



ENGINEERING STAFF COLLEGE OF INDIA (ESCI)

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

Autonomous Organ of the Institution of Engineers (India)

Old Bombay Road, Gachibowli, Hyderabad – 500 032. Telangana, India



Design Prototyping Centre & Mechanical Division (DPC –MD)

Organizing

Continuing Professional Development Programme on

Advanced Engineering Simulation & Analysis using LS-DYNA

(Hands on demonstration of Crash-, Blast-, Penetration studies & Shape Memory Alloys)

01 – 04 December 2026

INTRODUCTION

Engineering simulation has become a critical tool in the defence sector, enabling researchers, designers, and quality assurance professionals to predict and analyze the behavior of materials and structures under extreme conditions. LS-DYNA, a world-leading finite element analysis (FEA) software, is widely used in defence and aerospace industries for its capability to simulate highly nonlinear, transient dynamic problems.

LS-DYNA, a general-purpose finite element solver, is particularly suited for simulating material behaviour under short durations of severe loading. It is widely applied in industries for automotive crash simulations, aerospace bird-strike analysis, drop tests, impact studies, and occupant safety evaluations. Known as the world's most used explicit simulation program, LS-DYNA offers extensive capabilities with its large set of elements, material models, and contact formulations, providing detailed control over complex simulations.

This advanced training program on “**Engineering Simulation & Analysis using LS-DYNA (Hands on demonstration of Crash-, Blast-, Penetration studies & Shape Memory Alloys)**” is designed to provide in-depth knowledge and hands-on experience in modeling and analyzing structural response to high-impact, crash, blast, and penetration scenarios. The program will focus on defence-related applications, equipping participants with the skills to conduct realistic simulations that reduce dependence on costly physical testing and accelerate innovation.

OBJECTIVES

The objectives of the programme are:

- **To provide a comprehensive understanding of LS-DYNA fundamentals** and its application in nonlinear dynamic simulations for defence and aerospace sectors.
- **To develop expertise in crash simulation techniques**, including impact dynamics, structural deformation, and occupant safety studies.
- **To enable participants conduct case studies and hands-on simulations**, applying LS-DYNA to solve real-world problems in crashworthiness, survivability, and structural resilience.

COURSE CONTENT

The following topics will be covered during the training programme:

- Introduction to implicit and explicit solvers
- Keyword structure
- Contact Modelling
- Thick and thin shells
- Impact problems
- Projectile motion
- Explosion modelling
- Crash modelling
- SPH & ALE modelling
- Material Modelling
- Blast simulation techniques using LS-DYNA
- Projectile Penetration Studies
- Shape Memory alloys

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METHODOLOGY

Methodology of the programme includes Chalk & Talk sessions /lectures/group discussions/case studies/debates with audio-visual aid, benched marked video shows etc. All the sessions will be interactive demanding active participation from all the member participants.

TARGET PARTICIPANTS

Professionals from Governments, Private and Public Sector Undertakings (from Design, Prototyping, Development, and Service & Maintenance Divisions) and Scientists working in Research Laboratories will find the programme useful.

The program will be especially beneficial for scientists and engineers working on crash, blast, penetration studies, and advanced materials like shape memory alloys.

CERTIFICATION

A Certificate of participation will be awarded to all the participants after the successful completion of the training programme.

RESOURCE PERSON

Dr. V.K.Sridhar (Vast experience in the field of computational modelling and carried out multiple research projects on various engineering designs and numerical simulations. He earned his undergraduate degree in Mechanical Engineering and master's in computational engineering from Ruhr University, Bochum, Germany. He has over 20 years of experience including ten years in Europe (Germany, Austria and Belgium) and worked both in Industry and Academia. His research areas of interest include Drone design, additive manufacturing, renewable energy and computational modeling.)

COURSE DIRECTOR

Dr. N V S S Sagar

Faculty & Head i/c,
Design Prototyping Center and Mechanical Division
Engineering Staff College of India,
Gachibowli, Hyderabad.
Email: dpc@escihyd.org
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COURSE COORDINATOR

Mr. Aliga Raju

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PROGRAMME DATES: 01 – 04 December 2026

COURSE FEE: Rs. 24,000/- (Rupees Twenty Four Thousands Only) per Participant + GST@18% Extra. Fee includes, course material, course kit, twin-sharing/single AC accommodation as per availability, breakfast, lunch, dinner, tea / coffee and snacks during the actual days of training programme.

DISCOUNT:

Additional 10% discount for three or more participants, if sponsored by the same organization. PAN Card No **AAATT3439Q**; GST No. **36AAATT3439Q1ZV**. H.S. No. 999293 (Under commercial training or coaching services – clause 65(105) (ZZC) of Finance act – 1994).

Programme fee is to be paid in in favor of “**THE INSTITUTION OF ENGINEERS (INDIA) – ENGINEERING STAFF COLLEGE OF INDIA**” in the form of Demand Draft (DD) payable at Hyderabad. Alternatively, the payment may be made by Electronic Fund Transfer (EFT) to ESCI - SB A/c No. **10007111201** with **State Bank of India**, P.B.B / Khairatabad, Rajbhavan Road, Hyderabad-500004 by RTG's/ NIFT / **IFSC Code No: SBIN0004159**. While using EFT method of payment, please ensure to communicate us your company name, our Invoice reference and programme title.

REGISTRATION:

To register, please send your nominations by providing name, designation, contact address, email address, mobile no, telephone and fax number of the participant along with the details of mode of payment of fee, addressed to: dpc@escihyd.org/mechanical-dpc@escihyd.org. For more details please contact our program assistant, **Mr. Raghuvveera Reddy, Mobile No: 9849988930**.

GENERAL INSTRUCTIONS:

ESCI provides complimentary accommodation and boarding to the participants one day before commencement (Check-in 12:00 h) and one day after conclusion (Check-out 12:00 h) of the programme duration. Overstay charges will be applicable as per ESCI rules (subject to availability of accommodation).

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