

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN CIVIL ENGINEERING

SEMESTER: V

Subject Name: **Quality Control & Monitoring**

Sr. No.	Course Content
1.	Introduction to Construction Quality: 1.1 Quality of Materials 1.2 Quality of Pre-construction preparation 1.3 Quality of construction: Length, line, alignment, width, height thickness, right angles, size, shape, geometry, finishing, security, protection, wastage, sequence, gap etc. 1.4 Quality of post construction treatment, setting, protecting, curing, removal of temporary structure etc. 1.5 Quality of maintenance measurement, material, replacement, finishing.
2	Total Quality Management(Tqm) in Constrution: 2.1 Form development and design concept 2.2 Quality in observation, reading theodolite and digital theodolite, precision, accuracy, calibration, least count etc. 2.3 Quality in calculation, finding area, volume using planimeter, Simpson's rule. 2.4 Quality in Material, construction procedure and inspection. 2.5 Non destructive and destructive testing for quality check-ups. 2.6 Quality control check lists: materials, methods, measurements, processes, finishing etc.
3	Sampling and Test of Significance: 3.1 Testing samples, purpose and speed 3.2 Testing hypothesis 3.3 Estimation 3.4 Procedure for testing hypothesis and steps, (a) Set up a hypothesis (b) Set up a suitable significance level (c) Setting a test criteria (d) Doing computation (e) Making decisions 3.5 Type of errors in testing hypothesis 3.6 Standard errors and sampling distribution 3.7 Limitations of tests of significance.
4	Statistical Quality Control : 4.1 Different methods of controlling the quality (a) 100% inspection (b) Sampling techniques, random sampling. (c) Control charts, types X, R , C, P _ & combinations.

	(d) Setting up control limits (e) Setting up the control procedure 4.2 Benefits and limitations of SQC.
5	Quality References : 5.1 National Building code (NBC) 5.1.1 Why to refer & How to refer 5.1.2 Methods of referring it & application. 5.2 Indian Standard Code 5.2.1 Methods of referring it 5.2.2 Use of IS for quality references 5.3 International Organization for Standardization (ISO) 5.3.1 ISO-9000 and others 5.3.2 When, why and How to refer them for quality parameters-explain. 5.4 Advantages of referring these codes in improving the quality as a whole.

Laboratory Exercise: Practice : 2 hours / week

Exercise No.	Topic of Exercise	Action	Hours
1	Accuracy , Precision and Errors :	Definition, difference , and problems	02
2	Hypothesis : Theory of estimation :	Problems	04
3	Quality Definitions, Techniques and Terms:	Write definitions from various sources	02
4	Quality Control of Construction Works : <ul style="list-style-type: none"> • Construction Materials • Construction Processes • Inspection • Post construction treatment 	Material testing and processes, List different construction processes.	02
5	Quality References: NBC and ISO: <ul style="list-style-type: none"> • ISO 9000 • NBC standards 	Definitions and features.	02
6	Total Quality Management : (TQM): <ul style="list-style-type: none"> • Every one and every activity • Quality to customer requirement • Management of quality • Principles • Tools of TQM 	Collect content material and its importance in construction	02

7	Statistical Quality Control Methods , Control Charts	Problems Draw control charts SQC methods	06
8	Construction Safety	List the safety tools at Construction site.	02
9	Sampling and Sampling Plan: <ul style="list-style-type: none"> • Types of sampling • Diff. in sample and population • Advantages and disadvantages • Criteria's for selection of sample plan 	Problems.	04
10	Assignments :	Two previous Paper solution.	Home work

Note: Prepare the File Which Contains all Above Exercises.