

Industry Institute Interaction (IIC) and Institution's Innovation Council (IIC)

06-10-2026

Consolidated Report on Value added course

Introduction

The Department of Civil Engineering, NNRG, organized a Value Added Course on Cement and Concrete Technology with the objective of enhancing students' technical knowledge, practical skills, and industry awareness beyond the prescribed academic curriculum.

The course comprised expert-led technical sessions, laboratory demonstrations, practical testing, and an industrial visit. The major areas covered included the history and manufacturing of cement, types of cement and IS Codes, modern building products and repair materials, concrete mix design as per IS 10262, water-cement ratio, strength and durability, factors affecting concrete strength, strength gain with age, compressive strength testing, interpretation of results, and ready-mix concrete production.

Objectives of the Value Added Course

The major objectives of the programme were:

- To provide students with industry-oriented knowledge of cement and concrete technology.
- To understand the manufacturing process and strength characteristics of cement.
- To familiarize students with different types of cement and relevant IS Codes and specifications.
- To introduce students to modern building products and new-generation repair products.
- To understand concrete mix design as per IS 10262.
- To study the influence of water-cement ratio on strength and durability.
- To identify factors affecting the strength of concrete.
- To understand the mechanism of strength gain with age.
- To provide hands-on experience in concrete laboratory testing.
- To develop students' ability to interpret compressive strength test results.
- To provide industrial exposure through a visit to an RMC plant.
- To bridge the gap between academic learning and industry requirements.

Inauguration Session

The Value Added Course was formally inaugurated on 7 September 2026 in the presence of distinguished guests, faculty members, and students of the Department of Civil Engineering.

The programme was graced by Er. Nandika Srinivas from UltraTech Cement as the Chief Guest and Prof. KRC Reddy from Anurag University as the Special Invitee.

The distinguished guests addressed the students and emphasized the importance of acquiring practical and industry-oriented knowledge along with the theoretical concepts taught in the classroom.

The interaction with the invited dignitaries provided students with valuable perspectives on the expectations of the construction industry and the importance of continuous learning and skill development for Civil Engineering professionals.

The inauguration formally marked the commencement of the Value Added Course and set the foundation for the subsequent technical sessions, laboratory activities, and industrial exposure.

Session 1: History, Manufacturing and Strength of Cement

Date: 21-09-2026

Time: 2:00 PM – 3:00 PM

Resource Person: Mr. Narayan Reddy

Topic: History, Manufacturing and Strength of Cement

The first technical session focused on the historical development, manufacturing process, and strength characteristics of cement. Mr. Narayan Reddy explained the evolution of cement as an important construction material and its significance in modern infrastructure development.

The session covered the major stages involved in cement manufacturing, including preparation of raw materials, crushing, grinding, proportioning, blending, kiln processing, clinker formation, cooling, gypsum addition, and final grinding.

The resource person also explained the factors influencing cement strength and its contribution to the strength development of concrete. The session helped students establish a strong conceptual foundation regarding cement and its role as a primary binding material.

Session 2: Types of Cement, IS Codes and Specifications

Date: 21-09-2026

Time: 3:00 PM – 4:00 PM

Resource Person: Mr. Narayana Reddy

Topic: Types of Cement, IS Codes and Specifications

The second session introduced students to various types of cement used in construction and their respective characteristics and applications.

The resource person explained the importance of selecting suitable cement based on structural requirements and environmental exposure conditions. The session also familiarized students with relevant Indian Standards (IS Codes) and specifications concerning cement.

The discussion highlighted the importance of standardization, quality requirements, testing, and compliance with specifications in achieving reliable construction quality.

Session 3: UltraTech Building Products and New Generation Building Repair Products

Date: 24-09-2026

Time: 11:00 AM – 12:00 PM

Resource Person: Er. Risheesh Kumar

Topic: UltraTech Building Products and New Generation Building Repair Products

The third session focused on modern building products and innovative repair solutions used in the construction industry.

Er. Risheesh Kumar introduced students to various UltraTech Building Products and explained their applications in contemporary construction. Particular emphasis was placed on new-generation building repair products and their role in improving the performance, serviceability, and durability of existing structures.

Students gained awareness of the selection and application of appropriate repair materials based on structural defects, substrate conditions, exposure environment, and required performance.

Session 4: Concrete Mix Design as per IS 10262

Date: 28-09-2026

Resource Person: Er. Risheesh Kumar

Topic: Mix Design as per IS 10262

The fourth session focused on the principles and practical methodology of concrete mix design as per IS 10262.

The resource person explained important parameters including characteristic strength, target mean strength, water–cement ratio, workability, material properties, aggregate grading, and proportioning of concrete ingredients.

Students were guided through the practical considerations involved in arriving at suitable proportions of cement, water, fine aggregate, and coarse aggregate to achieve the required strength, workability, durability, and economy.

Session 5: Water–Cement Ratio, Strength and Durability

Date: 28-09-2026

Resource Person: Er. Naveen

Topic: Water–Cement Ratio, Strength and Durability

The fifth session dealt with the relationship between water–cement ratio, concrete strength, and durability.

Er. Naveen explained the significance of controlling the water–cement ratio and discussed how excessive water can increase porosity and permeability and consequently affect the strength and durability of concrete.

The session also covered the factors influencing durability, including curing, permeability, environmental exposure, material quality, and workmanship.

Laboratory Session

A practical laboratory session was conducted in the afternoon following the technical sessions.

Slump Cone Experiment:

Students performed the slump test to determine the workability of fresh concrete and understood the significance of consistency and workability in concrete placement.

Casting of Concrete Cubes:

Students participated in the preparation, casting, compaction, identification, and curing of concrete cube specimens for subsequent compressive strength testing.

The practical session provided students with direct experience in basic concrete testing and specimen preparation.

Session 6: Factors Affecting Strength and Strength Gain with Age

Date: 03-10-2026

Time: 2:00 PM – 4:00 PM

Resource Person: Er. Risheesh Kumar

Topics: Factors Affecting the Strength of Concrete and Strength Gain with Age

The sixth session focused on the various factors that influence concrete strength and its development with age.

The resource person discussed the effects of water–cement ratio, cement quality, aggregate characteristics, mix proportion, compaction, curing, temperature, admixtures, and workmanship.

The concept of strength gain with age was also explained, with emphasis on cement hydration and the importance of adequate curing during the early stages of concrete. Students developed an understanding of how material properties, mix design, construction practices, and environmental conditions collectively influence concrete strength.

Session 7: Compressive Strength Test and Interpretation of Results

Date: 05-10-2026

Time: 2:30 PM – 4:00 PM

Activity: Compressive Strength Test and Interpretation of Results

The seventh session focused on determining the compressive strength of the concrete cubes cast during the earlier laboratory session.

Students observed and participated in the testing of cube specimens using compression testing equipment. The specimens were subjected to gradually increasing compressive load until failure.

The students were also guided in calculating the compressive strength from the applied load and cross-sectional area and interpreting the obtained results in relation to the expected/design strength.

The session enhanced students' practical understanding of concrete quality assessment and the importance of proper specimen preparation, curing, testing, and interpretation.

Session 8: Industrial Visit to UltraTech RMC Plant

Date: 06-10-2026

Time: 10:00 AM – 4:00 PM

Venue: UltraTech RMC Plant, Nacharam

Activity: Industrial Visit

The concluding component of the Value Added Course was an industrial visit to the UltraTech Ready-Mix Concrete (RMC) Plant at Nacharam.

The visit provided students with first-hand exposure to industrial-scale concrete production and quality-control practices. Students observed the various stages involved in RMC production and gained practical knowledge of material storage, batching, proportioning, mixing, quality control, testing, and transportation.

The visit helped students understand how the principles of mix design, material quality, batching accuracy, workability, quality control, and testing are implemented in an actual RMC production environment.

The industrial exposure also enabled students to appreciate the importance of consistency, quality assurance, safety, and timely delivery in ready-mix concrete operations.

Overall Outcome of the Programme

The Value Added Course successfully integrated classroom learning, expert interaction, laboratory experimentation, and industrial exposure.

The programme followed a progressive learning approach, beginning with the fundamentals of cement and moving towards concrete mix design, strength, durability, testing, interpretation of results, and industrial RMC production.

The practical activities, including the slump cone test, cube casting, and compressive strength test, enhanced students' confidence in performing and interpreting basic concrete laboratory investigations.

The industrial visit to the UltraTech RMC Plant at Nacharam further strengthened students' understanding of large-scale concrete production and quality-control practices.

Conclusion

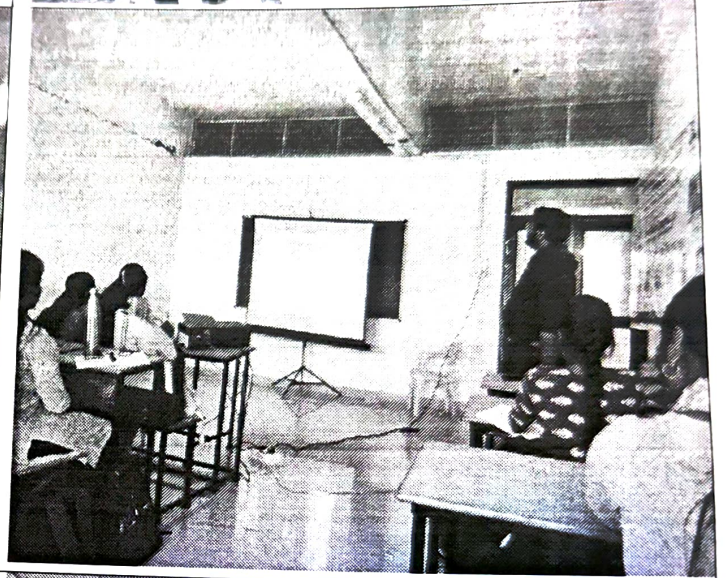
The Value Added Course on Cement and Concrete Technology, organized by the Department of Civil Engineering, NNRG, from 07-09-2026 to 06-10-2026, was successfully conducted through a combination of expert-led technical sessions, practical laboratory activities, and industrial exposure.

The programme covered essential and industry-relevant topics including cement manufacturing, types of cement, IS Codes and specifications, modern building products, concrete mix design as per IS 10262, water-cement ratio, strength, durability, factors affecting strength, strength gain with age, compressive strength testing, and RMC production.

The involvement of industry professionals, hands-on laboratory activities, and the industrial visit provided students with valuable practical exposure and helped effectively bridge the gap between theoretical knowledge and real-world construction practices.

Overall, the Value Added Course achieved its intended objectives and contributed significantly to enhancing the technical competency, practical skills, industry awareness, and professional readiness of Civil Engineering students.






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