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CN5301 QUALITY CONTROL AND ASSURANCE IN CONSTRUCTION

DETAILED SYLLABUS

UNIT I QUALITY MANAGEMENT

Introduction – Definitions and objectives – Factors influencing construction quality – Responsibilities and authority – Quality plan – Quality Management Guidelines – Quality circles.

UNIT II QUALITY SYSTEMS

Introduction - Quality system standard – ISO 9000 family of standards – Requirements – Preparing Quality System Documents – Quality related training – Implementing a Quality system – Third party Certification.

UNIT III QUALITY PLANNING

Quality Policy, Objectives and methods in Construction industry - Consumers satisfaction, Ergonomics - Time of Completion - Statistical tolerance – Taguchi's concept of quality – Codes and Standards – Documents – Contract and construction programming – Inspection procedures – field quality plans/tolerance in construction-codal guidelines-Processes and products – Total QA / QC programme and cost implication.

UNIT IV QUALITY ASSURANCE AND CONTROL

Objectives – Regularity agent, owner, design, contract and construction oriented objectives, methods – Techniques and needs of QA/QC – Different aspects of quality – Appraisals, Factors influencing construction quality – Critical, major failure aspects and failure mode analysis, – Stability methods and tools, optimum design – Reliability testing, reliability coefficient and reliability prediction.

UNIT V QUALITY IMPROVEMENT TECHNIQUES

Selection of new materials – Influence of drawings, detailing, specification, standardization – Bid preparation – Construction activity, environmental safety, social and environmental factors – Natural causes and speed of construction – Life cycle costing – Value engineering and value analysis.

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OBJECTIVES:

To study the concepts of quality assurance and control techniques in construction.

To study the of design philosophy, design of special elements, flat slabs and yield line based design, and ductile detailing.

REFERENCES:

1. Hutchins.G, ISO 9000 : A Comprehensive Guide to Registration, Audit Guidelines and Successful Certification, Viva Books Pvt. Ltd., 1994.
2. James, J.O' Brian, Construction Inspection Handbook – Total Quality Management, Van Nostrand, 1997
3. John L. Ashford, The Management of Quality in Construction, E & F.N.Spon, 1989.
4. Juran Frank, J.M. and Gryna, F.M. Quality Planning and Analysis, McGraw Hill, 2001
5. Kwaku.A., Tena, Jose, M. Guevara, Fundamentals of Construction Management and Organisation, Reston Publishing Co., Inc., 1985.
6. Steven McCabe, Quality Improvement Techniques in Construction, Addison Wesley Longman Ltd, 1998.