LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

L. B. Reddy Nagar, Mylavaram – 521 230, N.T.R. District, Andhra Pradesh, India Affiliated to JNTUK, Kakinada & Approved by AICTE New Delhi Accredited by NBA under Tier – I, Accredited by NAAC with 'A' grade, An ISO 21001:2018, 500001:2018, 14001:2015 Certified Institution

DEPARTMENT OF AEROSPACE ENGINEERING

Estd.: 1998

Website: https://www.lbrce.ac.in/ase/index.php Email: hodaero@lbrce.ac.in Phone:08659-222933 Ext:624/623

Date: 05-08-2025

One Week Student Certification Program on "Practical FEA Using HYPERMESH and LS-DYNA"

PROGRAM DETAILS

Title	One Week Student Certification Program on "Practical FEA Using							
	HYPERMESH and LS-DYNA"							
Faculty	Mr. S. Indrasena Reddy							
Coordinator	Senior Assistant Professor							
	Dept of Aerospace Engineering							
	Mr. Nazumuddin Shaik							
	Senior Assistant Professor							
	Dept of Aerospace Engineering							
Student	MARADANA SHAM SRI JASMIN							
Coordinator	Roll No.: 22761A5621							
	IV Year, Aerospace Engineering							
No. of Participants	45 Students							
	39 Students from Aerospace Engineering (22 Batch IV Year-I Sem)							
	06 Students from Mechanical Engineering (22 Batch IV Year-I Sem)							
Event Type:	Certification program							
Resource Persons	Mr. B. R. M. V. Krishna, Simulation Engineer							
	Mr. G. M. Raja Mahendra, Simulation Engineer							
	Mr. Naveen, Junior Simulation Engineer							
	Mayinkrish Ventures PVT LTD, Hyderabad							
Program Schedule	28-07-2025 to 02-08-2025							

The objective of the event:

This is a certification program on "Practical FEA Using HYPERMESH and LS-DYNA" and is specially meant for Engineering VII Semester Students.

HYPERMESH:

Hyper Mesh is a powerful computer-aided engineering (CAE) software tool used for mesh generation and pre-processing tasks in finite element analysis (FEA). Developed by Altair Engineering, Hyper Mesh is widely utilized for creating high-quality finite element models for various engineering simulations. Its capabilities include geometry

cleanup, meshing, and model assembly, allowing engineers to efficiently prepare complex models for structural, thermal, and fluid dynamics analyses. Hyper Mesh is known for its versatility and user-friendly interface, making it a popular choice in the aerospace, automotive, and other industries where advanced simulation and optimization are integral to the design process.

LS-DYNA:

LS-DYNA is a highly advanced finite element analysis (FEA) software package used for simulating complex real-world problems in various engineering disciplines. Developed by Livermore Software Technology Corporation (LSTC), LS-DYNA is particularly renowned for its capabilities in simulating dynamic events, including crash simulations, impact analysis, and explosions. It is widely employed in industries such as automotive, aerospace, defense, and manufacturing to predict and analyze the behavior of structures and materials under dynamic loading conditions. LS-DYNA's versatility extends to multi-physics simulations, allowing users to study interactions between multiple physical phenomena, such as structural mechanics, fluid dynamics, and thermal effects. Its robust capabilities make it a valuable tool for engineers and researchers tackling intricate problems involving nonlinearities and transient dynamics.

Certification Program Schedule Day wise:

Day 1: 28-07-2025

Introduction and applications of HYPERMESH & Space Claim

- What is FEA? Types of analysis (structural, thermal, crash)
- Role of preprocessing, solver, and postprocessing
- Explicit vs Implicit solvers: When and Why LS-DYNA?
- HYPERMESH interface walkthrough
- Geometry imports and cleanup tools (for 2D CAD)
- Element types: focus on 2D shell elements
- Hands-on: Import a 2D bracket, do geometry cleanup

Day 2: 29-07-2025

Meshing Basics and Shell Quality Criteria

- What are shell elements? When are they used?
- Shell meshing: Auto mesh, manual meshing
- Element quality parameters: Aspect ratio, skew, warpage
- Mesh flow and element density control
- Property assignment: thickness and material linking

• Hands-on: Meshing a sheet metal part + quality correction

Day 3: 30-07-2025

Drop Test Basics in 2D with Shells

- Drop test applications: What does it validate?
- Gravity definition in LS-DYNA (DEFINE_GRAVITY)
- Without gravity: Using initial velocity instead
- Defining rigid wall for impact surface
- Shell behaviour during impact (bending, contact)
- Hands-on: Simulate a drop test for a 2D flat object (phone plate) using both methods

Day 4: 31-07-2025

Setting Up a Tensile Test Using Shell Elements

- Material card (MAT_24 Piecewise Linear Plasticity)
- Creating boundary conditions (fixed end, displacement loading)
- Defining contacts (no contact needed for simple tensile test)
- Control cards: Time step, output controls
- LS-DYNA deck export and solver run
- Hands-on: Set up and simulate a 2D mild steel tensile coupon

Day 5: 01-08-2025

Result Visualization and Mini Project

- o Stress, strain, deformation contours
- o Plotting Force vs Time, Energy graphs
- Comparing drop with and without gravity
- Mini-Project: Sheet metal bracket meshing (condition: no adjacent trias)
- Common LS-DYNA errors and debugging
- Bootcamp wrap-up and career discussion
- Example problems
- Dr P. Lovaraju addressed the gathering.

The outcome of the event:

- Introduce the HYPERMESH concepts and make familiar with the tools and techniques of its package. This certification program aims at providing complete hands-on training on FEA analysis. The program helped the participants to develop expertise in various aspects of HYPERMESH and LS-DYNA applications.
- This certification program helped the students to apply their knowledge in the basics of finite element analysis (FEA) and how to use it in structural design and analysis covered and Using HYPERMESH geometric tools to create and edit nodes, usage of 1D and 2D meshing techniques for different kinds of meshing, such as hexa, shell, and tetra.
- Similarly, LS-DYNA helped the students to understand transient dynamic problems which include nonlinearities.

Feedback / Suggestions:

- Feedback from students on the program has been overwhelmingly positive, with a high level of satisfaction noted. Students have conveyed a desire to enhance the effectiveness of certification programs through increased hands-on training for skill development.
- Students expressed to increase the conductivity of these kinds of certification programs with hands-on training for their technical skill development.

Action Plan:

 The action plan involves organizing additional certification programs led by industry experts. This initiative aims to provide students with practical, handson experiences to further enrich their skill development and practical understanding.

Event Brochure

The Lakireddy Bali Reddy College of Engineering (LBRCE) was established in the year 1998 by Lakireddy Bali Reddy Charitable Trust, whose architect is Er. Lakireddy Bali Reddy garu. The institute is established with the sole aim of The institute is established with the sole aim of providing high quality educational opportunities in the field of science, engineering, technology and management. It is spread over 60 acres of sprawling lush green landscape spotted with orchids and grooves. It is approved by AICTE, affiliated to JNTUK, Kakinada and attained autonomous status in the year 2010. It attained NAAC accreditation status with 1/4 Grade. The institute is certified by ISC. with 'A' Grade. The institute is certified by ISO:

The Department of Aerospace Engineering was started in the year 2011. The department offers 4 years undergraduate program, B.Tech in Aerospace Engineering. The department has a team of highly qualified, dedicated and motivated faculty and wellequipped laboratories. The department has laboratories, classrooms, faculty rooms, sophisticated lab equipment's and well-versed library. The department has a wide range of teaching activities.

ABOUT THE PROGRAMME

This is a one-week student certification program on "Practical FEA using HYPER MESH and LS-DYNA" and is specially meant for engineering final year students. Students have undergone the certification program with different Modules and various meshing Techniques for simple and complex geometrical models and Static , Dynamics Analysis of beams, columns, Impact Analysis , Crash Analysis , etc. recent years, the use of FEA Tools has become an important

in furthering a variety of fields of Engineering such as Mechanical, Aerospace, Civil, Electronics, etc. Course Contents:

- > Space Claim > HYPERMESH
 - Phases of FEA/CAE.
 - Introduction to Hyper mesh
 - · Shortcut Kevs
 - · Creating and Modifying Geometry
 - · Geometry Cleanup and Defeature.
 - Introduction to 2D Meshing
 - Element Quality.
 - · Mesh Edit.
 - · Sheet metal meshing (BIW parts)
 - Plastic meshing, Hexa Meshing
- > LS-DYNA
 - Crash analysis

• Drop test The program covers the complex problems in the analysis with FEM and CFD to understand the application to the core

ELIGIBILITY

The program is open for the graduate students of Dept. of Mechanical Engineering and Dept. Aerospace Engineering. In addition, the PG students of Dept. of Mechanical are eligible

RESOURCE PERSONS

Mr.B.R.M.V. Krishna, Simulation Engineer Mr.G.M. Raja Mahendra, Simulation Engineer

Mr.Naveen Junior Simulation Engineer Mayinkrish Ventures PVT LTD, Hyderabad.

> Address for Correspondence & Registration Mr.S.Indrasena Reddy mail: indra.aero44@gmail.c Mobile: +91 -9885449822

One-Week student certification Program on Practical FEA using HYPER MESH and LS-DYNA " 28-07-2025 to 02-08-2025



Chief Patrons Sri Lakireddy Jaya Prakash Reddy

Sri Lakireddy Prasad Reddy

Sri Lakireddy Vijay Kumar Reddy

Patrons

Sri G. Srinivasa Reddy

President, LBRCT Dr. K. Appa Rao

Principa Dr. B.Ramesh Reddy

Vice-Principal

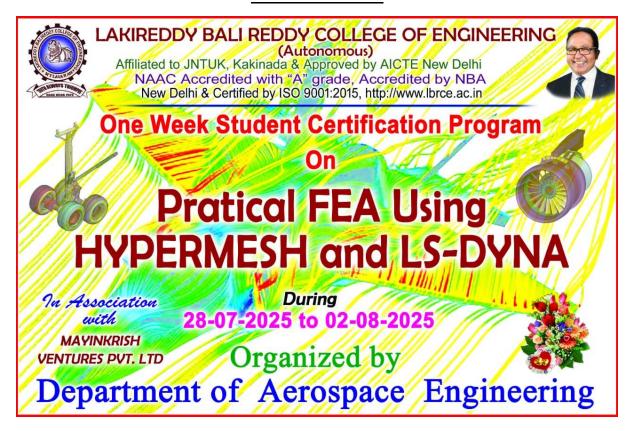
Professor & HOD

Aerospace Engineering

Co-ordinators
Mr.S.Indrasena Reddy
Sr.Assistant Professor
Dept of Aerospace Engineering
Mr.Nazumuddin Shaik
Sr.Assistant Professor
Dept of Aerospace Engineering
Organized by:

DEPARTMENT OF AEROSPACE ENGINEERING (Accredited by NBA under Tier-I) LAKIREDDY BALI REDBY COLLEGE OF ENGINEERING (AUTONOMOUS), MYLAVARAM N.T.R (DI), A.P.

Event Banner



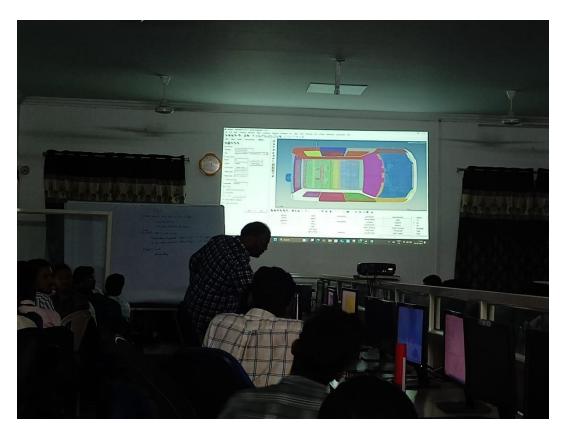
Photographs



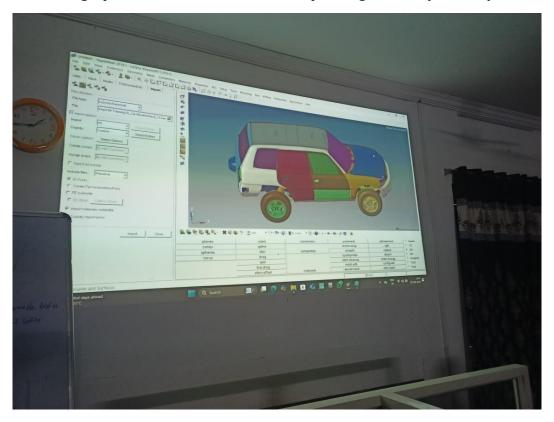
Photograph.1: Mr. G. M. Raja Mahendra and Dr. P. Lovaraju, Professor & HoD interacting with the students



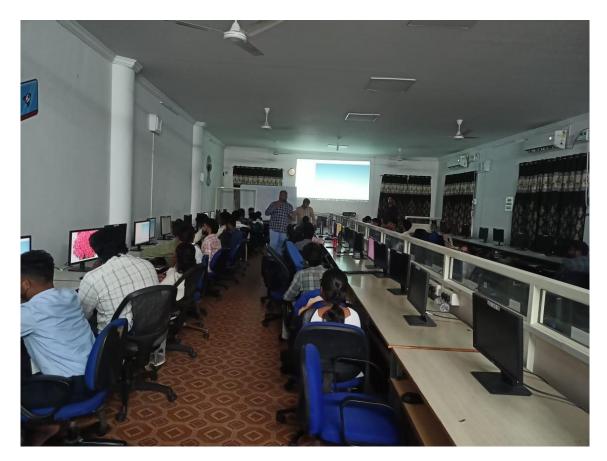
Photograph.2: Mr. G. M. Raja Mahendra explaining HYPERMESH



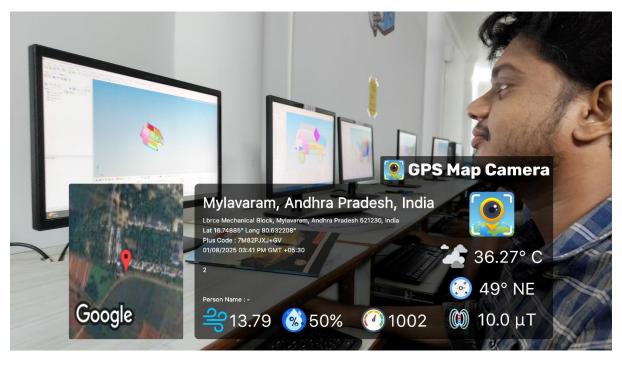
Photograph.3: Mr. B. R. M. V. Krishna Explaining the LS-Dyna Analysis



Photograph.4: CAR Model for LS-Dyna Analysis



Photograph.5: Mr. B. R. M. V. Krishna Explaining the LS-Dyna Analysis



Photograph.6: Students practicing the LS-Dyna Analysis

LIST OF STUDENTS REGISTERED

One Week Student Certification Program on "Practical FEA using HYPERMESH and LS-DYNA" (28-07-25 to 02-08-25) AEROSPACE ENGINEERING STUDENTS

S. No.	Roll. No.	Name of the Student
1	22761A5604	ASHRAF AHMAD
2	22761A5608	DEVIREDDY NISANTH REDDY
3	22761A5609	DUVVI ANITHASRI
4	22761A5610	GOKANAKONDA SUREKHA
5	22761A5612	GULLIPALLI KEERTHI
6	22761A5613	JAGILINKI HITESH SRINIVASA MANIKANTA
7	22761A5614	JONNA BHANUSH
8	22761A5618	KROSURI THRONI SAROJA
9	22761A5619	LAKKIREDDY BHAVANI
10	22761A5620	LITHIN SIDDARDHA AMBATI
11	22761A5621	MARADANA SHAM SRI JASMIN
12	22761A5623	MOHAMMED SAMEER
13	22761A5624	MOHAMMED ZAHEERUDDIN
14	22761A5626	NAGOORU KARTHIKEYA SAI
15	22761A5627	NEELAM SANDEEP SARVAN
16	22761A5629	PALLIPAMU PHANI KUMAR
17	22761A5630	PENTAKOTA KIRAN KUMAR
18	22761A5632	POSSAMSETTI VENKAT RAO
19	22761A5633	POTHIREDDY BHASKAR REDDY
20	22761A5634	PYDIPAMULA KOMALI
21	22761A5636	SEETHA RAVI TEJA
22	22761A5637	SHAIK ARIF
23	22761A5638	SHAIK FIROZUDDIN
24	22761A5639	SHAIK FIYAZ
25	22761A5642	TADISETTI BHARGAV SRI RAM
26	22761A5644	THODETI HONEY AJANTAIN
27	22761A5646	VELPULA DIYA SUNIL
28	22761A5647	YADLAPALLI VINEETHVARDHAN
29	22761A5648	YARRAGORLA SRINU
30	23765A5601	BULLA JOSHI BABU
31	23765A5602	DALI VENKATA SIVA NAGESWARARAO
32	23765A5603	DOPPALA ADI

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Attendance Sheet

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Website-https://www.lbrca.ecin/ase/index.phu/Emails/bodaero@lbrce.acin/Phone.08660 222933 Est.674/633

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1	22761A5604	ASHRAF AHMAD	Aby	Helen	thof	they	Aby	Asby	Abof	Aglay	Story	Abyl	Aly	de
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4	22761A5610	GOKANAKONDA SUREKHA	goden	Surech	Sureka	GRIVE	Surces	scireta	Gsura	SUTEL	sweet	Sureby.	Snelds	swell
5	22761A5612	GULLIPALLI KEERTHI	Keeth	Kuti	Freatly	Kooty	Kiertha	Kealy	Heatly	Kerty	Kurthy	Keoth	Kraly	Kuf
6	22761A5613	JAGILINKI HITESH SRINIVASA MANIKANTA	Chiter	flilch	Chilesh	& Etesh	Aleth	alleyh	illish	Patric	Hilsh	Elish	Hatil	Hite
7	22761A5614	JONNA BHANUSH	J. Bhan	J-Klern	J.Bhal	J. Bhar	Jahow	J-IIhan	J-Ilhan	7. Than	Tillian	Jishan	J. Klan	J.Blu
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11	22761A5621	MARADANA SHAM SRI JASMIN	Jamin	AB	Farmin	Farmin	Fremin	Jamis	Jasmin	Famin	Jamila	Family	Lasmin	Jemi
12 -	22761A5623	MOHAMMED SAMEER	Conces	Bones	Parie	Sone	Soney	Barrer	Barren	Bones	Sovier	Ване	Sore	Rome
13	22761A5624	MOHAMMED ZAHEERUDDIN	MAR	W.	was	602	Muss	Me	000	(96)	- MP	WP		and
14	22761A5626	NAGOORU KARTHIKEYA SAI	N.K	N.K	N.K	N.K	N.K	N.K	N.E	N.K	N.K	N.K	N.K	N,18
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19	22761A5633	POTHIREDDY BHASKAR REDDY	Bhaskar	Bhaskar	Bhaskar	Sharkar	Bhaskov	Bhaskar	Bhaska 9	Bhaskar	Bhaslear	Bhakar	Bhaska	Bheoker
20	22761A5634	PYDIPAMULA KOMALI	p. Kurt	p. K.J	p.K.	g.ki	p. K'	p.ki	P.L	p.Ki	P. Komeh.	P. Konst.	Phili	P.hli
21	22761A5636	SEETHA RAVI TEJA	s. Raily	Spa	SPOS	SRE	SeRot	fleri	Slave	Slow	B	Sel	A Part	SP
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33	23765A5605	JYOTHI SHANMUKHA CHANDRA MOULESWAR	J. des	3. clas	J. clos	J.cla	J.cla	John	J.da	Jolg	J cha	1 Clus	Jel	Jalo
34	23765A5606	KOKKILIGADDA HEMANTH	K. Flor	k. Her	k. Hu	k. Flor	Kigh	K. Her	K. fly	Kelley	K.glu	K. Th	k.glu	r k.gl
35	23765A5608	KOMARAVALLI AVINASH	K Arine	KAniel	Warit	KAlin	ly Kenin	LArial	KAM	Hain	" KAir	lesin	Modni	h fe An
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Signature of Faculty Co-ordinators