



TERM OF REFERENCE

INTERNATIONAL CONCRETE COMPETITION

CIVILWEEK 2026

 civilweek.hms-uns.id
 civilweek@ft.uns.ac.id
 [@civilweekuns](https://www.instagram.com/civilweekuns)
 [@yqf388w](https://line.me/tv/@yqf388w)

INSPIRED BY INNOVATION
BUILD WITH DEDICATION



SCAN ME!



CIVILWEEK

A. BACKGROUND

Concrete continues to play a fundamental role in modern infrastructure due to its structural reliability, durability, and adaptability across various engineering applications. As infrastructure development advances globally, the demands placed on engineers have expanded beyond achieving structural performance alone, requiring careful consideration of environmental impact and economic efficiency in material design. At the same time, the production of conventional concrete, particularly cement, remains a significant source of carbon emissions and resource consumption. This condition has encouraged continuous advancement in concrete technology, focusing on utilization of materials, the integration of alternative resources, and the development of mix designs that are both efficient and performance-oriented.

Within this evolving context, the need for sustainable and efficient concrete has become increasingly important in civil engineering practice. Designing concrete is no longer limited to achieving strength targets, but also involves balancing material efficiency, constructability, and cost considerations to ensure its relevance in real-world applications.

International Concrete Competition (ICC), as part of **CIVILWEEK 2026**, has been established to respond to these challenges by providing a platform for civil engineering students from universities worldwide to explore and develop innovative approaches in concrete mix design. Reflecting the spirit of **“Inspired by Innovation, Built with Dedication,”** the competition emphasizes not only the generation of new ideas, but also the ability to realize them through thoughtful engineering processes and practical implementation.

In accordance with the theme **“Sustainable and Eco-Friendly Concrete: Optimized Strength and Efficiency”** participants are expected to develop concrete mixtures that demonstrate a balanced integration of strength performance, material efficiency, and cost-effectiveness. Through this process, ICC aims to encourage the development of engineering judgment, experimental capability, and critical thinking, preparing future engineers to contribute responsibly to the advancement of the global construction industry.

B. TERMS OF THE PARTICIPANTS

All participating teams are required to understand and comply with all rules and regulations established by the organizing committee. Failure to comply, whether intentional or unintentional, may result in penalties, including point reduction or disqualification.

1. Participants must be active students enrolled in Civil Engineering or related programs at the undergraduate level (including diploma and bachelor programs or equivalent) from universities worldwide.
2. Each university may register one or more teams. Each team shall consist of a maximum of three (3) students from the same university.
3. Each participant may only be registered in one team, either as a team leader or member. Each team is permitted to submit only one proposal.
4. Participants are required to submit an official letter of approval issued by their respective institution. The format of the letter is provided in the Appendix.

5. Participants are required to follow all stages of the competition according to the schedule, procedures, and instructions determined by the organizing committee.
6. All participants must comply with the rules and regulations set by the organizing committee throughout the competition.
7. All decisions made by the jury are final and binding.

C. COMPETITION TIMELINE

DATE	EVENT
15 July 2026	TOR release
15 - 29 July 2026	Early Bird Registration
30 July - 16 August 2026	Presale Registration
17 - 30 August 2026	Normal Registration
19 September 2026	Technical Meeting for Participants
23 October 2026	Proposal Submission
24 - 30 October 2026	Assessment Stage
02 November 2026	Announcement of Finalists & Release of Finalist TOR
09 November 2026	Technical Meeting for Finalists
16 November 2026	PowerPoint (PPTX) Submission for Presentation
26 November 2026	Day 1 – Material Checking
27 November 2026	Day 2 – Concrete Mixing
28 November 2026	Day 3 – Presentation
29 November 2026	Day 4 – Awarding Ceremony

D. REGISTRATION PROCEDURES

1. All participants are required to register through the official website

<https://civilweek.hms-uns.id/>

2. Upon completing the registration, participants must confirm their submission via email using the following format:

ICC2026_UNIVERSITY NAME_TEAM NAME

Confirmation should be sent to:

civilweek@ft.uns.ac.id

3. Participants are required to pay the registration fee as follows:

- National teams

Early bird : IDR 350,000

Presale : IDR 400,000

Normal : IDR 500,000

- International teams

Early bird : USD 35

Presale : USD 40

Normal : USD 50

Payment must be made via bank transfer to the following account:

Bank Name : **BCA (Bank Central Asia)**

Account Number : 0771247864

Account Holder : Excella Qur Anique Dinda

Bank Name : **Mandiri**

Account Number : 1380028530926

Account Holder : Brawi Mustikarini

4. During the registration process, participants must upload the following documents:

- Copy or scan of payment evidence (via bank transfer)

- registration form, which can be downloaded at <https://uns.id/RegistrationFomICC>
 - Copy of Student Identification Card
5. All participants must upload the official competition twibbon to Instagram, tag @civilweekuns, and use the following link to access the twibbon:
- <https://uns.id/TwibbonICC>

E. SYSTEMATIC OF THE COMPETITION

The International Concrete Competition (ICC) 2026 will be conducted in two stages:

First Stage (Elimination Round)

In this stage, teams are required to submit a proposal for evaluation. The top five (5) teams with the highest scores based on the jury's assessment will be selected to advance to the final round. The evaluation criteria are described in Chapter F. All proposal content must be written in English.

1. Each team is required to submit one proposal in PDF format (.pdf) with the file name:

ICC2026_UNIVERSITY_TEAM NAME_PROPOSAL
2. Proposals must be submitted via email to:
civilweek@ft.uns.ac.id
3. The submission deadline is October 23, 2026 at 22:00 (GMT+7). Late submissions may result in score reduction in accordance with the committee's evaluation policy.
4. Participants must ensure that all submitted files are complete, attached, and accessible by confirming the contact person.
5. The announcement of shortlisted teams will be published through the participants' WhatsApp group.

6. The top five (5) teams will advance to the final round, which will be held offline at Sebelas Maret University, Surakarta, Indonesia, according to the schedule determined by the organizing committee.

Second Stage (Final Round)

1. Teams selected as finalists are required to attend the final round and perform an on-site presentation as well as concrete mixing and specimen preparation at Sebelas Maret University, Surakarta, Indonesia.
2. Detailed provisions regarding the final round will be provided in a separate Terms of Reference (TOR) for finalists.

Concrete Specification

1. Each team is required to produce three (3) **conventional concrete specimens** for the **elimination round**, tested at the age of 7 days.
2. Concrete production is designed for the highest possible compressive strength (f_c) and the planned compressive strength written in the proposal for 28 days of age.
3. Compressive strength testing shall be conducted at each team's respective laboratory. The 7-day compressive strength results must be converted to the equivalent 28-day strength using a conversion factor of **0.651**. Concrete mixtures should be designed to achieve the highest possible compressive strength.
4. Concrete specimens shall be cylindrical, with a diameter of 150 mm and a height of 300 mm.



5. The use of the following materials is prohibited: silica fume, fly ash, bottom ash, slag, metal-based material (iron or steel), hazardous waste, and any other materials deemed unsuitable by the organizing committee.
6. The cement type used in the mixture shall be **Portland Composite Cement (PCC)**.
7. The **maximum cement content is limited to 300 kg/m³**, while the **total binder content shall not exceed 450 kg/m³**.
8. Material innovation must be implemented through the partial replacement of cement and/or fine and coarse aggregate.
9. Participants must clearly justify the selection of all materials used in the mix design, including their source, characteristics, and influence on concrete performance. The explanation must also address the economic, environmental, and practical considerations of the proposed mixture.
10. The use of chemical additives is only permitted in the form of **type f admixture**. For the final round, the organizing committee will provide a specific type of superplasticizer (Sika ViscoCrete-3115N). Participants may use their own superplasticizer, provided they submit a complete technical data sheet or product specification clearly indicating its properties and classification.

11. All materials used in the mix design must be reported **quantitatively, including their mass, density, and proportion within the mixture**. Any assumptions or references used in determining material properties must be clearly stated.
12. The dosage of superplasticizer **shall not exceed 0.8%** of the total binder content per cubic meter of concrete.

Proposal Writing Criteria

1. The proposal must consist of 15–30 pages, excluding the cover page, approval letter, abstract, table of contents, list of figures, list of tables, and appendices.
2. The proposal must be written in English.
3. The cover page must include the university logo, proposal title, team members, year of submission, and the competition title “International Concrete Competition CIVILWEEK 2026.” The cover format is provided in the Appendix.
4. The proposal must be prepared on A4 paper with the following format:
 - a. Chapter titles shall be written in Times New Roman, font size 14.
 - b. Main text shall be written in Times New Roman, size 12, with 1.5 line spacing.
 - c. Margins shall be set as follows:
 - Left : 4 cm
 - Top, right, and bottom : 3 cm
5. The proposal must be organized with the following structure:
 - **Cover Page**
 - **Approval Letter**
 - **Preface**
 - **Abstract**

- **Table of Contents**
- **List of Figures** (if applicable)
- **List of Tables** (if applicable)
- **Chapter 1: Introduction**

The introduction shall present the background of the proposed concrete mix design, including:

- Considerations in the selection of additional or alternative materials
- Methods of obtaining or processing the materials
- Advantages and limitations of the selected materials
- Influence of the materials on concrete performance
- Economic, environmental, and practical implications
- Relevant theoretical basis supporting the proposed approach

- **Chapter 2: Methodology**

- Material properties and specifications of all constituents used in the concrete mixture
- Mix design calculations shall be presented in a complete and systematic step-by-step procedure, from initial assumptions to final proportion
- Concrete mixing and specimen preparation procedures, including curing methods and testing preparation. Supported by clear and verifiable documentation. A standardized identification format must be used, and each specimen must be visibly marked after demoulding. The format is provided in the Appendix.

- **Chapter 3: Results and Discussion**

- **Life Cycle Assessment and Cost Analysis (LCA & LCC)**
Participants must present a simplified quantitative analysis of environmental impact (ISO 14040/14044) and

cost efficiency, including cost per cubic meter and material cost breakdown.

- **Mix Design Consistency**

Participants must demonstrate the consistency between design parameters, predicted strength, and workability, as well as its feasibility for practical implementation.

- **Workability (Slump)**

Participants must determine the target slump in accordance with ASTM C143/C143M within 100 ± 20 mm and explain the effect of mix proportions on workability.

- **Predicted Compressive Strength**

Participants must present the target 28-day strength, estimated 7-day strength, and its conversion to the 28-day equivalent strength. The analysis must briefly explain the influence of mix design parameters on strength development.

- **Chapter 4: Conclusion**

- Conclusions
- Suggestions

- **Bibliography**

- **Appendix**

Appendices should include:

- Selected documentation of materials and concrete preparation process
- Supporting data for additional materials
- Concrete specimens before and after compressive strength testing
- Results of compressive strength testing and workability evaluation (slump test by Abrams Cone)

F. TEST STANDARDS AND ASSESSMENT CRITERIA

All testing procedures and mix design development in the International Concrete Competition CIVILWEEK 2026 shall be conducted in accordance with internationally recognized standards to ensure consistency, comparability, and engineering reliability among all participants.

The compressive strength of concrete shall be determined using cylindrical specimens with a diameter of 150 mm and a height of 300 mm, in accordance with ASTM C39/C39M or equivalent standards. The compressive strength shall be measured at the age of 7 days and converted to its 28-day equivalent value using the conversion factor specified by the committee.

Concrete workability shall be evaluated using the slump test in accordance with ASTM C143/C143M or equivalent standards. For the purpose of this competition, the target slump is specified as 100 ± 20 mm, representing medium workability concrete suitable for general structural applications. The measured slump value must fall within this range and remain consistent with the proposed mix design.

The concrete mix design shall be developed using a systematic approach equivalent to established standards such as SNI 03-2834-2000 or its updated versions (e.g., SNI 7656:2012), as well as internationally recognized methods such as the DOE method or ACI 211.1. The selected method must be clearly stated and consistently applied throughout the design process.

Participants are required to demonstrate a complete and rational mix design procedure, including the determination of water-cement ratio, material proportions, and expected compressive strength. The final mix composition must reflect a logical balance

between performance, material efficiency, and cost considerations.

The materials used in the concrete mixture should conform to commonly accepted standards, such as ASTM standards for cement, aggregates, and chemical admixtures, where applicable.

In line with the theme **Sustainable and Eco-friendly Concrete: Optimized Strength and Efficiency**, participants are encouraged to optimize material usage and incorporate environmentally conscious approaches in their mix design. Supporting sustainability considerations may be included but are not mandatory.

Proposal Assessment

Assessment Criteria	Weight (%)
Material Innovation	25
Experimental Performance & Validity	30
Mix Design & Technical Justification	15
Cost Efficiency	20
Proposal Quality	10
TOTAL	100

G. WINNER PRIZE

The prizes for the International Concrete Competition CIVILWEEK 2026 are as follows:

- 1st Place : Prize money + Certificate + Trophy
- 2nd Place : Prize money + Certificate + Trophy
- 3rd Place : Prize money + Certificate + Trophy
- 4rd Place (1st Runner-up) : Certificate + Trophy
- 5rd Place (2nd Runner-up) : Certificate + Trophy

H. OTHER TERMS

- All teams are responsible for understanding and complying with these Terms of Reference (TOR).
- All submitted proposals will be evaluated by the jury based on the established assessment criteria.
- The announcement of finalists will be conducted through official communication channels.
- Five (5) selected finalist teams must confirm their participation in the offline final round of the International Concrete Competition CIVILWEEK 2026 at Universitas Sebelas Maret, Surakarta, Indonesia. International participants are responsible for preparing all required travel documents, including visas and passports.
- All submitted works must be original. Any form of plagiarism, falsification of data, or academic dishonesty is strictly prohibited.
- Collaboration between teams is not permitted.
- The decisions of the jury are final and binding.
- The organizing committee reserves the right to retain all submitted proposals and related documents for documentation and publication purposes.
- Any actions that may disrupt, damage, or compromise the integrity of the competition are strictly prohibited.
- The organizing committee reserves the right to modify the competition rules if necessary. Any changes will be communicated through official channels.
- For further information, participants may contact the committee via email at civilweek@ft.uns.ac.id or through the listed contact persons below:
+62 813 9280 2275 (Raditya) / +62 822 3336 9332 (Safira)

I. APPENDIX

**Registration Form, Approval Letter, Test Object Markers, and
Applications Of Concrete Marker.**

Scan the QR Code Below:



INTERNATIONAL CONCRETE COMPETITION

CIVILWEEK 2026

organized by:

HIMPUNAN MAHASISWA SIPIL

CIVIL ENGINEERING DEPARTMENT FACULTY OF ENGINEERING

UNIVERSITAS SEBELAS MARET

SURAKARTA

Building V 1st floor Faculty of Engineering

Ir. Sutami St. No. 36 A, Kentingan Surakarta 57126 Indonesia