Background

CSIR-SERC is conducting skill development programme with the motive of creating skilled work force for the Industrial/ societal requirements, as a part of the skill initiative programme of CSIR.

Smart materials have the capability of modifying their properties when subjected to environmental changes. This can be leveraged to develop smart sensors and actuators. The Advanced Seismic Testing and Research (ASTaR) and other laboratories at CSIR-SERC are continuously engaged in the R&D towards the development of smart actuating and sensing systems that finds application in various fields of structural engineering. This course aims to give an overview of those developments. This online course is intended to bring together the knowledge, expertise and possibilities in the field of smart materials and intelligent system design.

Objectives

The aim of this Course is to provide an opportunity for consultants, practicing engineers belonging to the public and private sector institutions, research scholars and other engineering professionals to familiarize themselves with the recent developments in the modelling and testing of smart materials. This course will focus on the design and development of intelligent systems for application to various domains of structural engineering.

Faculty

Mainly Scientists from CSIR- SERC.

Duration

Two days, 5th May-6th May, 2022, Time: 10:00am to 5:00pm

Course Contents

This course is interdisciplinary in nature and will combine knowledge from various disciplines such as control systems, mechanics, electronics, structural dynamics and material science. This course intends to provide the overview of various smart materials and their application to some real-world problems. The smart materials and intelligent system that will be focused in this course are shown below.
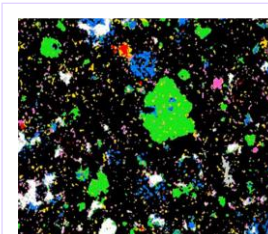

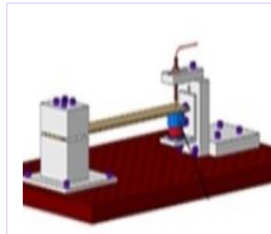Magnetorheological Materials
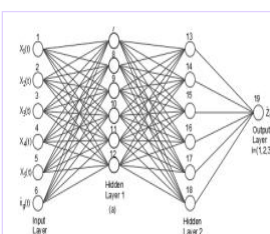

Shape Memory Alloy

Peizoelectric Materials
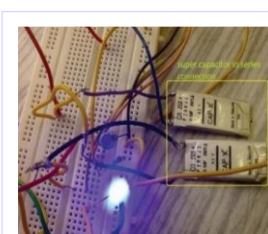

Bio-inspired structures
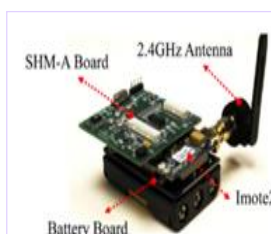

Smart Cementitious Composites

Electromechnical Systems

AI based Vibration control

Energy Harvesting

Health Monitoring using Smart Sensing

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

Course Fee

Rs 1000/- per participant inclusive of GST for Indian participants and $25 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

Registration can be completed online using the following link (http://forms.serc.res.in/view.php?id=78471). 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 the 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.

Course Coordinators

Dr. Mohit Verma/Dr. C. Bharathi Priya
Advanced Seismic Testing and Research Laboratory,
CSIR-Structural Engineering Research Centre,
Taramani, Chennai – 600113, India

For further details, please contact
Email: mohitverma@serc.res.in /
bharathipriya@serc.res.in
Telephone Nos. 044-22545727;
04422549223

Scan here to see the course promo video

List of Speakers

Dr. N. Anandavalli
Director, CSIR-SERC,
Theoretical & Computational Mechanics Lab
Topic: Bio-Inspired Structures

Dr. P. Kamatchi
Head & Senior Principal Scientist, CSIR-SERC,
Advanced Seismic Testing and Research Lab,
Topic: Active Vibration Control using AI

Dr. R. Sreekala
Senior Principal Scientist, CSIR-SERC,
Advanced Seismic Testing and Research Lab,
Topic: Shape Memory Alloy/Energy Harvesting

Dr. (Ing.) Saptarshi Sasmal
Head & Senior Principal Scientist, CSIR-SERC,
Special and Multifunctional Structures Lab,
Topic: Smart Cementitious Composites

Dr. Arun Sundaram
Principal Scientist, CSIR-SERC,
Structural Health Monitoring Lab,
Topic: Health Monitoring using Smart Sensing

Dr. C. Bharathi Priya
Senior Scientist, CSIR-SERC,
Advanced Seismic Testing and Research Lab,
Topic: MR Dampers and Elastomers

Dr. Mohit Verma
Senior Scientist, CSIR-SERC,
Advanced Seismic Testing and Research Lab,
Topic: Electromechanical Systems

Mr. J. C. Sunil
Scientist, CSIR-SERC,
Advanced Seismic Testing and Research Lab,
Topic: Performance-based Design

Dr. Leopoldo de Oliveira
Associate Professor, University of São Paulo,
Engineering School of São Carlos,
Topic: Metamaterials

Dr. Shashank Pathak
Assistant Professor, IIT Mandi,
School of Engineering,
Topic: Piezoelectric Materials