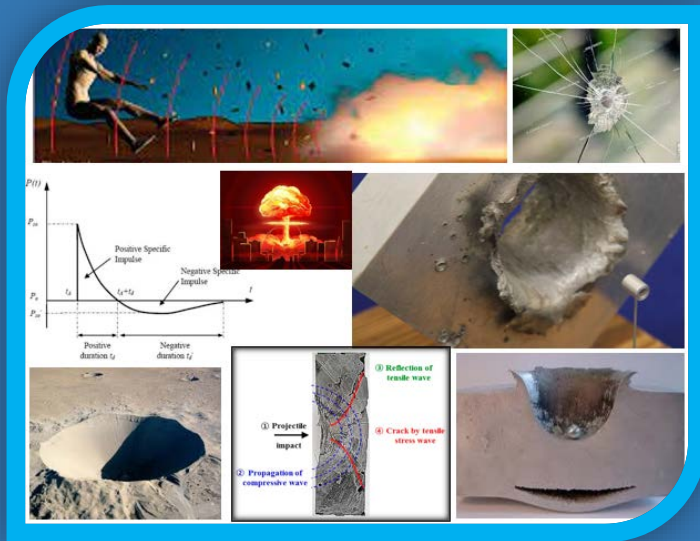


# A Short Term Advanced Course on Analysis, Modelling and Design of Structures for Impulsive Loads (AMDSIL-2021)

20-22 October 2021



Organized by  
**CSIR-Structural Engineering Research  
Centre CSIR Campus, Taramani,  
Chennai- 600 113**

## About the Organization

CSIR-Structural Engineering Research Centre, Chennai, is one of the national laboratories under the Council of Scientific & Industrial Research (CSIR), India. CSIR-SERC has built-up excellent facilities and expertise for the analysis, design and testing of structures and structural components. Services of CSIR-

SERC are being extensively used by the Central and State governments and public and private sector undertakings. Scientists of CSIR-SERC serve on many national and international committees and, this centre has recognition nationally and internationally as a leading research institution in the field of Structural engineering.

## Background

Design against impulsive loads namely; blast/explosions, impacts and collisions, earthquakes etc., has become increasingly important for a number of engineering and industrial applications. To cater the challenges posed by such extreme loading conditions, the research & development, and is preferably carried out in virtual environments using the finite element method to achieve safer and more cost-effective designs. The fundamental goal of protective structures against impulsive loadings is to improve the survivability of people and vital infrastructure.

In most cases, such protective structures are very expensive. In some cases, optimization may lead to improved designs, resulting in substantial savings. Some features of protective structures are common to the various types of systems. Generally, a nonlinear dynamic analysis is involved, the number of design variables may be large, and different types of variables are included; such as topological, geometrical and cross-sectional variables. In many cases, the system is composed of several coupled subsystems. Despite these similarities, the analysis and design approaches may significantly differ for the various types of systems or subsystems under consideration.

## Objectives

The aim of this course is to provide an opportunity for students, consultants and practising engineers belonging to the public and private sector institutions, and other engineering professionals to get an overview on the current trends and recent advancements in terms of design and analysis, including experiments and modelling, on protective structures.

## Course Contents

- Introduction to the Impulsive loads
- Behavior of Structures under impulsive loads - Blast / Impact / Crash / Earthquake / Cyclone etc.
- Analysis and design of structures for impulsive loads
- FE modelling of the structures subjected to impulsive loads
- Design philosophy and current practice against impulsive loads
- Introduction to material modelling for impulsive loads
- Innovative structural protection systems against impulsive loads
- Overview of case-studies carried out at CSIR-SERC

## Faculty

Faculty for the course would comprise mainly scientists from CSIR-SERC and a few experts from reputed academic institutions /industry

## Duration

October 20-22, 2021, Time 10:00 a.m. to 4.30 p.m.

## Registration and Fee

Registration fee is Rs. 1500/- per participant inclusive of GST for Indian delegates and US\$40/- for foreign delegates. Course material in pdf format and e-certificate of participation will be provided to all the registered participants. Participants can register online for this course by using the provided web link (<http://forms.serc.res.in/view.php?id=33087>). Please select the intended course, fill all the particulars and pay the registration fee using SBI collect link in the 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.

## For further details, please contact:

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Course coordinators (AMDSIL-2021)

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