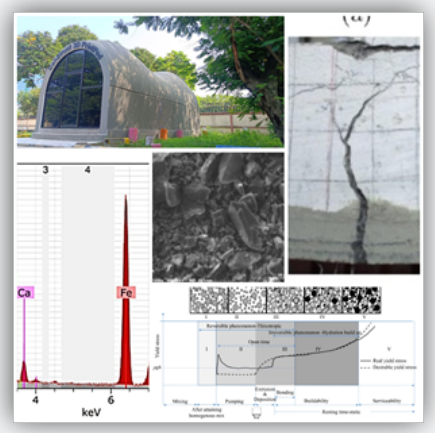
Advanced Course on
Engineering of Special Concretes with focus On Sustainability, Rheology and Microstructural characterisation (ESCOSURM)
07-09 January 2026
(under CSIR Integrated Skill Initiative)



Organised by

CSIR- Structural Engineering Research Centre
(An ISO 9001: 2015 certified organisation)

About CSIR-SERC

CSIR-Structural Engineering Research Centre (CSIR-SERC), Chennai, is one of the national laboratories under the Council of Scientific & Industrial Research, India. CSIR-SERC has built up excellent facilities and expertise for analysis, design and testing of structures and structural components. Services of CSIR-SERC are being extensively used by the Central and State Governments and public and private sector undertakings. Scientists of CSIR-SERC serve on many national and international committees. The Centre is recognised at the national and international levels as a leading research institution in Structural engineering.

Advanced Materials Laboratory (AML)

AML is a leading centre for research and innovation in concrete and construction materials, with a strong emphasis on sustainability and long-term durability. The laboratory advances both cementitious and non-cementitious material systems that meet emerging environmental objectives and industry requirements. Alongside its research mandate, AML delivers specialised technical consultancy and testing services through sponsored and consultancy projects.

AML's core expertise includes the development of novel construction materials, performance evaluation and testing of advanced components and materials, condition assessment of reinforced concrete structures, and the formulation of repair and retrofitting strategies for distressed or deteriorated structures.

Background

Advancements in infrastructural development have led to the emergence of several innovative concrete materials. Sustainability has become a central design criterion for these new concretes, many of which are also tailored for high pumpability to enable efficient and reliable placement. As a result, understanding the rheological behaviour of advanced concretes—such as self-compacting concrete and 3D-printable concrete—is essential for achieving the desired fresh and hardened properties. The macroscopic performance of these materials is governed by their microstructural features, which can be systematically evaluated using advanced characterization techniques, including X-ray diffraction (XRD), thermogravimetric analysis (TGA), and scanning electron microscopy (SEM). In parallel, decarbonization remains a critical theme in contemporary construction materials research, aligning with global sustainability targets. Against this backdrop, the proposed course examines selected special concretes with a focus on sustainability, rheology, and microstructural characterisation.

Objectives

The primary objective of the course is to provide an opportunity for researchers, students, practising engineers, academicians, and consultants from public and private sector organisations/institutions, as well as other engineering professionals, to familiarise themselves with the mix proportioning of special concretes, microstructural characterisation, rheological behaviour, and sustainability aspects. The course discusses the details of special concretes, such as self-compacting concrete, 3D printable concrete, and ultra-high performance concrete, with a focus on rheology, microstructure, and sustainability.

Faculty

Faculty for the course would comprise mainly scientists from CSIR-SERC and few experts from academia and industry.

Prerequisites

The course registrants can ensure adequate knowledge on the background to course contents to fully exploit the benefits of attending the advanced course.

Venue & Duration

Training and Development Complex, CSIR-SERC, Chennai. Timing: 9.30 a.m. to 5.00 p.m.

Registration and Fee

Rs. 3000/- per participant inclusive of GST for working professionals, Rs. 1500/- for student participants and US $ 450/- for foreign delegates. Presentation material (in .pdf format) and participation certificate will be provided to all the registered participants. The course registration can be completed via online form with the URL below:

https://serc.res.in/course

Travel, Boarding and Lodging Arrangements

The participants or their sponsoring organisations must bear travel, boarding and lodging expenses. Limited accommodation in the Guest House/Trainee's Hostel at CSIR-SERC Campus may be arranged on a first-come-first-served basis at extra cost. Participants wishing to avail of this facility are advised to write to the course coordinator well in advance, and in any case, not later than 31st December 2025.

Scan QR code for course promo

Contact Us

Dr (Ms). T. Hemalatha and Dr. Prabhat Ranjan Prem
Course Coordinators (ESCOSURM-2026)
CSIR-Structural Engineering Research Centre
CSIR Campus, TTTI (Post), Taramani, Chennai - 600113

Tel: 9543578558; 9840305825
Fax: (91) (44) 22541508
hemalatha.serc@csir.res.in
prabhat.serc@csir.res.in
https://www.serc.res.in