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|  <p>NAGARJUNA COLLEGE OF ENGINEERING & TECHNOLOGY</p> | <p>NBA Accredited * NACC Accredited with “A” grade (An ISO 9001 – 2008 Certified Institution) Affiliated to Visvesvaraya Technological University (VTU) Recognized by Govt. of Karnataka & Approved by A.I.C.T.E. New Delhi</p> |
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General Handout for all courses appended to the time table

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| Course No. : 18EET541 | Dept.: CIVIL |
| Course Title : CONSTRUCTION QUALITY MANAGEMENT SYSTEM (QA/QC) | Semester: V |
| Instructor-in-charge : Dr L Pinky Devi | Academic Year: 2020-21 |
| Lab. Instructor : | |

Subject Description (100 words)


The course aims at providing students with an understanding of quality related aspects of construction projects. The student will learn the importance of quality assurance and quality control and know the ISO standards for construction and QC/QA plan. This study will also learn the performance monitoring requirements for QC/QA, construction deficiencies, non-conformance report, documentation, inspection and testing report. At the end of the course study will do case study on the applications of the above concepts for life project.

Text Books:

- 1 N. Logothetis, “Management for Total Quality”, 8th Edition, Prentice Hall New Delhi, 2003.
- 2 D S Rajendra Prasad, “Quality Management System in Civil Engineering”, Sapna Book House, Bangalore. 2000
- 3 James O Brien, P.E. (1989) “Construction Inspection Handbook: Quality Assurance/Quality Control” Springer US, SBN: 978-1-4757-1193-6 (Print) 978-1-4757-1191-2 (Online)

Reference Books:

1. Robert (QMP) “Bench Marking”, “The search for industry Best Practices that led to superior performance” American Society of Quality 1995.
2. Parsons (2007) “Construction Quality Control/Quality Assurance Plan Phase 1 Facility Site Work Construction Hudson River PCBs Superfund Site” GE Company – Parsons Project Office 381 Broadway, Bldg 40-2, Fort Edward, NY 12828
3. Break Joseph and Susan Joseph “Total Quality Management”, Excel Books , New Delhi, 1995.
4. Juran Frank, J.M. and Gryna, F.M. “Quality Planning and Analysis”, Tata McGraw Hill 2002.
5. Ishikawa, K. (2006). Introduction to quality control. Productivity Press, Chennai.

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6. Mathur, P. (2003). Implementing ISO 9001:2000. Vikas Publishing House, New Delhi.
7. Mitra, A. (2001). Fundamentals of quality control and improvement. Pearson Education Asia, New Delhi.
8. Mohanty R., Lakhe R. (2002). Total quality management. Jaico Publication House, Mumbai.

PREREQUISITES

| | | | |
|---|---|--------------------------|----------------|
| <p>1 Building Materials and Technology 2 3 4 5 <i>A good understanding of the above topics is essential</i></p> | <p>Self study/ Online/ Outsourced R1</p> | <p>Referral Document</p> | <p>Remarks</p> |
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LECTURE PLAN

| Topic | Topic Details | Number of Lectures | Cumulative lecture hrs. | Unit/ Chapter Reference |
|----------|--|--|--|-------------------------|
| Overview | | | | |
| Unit 1 | <p>Introduction to Construction Quality</p> <p>Definition of quality as given by Deming, Juran, Crosby,</p> <p>Inspection and Testing,</p> <p>Quality aspects in every phase in the life cycle of Construction project</p> <p>Quality control</p> <p>Quality Assurance</p> <p>Difference between Quality control, Quality Assurance (QA/QC).</p> <p>PDCA Cycle.</p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> | <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> | <p>T1, T2, T3</p> |
| Revision | | 1 | 9 | |
| Unit 2 | Study of ISO 9000 - Quality System | 1 | 10 | T3, R1, R6 |

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|------------|---|---|----|--------|
| | Standards, | | | |
| | Purpose of ISO Standards | 1 | 11 | |
| | Project setting construction QC/QA plan | 1 | 12 | |
| | Contracts description | 1 | 13 | |
| | Objectives of this construction quality assurance plan (CQAP) - organization | 1 | 14 | |
| | Project QC/QA organization - responsibilities and authorities of organizations- | 1 | 15 | |
| | Environmental protection agency Structure of QC/QA organization | 1 | 16 | |
| | Responsibilities and authorities of key personnel | 1 | 17 | |
| | Contractor’s quality control personnel - QC systems manager | 1 | 18 | |
| Revision | | 1 | 16 | |
| Assignment | | 1 | 20 | |
| Unit 3 | Performance monitoring requirements - quality of life performance standards | 1 | 21 | T3, R1 |
| | Pollution prevention - reporting | 1 | 22 | |
| | Inspection and verification activities - general construction inspection and verification requirements - | 1 | 23 | |
| | Control, verification and acceptance testing plan – inspections - preparatory inspection - initial inspection - | 1 | 24 | |
| | Follow-up inspection - completion inspection - QC testing | 1 | 25 | |
| | QA testing - construction acceptance criteria | 1 | 26 | |
| | Construction audits - compliance with handling, storage, packaging, | 1 | 27 | |
| | Preservation, and delivery | 1 | 28 | |


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|--------------------------|--|----|-----|--------|
| | requirements - material identification and traceability | | | |
| Revision | | 1 | 29 | |
| | | 1 | 30 | |
| Unit 4 | Construction deficiencies - deficiency identification - contractor qc deficiency identification and control - | 1 | 31 | T3, R1 |
| | Non-conformance report - contractor QC deficiency correction - preventive actions | 1 | .32 | |
| | Documentation - daily record keeping - daily construction report - | 1 | 33 | |
| | Inspection and testing report forms - record drawings - control of quality records | 1 | 34 | |
| | Environmental requirement approvals (environmental protection agency) - | 1 | 35 | |
| | Required submittals – CQAP - work completion report - EPA approval | 1 | 36 | |
| | Field changes - CQAP changes - QC changes | 1 | 37 | |
| | Final reporting: As-built drawings and specification – QA/QC report | 1 | 38 | |
| Revision | | 1 | 39 | |
| Assignment | | 1 | 40 | |
| Unit 5 | Project Base Learning | | | |
| | Quality plan for a small residential building including documentation using templates. | 10 | 50 | |
| Future scope of learning | | | | |

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Evaluation Scheme:

| Component | Duration | Weightage | Date (Time) |
|-------------|----------|-----------|-------------|
| CIE 1 | 90 min | 20 | 29/9/2020 |
| CIE 2 | 90 min | 20 | 7/11/2020 |
| AIT 1 | 2 days | 10 | 22/9/2020 |
| AIT 2 | 2 days | 10 | 2/11/2020 |
| Make up CIE | 90 min | 20 | 26/11/2020 |
| SEE | 180 min | 50 | |
| Make up SEE | 180 min | 50 | |
| Total | | 100 | |

L Pinky Devi
Course-in-charge

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