# Engineering Staff College of India

**Autonomous Organ of The Institution of Engineers (India)**

***Old Bombay Road, Gachi Bowli, Hyderabad – 500 032. TS, India***

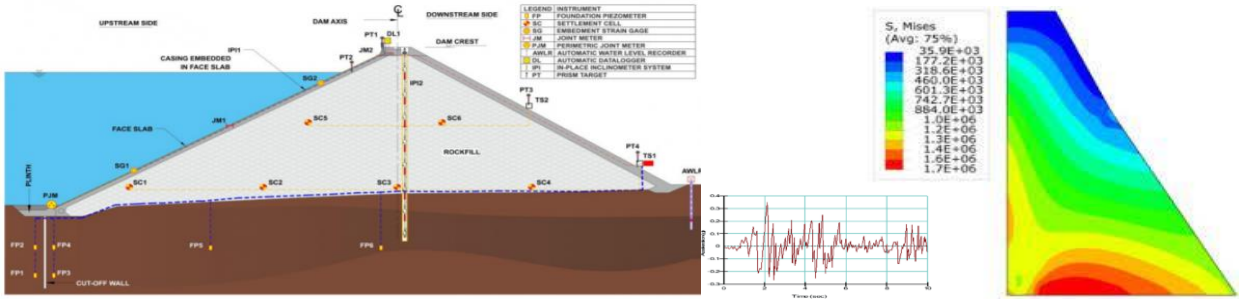
ESCI

## WATER RESOURCES DEVELOPMENT DIVISION

*Continuing Professional Development Programme on*

# Instrumentation and Seismic Analysis of Gravity Dams with Software Applications

22 – 24 April, 2025




**(An ISO 9001:2015 Certified, AICTE & CEA Recognized Institution)**

## Centre for Promotion of Professional Execellence

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## INTRODUCTION

Dam safety is critically important in India due to the large number of aging dams across the country, often located in seismically active zones. The purpose of instrumentation and monitoring in Dams is to maintain and improve dam safety by providing information to (i) evaluate whether a dam is performing as expected and (ii) warn of changes that could endanger the safety of a dam. Instrumentation and monitoring combined with vigilant visual observations can provide early warning of many conditions that could contribute to dam failures and unpleasant incidents.

Instrumentation and monitoring must be carefully planned and executed to meet defined objectives. Installation of instruments or accumulation of instrument data by itself does not improve dam safety or avoid disasters. It is essential that Instruments are carefully selected, located and installed. Data must be conscientiously collected, meticulously deduced, tabulated, plotted, and must be judiciously evaluated with respect to the safety of the dam in a timely manner.

Every instrument in a dam should have a specific purpose. Any instrument which does not serve any specific purpose, should find no place in the dam. Instrumentation is used to accurately quantify certain parameters of structural behavior over time and to monitor their rate of change. The scope of the monitoring methods employed depends on the potential risk associated with dam and site characteristics. The use of instrumentation as part of dam safety program is increasing as the technology of instrumentation and ease of use advances.

A Large number of high dams in the world and in our country are located within high seismicity zones, which were affected by string earthquakes in the past. Seismic monitoring of the dams and the results which are obtained from them has become an increasing need in the earthquake engineering and has considerable contribution to the overall activities for seismic risk reduction.

Dams are not inherently safe against earthquakes. In regions of low to moderate seismicity where strong earthquakes occur very rarely, it is sometimes believed (i) that too much emphasis is put on the seismic hazard and earthquake safety of dams, and (ii) that dams designed for a seismic coefficient of 0.1 are sufficiently safe against earthquakes as none of them has failed up to now.

## OBJECTIVES

The proposed programme aims at providing an opportunity to the Engineers involved with design, construction, maintenance and analysis of gravity dams to enhance their knowledge on Instrumentation and Applications of Software for Seismic Analysis of Gravity Dams.

## COVERAGE

- Introduction to Instrumentation for dams

- Design Principles of gravity dams
- Factors consider in Seismic Analysis
- Seismic Analysis Method - FEM
- Dam Safety guidelines and implementation
- Stability analysis of gravity dams – software applications
- Planning, Installation and O&M of instruments
- Instrumentation and Monitoring of Concrete, Earth fill and Rock fill dams
- Seismic instrumentation of dams
- Earthquake monitoring system for dam safety
- Impact of Climate change on Dams
- Case studies
- Field Visit

**METHODOLOGY**

Methodology includes class room lectures with audio visuals, interactive sessions through group discussions, case studies etc. Emphasis would be laid on sharing of experiences of participants and active participation is solicited from the participants. Medium of training is English.

**TARGET PARTICIPANTS**

The programme is meant for Junior and Middle level officers and Engineers from NHPC, NTPC, Water Resources Development and Irrigation Departments of State Governments, State Hydel Power Corporations, DVC, GENCOs, NWDA etc., involved in Design, Construction, Maintenance and Analysis of Dams for structural stability and safety.

**PROGRAMME VENUE**

Engineering Staff College of India (ESCI) Campus, Old Bombay Road, Gachi Bowli, Hyderabad - 500032, TS India.

**DATES**

22 – 24 April, 2025

**TIMINGS**

On the first day registration will commence at 0900 Hrs. On all other days the programme timings will be from 0915 to 1615 hrs with breaks in between for tea and lunch.

**COURSE DIRECTOR**

**Er. M. Rajasekhar Reddy, M.E, FIE**
Former – Chief Engineer
Panchayat Raj Engg. Dept., Govt. of Telangana
**Senior Faculty and Head**
Contact details: 040-66304117 (D)

**Er. G Naresh, M.Tech (Ph.D), MIE**
Faculty
Mobile : +918801193075

**COURSE FEE**

**Residential Fee** is Rs.16,500/- per participant. Residential fee includes course material, course kit, and twin-sharing / single AC accommodation as per availability, Breakfast, Lunch, Dinner, Tea / Coffee and Snacks.

**DISCOUNTS**

**Non-Residential Fee:** 10% discount on course fee is allowed for non-residential participants.

**Group Discount:** Additional 10% discount for three or more participants if sponsored by the same organization.

**(All discounts are applicable only if fee is received at ESCI before the commencement of the programme)**

**GST @18%** as applicable is to be paid extra over and above the training fee. **PAN Card No** AAATT3439Q**; GSTIN** 36AAATT3439Q1ZV under commercial training or coaching services.

Programme fee is to be paid in favour of **"IE(I)-Engineering Staff College of India"** in the form of demand draft payable at Hyderabad.

Alternatively the payment may be made by **Electronic Fund Transfer (EFT)** to ESCI - SB A/c No. 10007111201 with The SBI, PBB, Rajbhavan Road Branch, Khairatabad, Hyderabad-500004 by NEFT/ RTGS/ IFSC Code No. SBIN 0004159 – MICR No.500002075. **While using EFT method of payment, please ensure to communicate us your company name, our invoice reference and programme title.**

**REGISTRATION**

Online registration shall be available on ESCI website. To register manually, please send your nominations giving details of name, designation, contact address, email address, mobile, telephone and fax numbers of the participant along with the details of mode of payment of fee, addressed to:

**Head**
Water Resources Development Division
Engineering Staff College of India
Gachi Bowli, Hyderabad – 500 032
Phone: 040 – 66304117 – 9 (Dir.) 23000465 (EPABX): Extn: 4117– 9
Fax: 040 - 23000336
E-Mail : wrd@escihyd.org
Url : www.escihyd.org

**CERTIFICATE**: A certificate of participation will be awarded to each participant on conclusion of the programme.

**GENERAL INSTRUCTIONS**

- ESCI encourages participants to present case studies from their respective organizations.
- For the convenience of the outstation participants ESCI will facilitate pickup and drop from Airport / Railway Station/ Bus stations, if travel plans are received at least 3 days in advance along with mobile number by fax or email. The charges shall be paid by the participants directly to the cab.
- ESCI provides complimentary accommodation to participants a day prior to the commencement and after the conclusion of the programme. (Check in at 12:00Hrs) one day after conclusion (Check out at 12:00 hrs) of the programme duration.
- Overstay charges of @ Rs.990/- per day, per head will be charged.

- Well developed Information Centre and internet facilities are available to the participants.