model		CO5	2				
	temperature humidity bias acceleration model, temperature cycle acceleration model, vibration accelerator model,		CO5	1				
	failure free accelerated test planning		CO5	1				
	Accelerated reliability growth.		CO5	2				
	Total Lectures			8				

Text Books & References

1. Grant E L, "Statistical Quality Control ", McGraw-Hill.
2. Shrinath L S, "Reliability Engineering" Affiliated East west press.
3. Besterfield D H, "Quality Control", Prentice Hall.
4. Sharma S C, "Inspection Quality Control and Reliability", Khanna Publishers.
5. Prabhakar Murthy D N and Marvin R, "Product Reliability", Springer-Verlag.
6. Dana Crowe and Alec Feinberg, "Design for Reliability", CRC Press.
7. Reliability Engineering by E. Balagurusamy

Signature of Faculty

Signature of HOD

Comments	
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