

University of Engineering and Technology, Taxila
Department of Civil Engineering

| | |
|---------------------------|--|
| Course Title: | Properties of Concrete (CE- 202) |
| Pre-requisite(s): | Civil Engineering Materials |
| Credit Hours: | 2 + 1 |
| Contact Hours: | 2 + 3 |
| Text Book(s): | 1. Properties of Concrete by A.M.Nevelle |
| Reference Book(s): | 1. Handbook on Advanced Concrete Technology by N.V.Nayak & A.K.Jain |

Catalog Data:

Course Objectives:

Course Learning Outcomes:

At the end of this course, the student will:

- CLO 1: To identify the engineering problems related to concrete construction reaching substantiated conclusions using engineering solutions.
- CLO 2: Design solutions for engineering processes that meet specified needs with appropriate consideration for public health and safety.
- CLO 3: Giving group assignments in such a way that they function effectively as an individual, as a member of team and also communicate effectively on complex engineering activities with the engineering community

Course Contents:

- Introduction
- Batching, mixing, transporting and placing, compaction and curing of concrete.
- Properties of fresh and hardened concrete
- Testing of concrete for various properties.
- Use of additives and admixtures in concrete
- Durability and strength evaluation of existing structures
- Quality control at various stage of concrete construction
- Design of concrete mixes
- Rehabilitation and strengthening of existing structures

Grading Policy:

| Sr. No. | Grading | % of Total Marks |
|----------------|----------------|-------------------------|
| 1 | Assignments | 10 |
| 2 | Quizzes | 10 |
| 3 | Practical | 20 |
| 4 | Midterm Exam | 20 |
| 5 | Final Exam | 40 |
| | Total | 100 |

Student Learning Outcomes:

Individual student will be capable of

- Dealing with various situations at construction site.
- Maintaining quality control
- Analyzing defects/problems during or after construction reaching possible and effective engineering solutions.
- Designing concrete mixes.

Course Professional Outcome/Industrial Usage:

This course will help students professionally in developing skills and knowledge required at concrete construction sites. It will help them maintain quality control leading to structural safety.

| PLO's | CLOs | | |
|---|-------|-------|-------|
| | CLO-1 | CLO-2 | CLO-3 |
| PLO 1 (Engineering Knowledge) | | | |
| PLO 2 (Problem Analysis) | ✓ | | |
| PLO 3 (Design/Development of Solutions) | | ✓ | |
| PLO 4 (Investigation) | | | |
| PLO 5 (Modern Tool Usage) | | | |
| PLO 6 (The Engineer and Society) | | | |
| PLO 7 (Environment and Sustainability) | | | |
| PLO 8 (Ethics) | | | |
| PLO 9 (Individual and Team work) | | | ✓ |
| PLO 10 (Communication) | | | ✓ |
| PLO 11 (Project Management) | | | |
| PLO 12 (Lifelong Learning) | | | |

| Assessment Module | CLOs | | |
|---------------------|-------|-------|-------|
| | CLO-1 | CLO-2 | CLO-3 |
| Assignments | | | ✓ |
| Quizzes | ✓ | ✓ | |
| Midterm Exam | ✓ | ✓ | |
| Final Exam | ✓ | ✓ | |