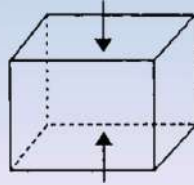


# ALL INDIA STUDENTS' "CONCRETE CUBE TEST" COMPETITION – 2023

ORGANIZED BY



**1<sup>st</sup> December, 2023 to 15<sup>th</sup> January, 2024**

**Deadline – 15<sup>th</sup> January, 2024**

At

RAJKOT (Gujarat)

KOLHAPUR (Hatkanangale-Maharashtra)

NAGPUR (Maharashtra)

NERUL (Navi Mumbai)

COIMBATORE (Neelambur)

TAMILNADU (Kancheepuram)

PUNE (Akurdi-Maharashtra)

RAIGARH (Chattishgarh)

ANTHIYUR (Nachimuthupuram)

PUNE (Haveli-Maharashtra)

KOLHAPUR (Kasaba-Bawada-Maharashtra)

AHMEDABAD (Gujarat)

ALIGARH (Uttar Pradesh)

MUMBAI ( MAHARASHTRA)

PERUNDURAI ERODE (Tamilnadu)

VAIKKALMEDU ERODE (Tamilnadu)

BHUBHANESHWAR (Odisha)

SHAMSHABAD (Telangana)

COIMBATORE

SANGLI (Maharashtra)

PALGHAR (Maharashtra)

KOLHAPUR (Ichalkaranji-Maharashtra)

KOLHAPUR (Salokhenagar-Maharashtra)

KOLHAPUR (Yadrav-Maharashtra)

CHENNAI (Tamilnadu)



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Invitation for  
**IC-ACI - All India Students'**  
**“CONCRETE CUBE TEST”**  
**COMPETITION – 2023**

Dear Sir,

In continuation of this competition, initially launched in 2017 and carried through 2018, 2019-2020, but which was suspended due to Corona Epidemics, We, at India Chapter of ACI cordially invite Students of Civil Engineering Colleges/Institutes to participate in the All India Concrete Cube Test Competition 2023, to be held by various Student's Chapters of IC-ACI from 1<sup>st</sup> of December, 2023 thru 15<sup>th</sup> January, 2024. The last date for submission of the Cubes for the test is 3 days prior to testing at any nodal centers, and will be as per guidelines given by Mentors of relevant Student's Chapters.

The competition is open to all students of the IC-ACI Student Chapters, as well as students of Accredited Civil Engineering Colleges. Any institute not having an IC-ACI Students Chapter is also welcome to participate.

Any Institute not having Students Chapter of IC-ACI, are welcome to initiate modalities for initiation of “Students” Chapter of IC-ACI, at their Institute.

Winners, who will be individually notified of the results by email, will be awarded attractive trophies and Cash Incentive Prizes of Rs.10,000/- for 1<sup>st</sup> position, Rs.7,000/- for 2<sup>nd</sup> position, Rs.3,000/- for 3<sup>rd</sup> position and given publicity on all India Chapter communication platforms such as the India Chapter Journal, Concrete India, and the Chapter website.

Furthermore, for this year's competition, the winning Students will also be felicitated appropriately at the ***International Conference*** to be held in Mumbai on 13<sup>th</sup> and 14<sup>th</sup> December 2024. At this prestigious conference, renowned industry experts and prominent members of the concrete technology, construction and engineering fraternities will be in attendance. Detailed information of the conference will be intimated in due course.

We look forward to your participation, for which there is no entry fee.

Thanking you,  
Yours faithfully,

**SATISH C. DHUPELIA**  
Past President & Director  
India Chapter of American Concrete Institute  
Convener & In-charge, IC-ACI Students' Chapter Activities  
Principal Coordinator  
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| MENTORS OF VARIOUS IC-ACI STUDENTS' CHAPTERS                                                                                                                                                                                                           |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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## **COMPETITIONS GUIDELINES**

### **1. Objectives:**

Concrete is the most common and versatile construction material. Those who deal with concrete need to have 'Hands on' experience and genuine feel of concrete making, to understand its quality and behaviour. Concrete making with variations in characteristics of cement, proportioning of aggregates, chemistry of material and chemical admixtures, control of water binder ratio, is a challenge to any civil engineer. The India chapter of ACI wants to encourage young Students of Civil Engineering to experience through this competition, the art and science of producing good quality concrete.

### **2. The Competition:**

To produce concrete to achieve, as closely as possible, a compressive strength of 30 Mpa on the day of competition at the time of testing the cubes. Other parameters of mix design may be chosen by the competitors to obtain the closest specified strength on the day of testing.

### **3. Eligibility:**

- 3.1 The competition is open to all Students of Engineering Colleges, who fall in the category of students of any civil engineering discipline.
- 3.2 A team of competitors shall consist of maximum three participants. More than 1 team from the same institution can take part in the competition, but each team shall have different set of participants and mix design.
- 3.3 The completed 'Data Sheet' must form part of Mix Design Report duly certified by a senior member of the institution, viz Head of The Department / Faculty Member etc. who shall be personally responsible for compliance of all the guidelines by the participants.

### **4. Use of Materials:**

- 4.1 Coarse and fine aggregates from natural sources shall comply with the requirements of IS:383. The maximum size of coarse aggregates, gravel or crushed stones shall not exceed 20 mm.
- 4.2 Cement shall be any of the following:
  - a) Ordinary Portland Cement (IS:269/IS8112/IS 12269).
  - b) Portland Slag Cement (IS : 455).
  - c) Portland Pozzolana Cement (1489 Part I).
  - d) Partial replacement of cement with other Cementitious materials like Fly/Ash etc.
- 4.3 Chemical admixtures which conform to IS:9103 or ASTM C-494 or 1017, as applicable may be added.

### **5. Mix Design:**

The mix shall be designed to achieve strength of 30 Mpa on 28 days, water cured cube sample, while testing. And not more than 33 Mpa

### **6. Cube Specimen:**

Cubical test specimens shall be of 150 x 150 x 150 mm in size within a tolerance limit of 2 mm, cast as monolithic one unit. Any reinforcing by provision of bars, fibers or mesh, impregnation with materials like any polymer, epoxy or any synthetic glues or similar binders or modifiers is not permissible.

### **7. Curing and age of cubes:**

- 7.1 Minimum 28 days curing shall be done in clean fresh water at ambient temperature in accordance with Codes.
- 7.2 Age of cubes on the day of testing shall be more than 28 days and less than 36 days.

### **8. Submission of entry:**

- 8.1 A mix Design Report with all test results of trial mixes and finally adopted mix design, highlighting parameters used to obtain design strength with completed 'Data Sheet' and 'Cement Test Certificate' shall be submitted with each entry.
- 8.2 Each Entry will be by a group of Three Students.
- 8.3 Minimum 3 cubes shall be submitted with each entry.
- 8.4 Marks 'X' from corner of the upward face of the cubes to receive the test load.
- 8.5 Name of participants / organization or their addresses should be indicated or marked on the cubes.
- 8.6 Covering container /package of the cubes shall be marked with sender's name and address.
- 8.7 The cubes shall be sent by participants (which are not nodal centers) to the addresses of Conveners at respective location nearby, to those given in introduction so as to reach three days prior to the date of Testing. Delivery of the cubes to the said address is the responsibility of the competitors.

All expenses towards cost of materials, casting of cubes, packing and delivering thereof to the said address shall be borne by the competitors.

Cubes damaged in transit shall be rejected.

Competitors shall have the responsibility of delivering the cubes in good condition.

## 9. Test of Cubes:

9.1 Testing of cubes will be start at 10:00 hrs. on the date and at the address of nodal centers of “Conveners” or as notified by them.

Competitors are welcome to attend, if they so desire, during testing of their Cubes @ designated Testing Centers.

9.2 Testing will be done as per IS:516. The average strength of 3 cubes in direct compression shall be considered for merit adjudged from following:

- a) Ratio of strength to cement content.
- b) Uniformity of results.
- c) Deviation from target strength.
- d) Special marks for use of fly Ash.

## 10. Adjudgement:

- a) The Chapter Board of Direction has decided that individual Conveners at various centers will be the judges.
  - b) The decision of the Judges regarding Acceptability of Cubes for the entry and evaluation of merit shall be final.
  - c) The decision of the Board of Direction of India Chapter of ACI shall be final and binding.
10. All successful candidates shall be informed of the result by post/e-mail. Exact date and venue of distribution of prizes/certificates will be informed well in advance.
11. The marks obtained by each Entry, will be based on indicative marking sheet as under:

### BASIS FOR EVALUATION OF ENTRIES

| SR. NO. | CRITERIA                         | MAX MARKS |
|---------|----------------------------------|-----------|
| 1.      | MIX DESIGN REPORT                | 20        |
| 2.      | CONSISTANCY OF DENSITY           | 10        |
| 3.      | MAX. VARIATION (WITHIN +2 MPA)   | 10        |
| 4.      | ACCURACY OF CUBICAL DIMENSIONS   | 15        |
| 5.      | PARTIAL REPLACEMENT WITH FLY ASH |           |
|         | IF 15% REPLACEMENT               | 10        |
|         | IF 25% REPLACEMENT               | 15        |
| 6.      | CEMENT CONTENT TO STRENGTH RATIO | 20        |
| 7.      | USE OF ADMIXTURE                 | 10        |
|         | MAXIMUM MARKS POSSIBLE           | 100       |

## ABOUT US

### The American Concrete Institutes (ACI)

Initially formed as ‘National Association of Cement Users’ in 1904 and renamed as ACI nine year later, the Institution functions to improve the “Design, Construction, Manufacture”. Use of Maintenance of Concrete Products and Structures with the motto ‘Progress through acknowledge’. With above 20,000 direct members and actively working 88 Chapters all over the world, covering 112 nations it has attained stature as an international organization and is acclaimed as “Treasure House on Concrete’ with more than 500 technical documents related to concrete and concrete technology and regular upgradation on the subject. These publications are unique and exclusive. With its Headquarters at Farmington Hill, Michigan, USA, it is further encouraging “Engineering Education, scientific investigation and research by organizing the efforts of its members on non-profit public service basis, in gathering, correlating and disseminating information.

### India Chapter of ACI

Indian Professionals exchange information and dissemination of knowledge about concrete technology with USA from the early days of 20<sup>th</sup> century even before there was ACI. Our Chapter, established on 26<sup>th</sup> December, 1979, has today an All India membership of more than 2,000 individual and organizational members.

Through its continued and tireless services in organizing seminars, workshops, symposia technical meetings with professional Bodies, special lectures by experts on selected topics and site visits, the Chapter has attained a rare distinction from ACI, USA, as Outstanding chapter for successive years. It was also acknowledged with ‘Outstanding International Activity’ in 1984 and “Excellent Chapter Award” in 2000 through 2019.

The Chapter has a rich technical library for professionals and research scholars, conducts certification course for ‘Construction Supervisors’, publishes quality journal and special technical publications to provide information on developments in the field of concrete technology, held annual competition for excellence in concrete through tests of concrete cubes, gave away tri-annual award of outstanding concrete structures and holds interactive meetings with BIS for updating of codes. It is striving today to improve the practice of concrete technology to new heights in the country.