

11. Conferences attended in the past five years

12. Earthquake engineering related activities pursued by the applicant in past 5 years:

13. Other activities that show candidate's interest in Earthquake Engineering

Signature:

Name:

Recommendation of the Head of the Institution

Signature:

Name:

Date:

Designation:

(With Seal)

Other Participants

Industries and Government departments desirous of utilizing this opportunity may depute participants at their own expenses. A course fee of Rs. 10,000 (Rupees ten thousand only) in the form of crossed DD payable to "Registrar, Indian Institute of Science Bangalore 560012" should be paid by such participants. Only five participants on a first come first served basis will be selected under this category.

For further details please contact

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Prof C S Manohar is the coordinator for NPEEE activities at the Indian Institute of Science. For more general information about NPEEE, please see website: <http://www.nicee.org/npeee> or Email: npeee@iitk.ac.in

Please mail applications to:

Assistant Registrar,
Centre for Continuing Education
Indian Institute of Science, Bangalore-560012
Tel: 080-3600911, 2932491
Fax: 080-3600911
Email: office@cce.iisc.ernet.in

Important Dates:

Last date for receiving applications: 19th January 2007
Date for Intimation of Selections: 29th January 2007

SHORT TERM COURSE

ON

Structural System Identification

12-17 February 2007

Course Coordinator

Professor C S Manohar

Department of Civil Engineering

Sponsored by

Ministry of Human Resource
Development, Govt. of India
National Programme on Earthquake
Engineering Education



Centre for Continuing Education
INDIAN INSTITUTE OF SCIENCE
BANGALORE - 560012
INDIA

Prelude

Health monitoring of structures, such as, bridges, buildings, and industrial structures, has emerged in recent years as a technological possibility. This has thrown open many research problems as well. In the context of earthquake engineering, the problem of condition assessment of structures in the aftermath of an earthquake poses significant challenges. The subject of structural system identification lies at the heart of condition assessment and residual life assessment of existing structures. These problems constitute an important class of inverse problems in structural engineering. The developments in this field have received significant boost in recent years due to advances in sensor technology and due to the availability of cheap and faster computational power. Tools, such as, experimental modal analysis, are being used in mechanical, automotive and aerospace industries for quite sometime now, while, their application in civil engineering has been less widespread. Given the extensive developments that are taking place in the civil infrastructure in the country, it has become important that engineers in the country are exposed to the principles of structural system identification. The course aims at fulfilling this need.

Participants

Teachers of recognized engineering colleges are eligible to apply for the course. For these participants there is no fee for the course. Familiarity with principles of structural dynamics is desirable. Selected participants will be given all the course materials and will be provided with free lodging in the Hoysala Guest House of IISc. The number of participants for the course is limited to 25-30. Working lunch and coffee/tea will be served during the course.

Objectives

- To highlight the role of structural system identification in the broad area of structural health monitoring.
- To introduce methods of modal extraction from measured frequency response functions and impulse response functions.

- To introduce time domain methods for nonlinear system identification. This includes mainly the dynamic state estimation techniques such as Kalman filtering (and its derivatives) and Bayesian filtering techniques.
- To introduce the methods of operational modal analysis.
- To introduce methods of structural damage detection using structural responses and methods of reliability analysis of existing structures.

Course Contents

Review of structural dynamics. Modal representation of frequency response and impulse response functions. Review of probability and random processes. Vibration signal processing tools. Experimental modal analysis: modal extraction methods in time and frequency domains. Structural damage detection using structural response. Identification of nonlinear systems: online and offline methods. Introduction to operational modal analysis. Introduction to Kalman filters. Extended Kalman filters. Particle filters.

Course material

A volume of the set of lecture notes/Presentation slides would be provided to all the participants.

Resource Faculty

Prof. C S Manohar, D Roy, and J M Chandra Kishen

Travel and Stay

Return train fare by 3-tier AC and free stay on the campus of IISc will be provided for the selected out station (non-local) participants. In addition a per diem of Rs. 150 will be provided for seven days to cover food and other expenses.

Venue and Time

Lectures for the short-term course will be held in the central lecture hall complex, Center for Continuing Education, Indian Institute of Science, The timings of the various lectures will be announced later and will be included in the registration material. The short-term course will be inaugurated at 9.30 AM on 12th February 2007. The course will end with a written test and feed-back session on 17th February 2007.

Official Language

The official language of the short-term course will be English.

Course on Structural System Identification.

Application form for teachers to participate in training programme (*Use additional sheets if necessary*)

1. Name:
2. Designation:
3. Name of College/Institution:
4. Address:

5. Phone (Office): _____
Phone (Home): _____
6. Email: _____
7. Qualifications:

Year	Degree	Specialization	University

8. Thesis titles (if applicable)
M.E./ MTech:

Ph.D:

9. Courses taught in the past five years:

10. Short courses attended in the past five years:

