



**Engineering Staff College of India**  
Autonomous Organ of The Institution of Engineers (India)  
*Old Bombay Road, Gachi Bowli, Hyderabad – 500 032. TS, India*

**WATER RESOURCES DEVELOPMENT DIVISION**

Continuing Professional Development Programme on  
**Concrete Gravity Dams - Design Analysis including  
Software Applications**  
06 – 10 August, 2018



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

**Centre for Promotion of Professional Excellence**

## **INTRODUCTION**

Dams have been constructed for millennia, influencing the lives of humans and the ecosystems they inhabit. Gravity dams are solid concrete structures that maintain their stability against design loads from the geometric shape, mass and strength of the concrete. In the design of gravity dams, it is essential to determine the loads required for its stability. The structural response of material to different loads determines as to how it can economically be utilized in the design process.

The large amount of water stored in a dam makes its failure to be catastrophic. Design and execution are very crucial for this kind of structures. Exceptional loadings must be taken in account during design phase, to take care of its highly destructive potential and social importance. Earthquake is one such natural disaster that has claimed many lives and destroyed lots of property, thus necessitating seismic analysis of concrete gravity dams.

Many concrete gravity dams have been in service for over 60 years. Over this period many advancements in the methodologies and safety procedures have come in to vogue. Older existing dams often fail to meet these revised evaluation processes and norms. Safety criteria and structural rehabilitation to meet such criteria for these old structures may be costly and difficult.

Traditional design procedure (also known as the pseudo-static or seismic coefficient method) was applied worldwide in dam design. Though, this procedure was an excellent for its time, as it provided a basis for computing earthquake forces, in the design of dams". However, the well studied example of Koyna Dam subjected to the 1967 earthquake, demonstrated that the assumptions made in the traditional design procedure may underestimate earthquake forces, and lead to structural failure. The seismic safety of dams has been a serious concern since then which has been regarded as a watershed event in the development of seismic analysis and design of concrete gravity dams all over the world.

Dams are particularly different from other types of structures, since stress analysis of these structures has to take into account dynamic response of the complete system interaction involving Dam Reservoir and Foundation.

## **OBJECTIVE**

The proposed programme aims at providing an opportunity to the participant to enhance their knowledge on various aspects of design and analysis of gravity dams including application of softwares in conducting stress analysis of the structure under both static and dynamic load conditions.

## **COVERAGE**

- Design aspects of Concrete gravity Dam
- Guidelines for Design of Spillway, non-overflow section and energy dissipation
- Hydraulic and Structural Design of Dams
- Application of Softwares in Design of Dams
- Stability Analysis of Gravity Dams– Numerical Method (FEM)

- Hydraulic Gates Design, Erection and Maintenance
- Instrumentation and Monitoring in Dams
- 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. Active participation is solicited from participants. Medium of training is English.

## **TARGET PARTICIPANTS**

Programme will be useful for Engineers working in Departments such as Water Resources, Irrigation, Hydropower, NTPC, NHPC, Watersupply, etc.

## **PROGRAMME VENUE, DATES & TIMINGS**

### **VENUE :**

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

### **DATES**

**06 – 10 August, 2018**

### **TIMINGS**

On the first day, registration will commence at 0900 Hrs. On all other days the programme timings will be from 0945 to 1715 hrs with breaks in between for tea and lunch.

### **COURSE DIRECTOR**

B. Leela Prasada Rao, *B.E., M.Tech*  
Sr. Faculty  
WRD Division

### **COURSE FEE**

**Residential Fee** is Rs.25,000/- 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, mobiles no, telephone and fax number 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.