Advanced Course on

Performance Based Design and Health Assessment of Bridges

(e-HAB 2020)

16 – 18 September 2020

(Through online mode)

Course Contents

The course has been planned to provide the necessary background and exposure to the engineering professionals on recent trends in performance based design, instrumentation, performance evaluation and health assessment of bridge structures through online lectures.

The broad topics covered are:

- Performance based design approaches for bridges
- Instrumentation, monitoring and full scale field testing of bridges under service load scenarios
- Forced and ambient vibration testing, experimental modal analysis of bridges , wave propagation techniques
- High performance materials including nano-engineered/smart/multi-functional composites for performance monitoring and life enhancement
- Fatigue and fracture studies towards assessing the performance of concrete structures

The participants will be awarded with a Certificate on successful completion of the course.

Organized by

CSIR-SERC
ENGINEERING SUSTAINABLE STRUCTURES

CSIR Integrated Skill Initiative

CSIR-Structural Engineering Research Centre
CSIR Campus, Taramani
Chennai – 600 113, India

Background

Performance Based Design (PBD) is a rational approach for designing of a new structure or evaluation of an existing structure that often provides superior results when compared to conventional code-prescribed design approaches. The grand engineering challenge for the professionals today is to work with the owner to identify specific structural performance objectives for serviceability and strength. The structure is then designed or evaluated to ensure compliance with the agreed objectives to meet the PBD criteria. In order to establish the performance criteria for checking the serviceability state of a bridge structure, it is required to monitor through full scale field testing and measurements. The structural responses of an in-service bridge through static and dynamic testing will provide the information on health state of the bridge. The field testing requires the integration of a number of technologies related to sensing, instrumentation and data processing. A multi-disciplinary approach integrating the concepts and ideas from different streams, innovative materials and advanced technologies for health assessment of bridges are required.

CSIR–SERC (Structural Engineering Research Centre), Chennai, Tamilnadu, India is a constituent Laboratory of CSIR (under Ministry of Science and Technology) devoted to R & D activities in the areas of Structural Engineering / Civil Engineering and related subjects. The research group at Special and Multifunctional Structures Laboratory (SMSL) of CSIR-SERC has unique capability in interdisciplinary research domain of Nano-Infra Engineering contributing to engineering sciences and engineering technology. The research is focusing on the areas of structural health assessment using static, vibration and wave propagation techniques, life enhancement of special and multifunctional structures through performance based design of sustainable materials as well as by assessing the stress state of the existing structures. The research is further extended to diverse analytical, numerical and experimental research in mechanics of material at atomistic level to performance evaluation at macro structural level that will enable to develop materials linking response at different scales using Process-Structure-Property-Performance characteristics. The course is aimed at disseminating the knowledge acquired by the research group at CSIR-SERC over the years of research in the area of performance based design and health assessment of structures particularly bridges. The course includes the theoretical background along with practical applications.

Objectives

The aim of this Course is to provide an opportunity for consultants, practicing engineers belonging to the public and private sector institutions, and other engineering professionals to familiarize themselves with the recent developments in the full scale field testing, performance evaluation, static and vibration testing methods and advanced monitoring techniques utilizing acoustic and ultrasonic/guided wave based methods related to bridges.

Faculty

Faculty for the course would comprise mainly scientists from CSIR- SERC.

Venue

Due to COVID-19 pandemic, this year CSIR-SERC is offering (e-HAB 2020) through online mode to reach out many people during this difficult time.

Duration

Three days; Time 10.00 a.m. to 5.00 p.m.

Fee

Rs 1500/- per participant inclusive of GST for Indian participants and $40 for foreign delegates. Course material (pdf format) and participation certificate shall be provided to all the registered participants. The brochure and details of the registration can be downloaded from the CSIR-SERC website https://serc.res.in/

Registration

Course registration can be completed through online by using the following link (http://forms.serc.res.in/view.php?id=33087). Please select the intended course, fill all the particulars and pay the registration fee by clicking the SBI collect in the registration form.

Requirements for online mode

Desktop/ Laptop/ Smartphone with good internet speed and sufficient data pack. A web link will be sent to the registered participants for joining the course.

For further details, please contact

Dr.-Ing Saptarshi Sasmal / Dr. V. Srinivas
Course Coordinators (e-HAB 2020)
CSIR-Structural Engineering Research Centre
CSIR Campus, TTTI (Post), Taramani, Chennai - 600113
Tel: (91) (44) 2254 9210/ 9237 Fax: (91) (44) 22541508
e-mail: saptarshi@serc.res.in; srinivas@serc.res.in;