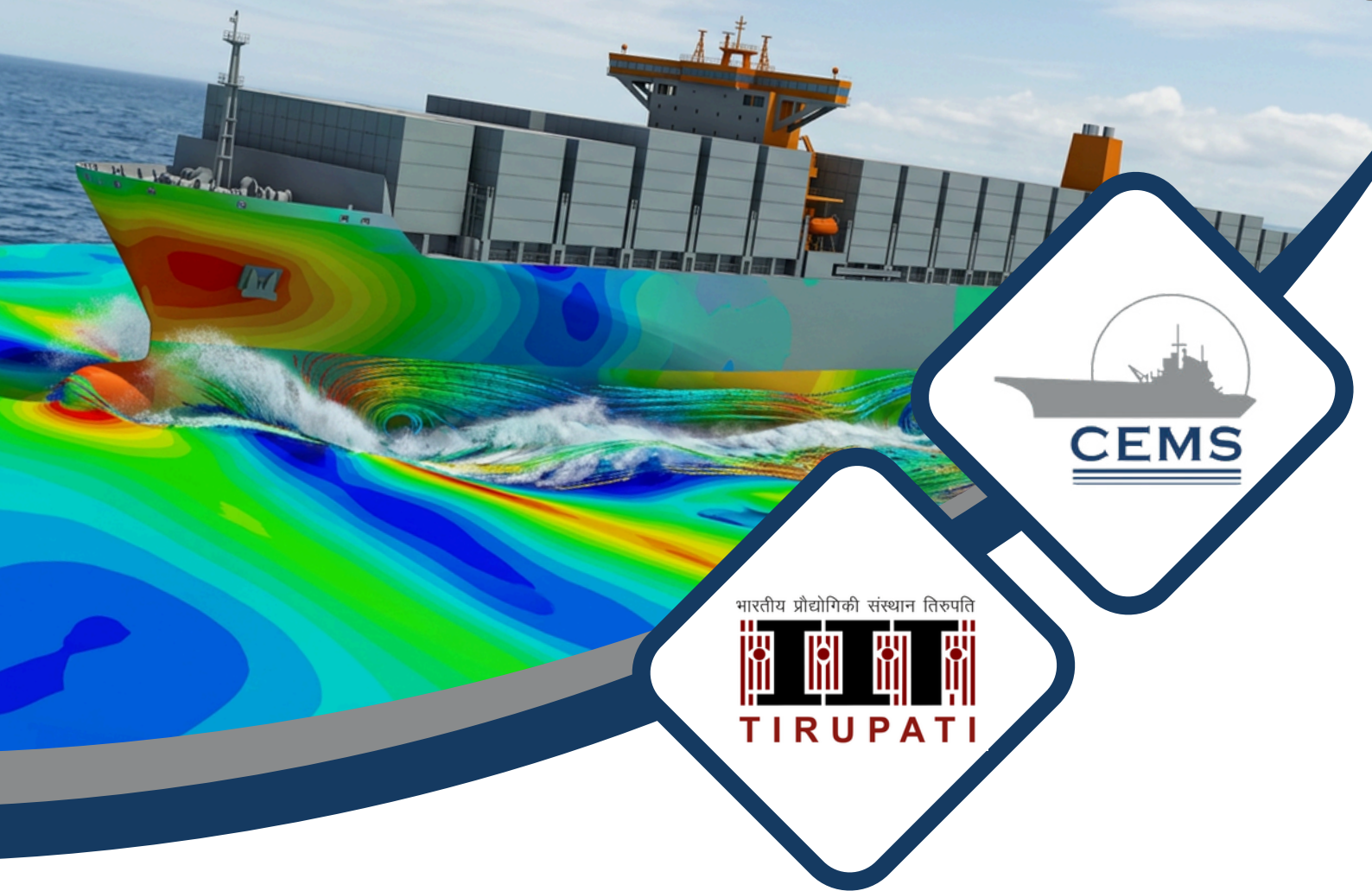




Computational Fluid Dynamics with STAR CCM+: **FROM FUNDAMENTALS TO INDUSTRIAL APPLICATIONS**

Delivery Partner: **CEMS & IIT Tirupati**



1st Sep – 3rd Sep 2026



Venue: CEMS, Vizag

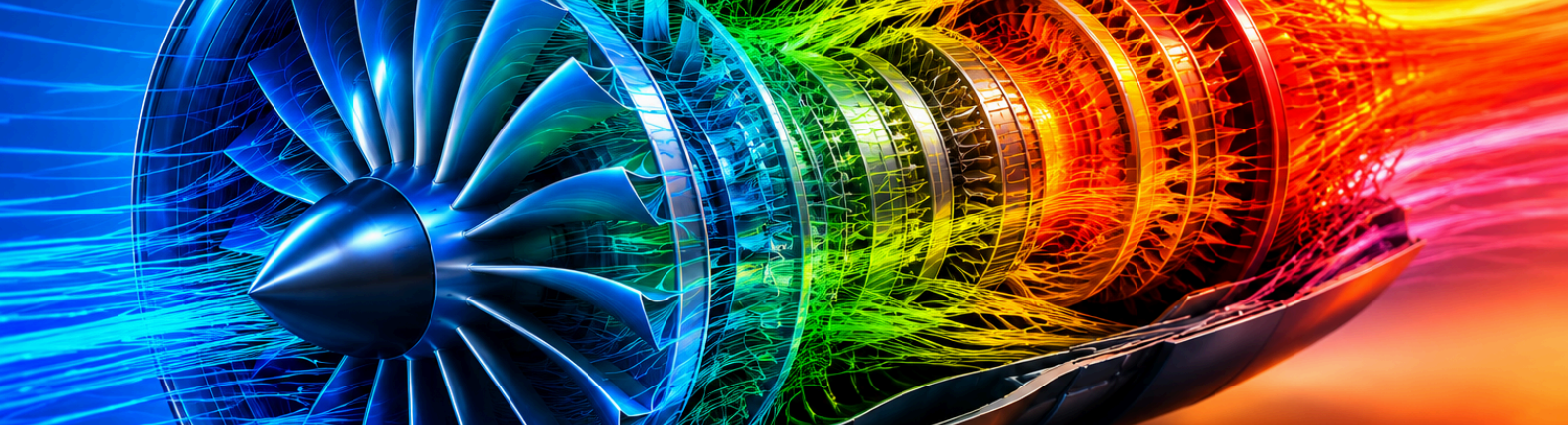
CENTRE OF EXCELLENCE IN MARITIME AND SHIPBUILDING (CEMS)

Promoted By



Future Starts Here >>>

Empowering Nation Through Skilling



DELIVERY MODEL :

FULL OFFLINE DELIVERY AT CEMS VIZAG

- ***Morning Sessions (Theory)***

Delivered by IIT Tirupati Faculty. Focus on scientific principles, material science, and advanced engineering concepts.

- ***Afternoon Sessions (Practical)***

Delivered by CEMS & IIT Tirupati Trainers. Focus on hands -on software training and operation of industrial 3D printers.

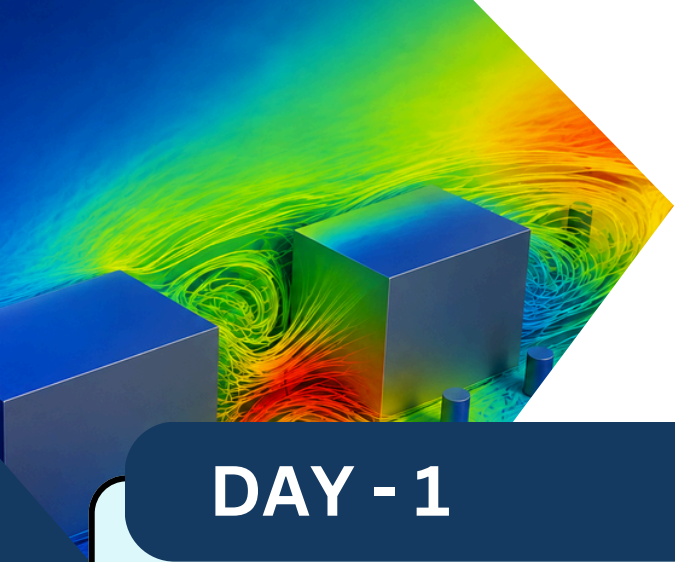
Learning Outcomes

Participants will:

- Understand CFD principles, including turbulence models, cavitation, and turbomachinery applications.
- Apply CAD and geometry cleanup for simulation-ready models.
- Perform meshing and physics setup with refinement and turbulence interfaces.
- Master STAR CCM+ workflow through GUI navigation and case studies.
- Analyze CFD results using post-processing and advanced data analysis.
- Execute industrial case studies such as wind tunnel, ball valve, and axial turbine simulations.

Target Audience

- Mechanical engineers in design and R&D
- Aerospace professionals focusing on aerodynamics
- Maritime engineers in shipbuilding and offshore structures
- Energy specialists working with turbines and valves
- Graduate students and researchers in fluid dynamics



DAY-WISE COURSE SCHEDULE

DAY - 1

Morning (IIT Faculty)

- Introduction to CFD
- Applications & emerging trends
- Used cases in industry

Afternoon (Hands-on)

- Basic CAD: solid generation, modification, Boolean commands
- STAR CCM+ GUI workflow: Car in a wind tunnel case study

DAY - 2

Morning (IIT Faculty)

- Types of flows
- Turbulence models & constants
- CFD in turbomachinery
- Cavitation phenomena

Afternoon (Hands-on)

- Geometry cleanup
- Meshing & refinement
- Physics setup: turbulence modelling, interfaces
- Data analysis & post-processing: Ball valve analysis

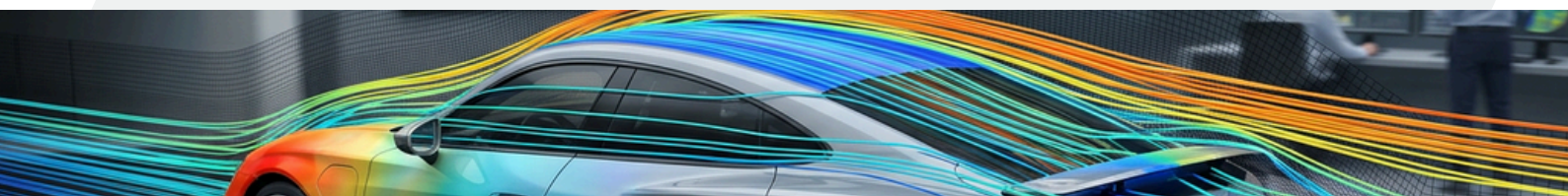
DAY - 3

Morning (IIT Faculty)

- Review of previous topics
- Q&A session
- Final case study: Axial turbine stage simulation

Afternoon (Hands-on)

- Miscellaneous advanced topics
- Course conclusion



LEARN FROM THE EXPERT



Faculty – Dr. Balaji, IIT Tirupati
Associate Professor, Mechanical Engineering, IIT Tirupati

Ph.D. in Mechanical Engineering with specialization in Computational Fluid Dynamics (CFD) | Expertise in CFD modeling, heat transfer, turbulence, and multiphase flows | Strong industry collaboration in fluid machinery and thermal systems | Author of multiple peer-reviewed publications in CFD and thermal sciences | Over a decade of teaching and training experience in CFD and related domains

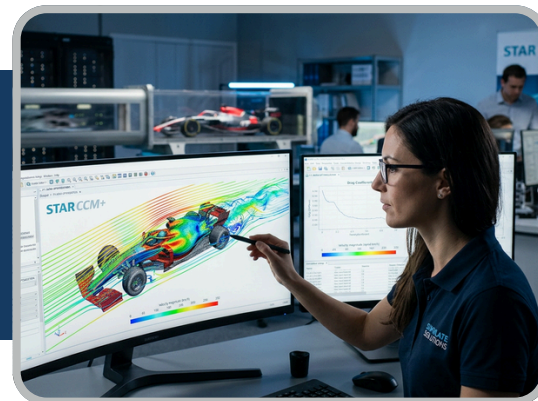


CEMS Trainer – Raghu Samraat Niddhara, CEMS
Senior Engineer – Technical Services, CEMS

9 years of experience in CAD/CAE and PLM | Specialization in mechanical vibrations, acoustics, heavy engineering design, additive manufacturing, and DFMA | Proficient in Siemens NX, Simcenter 3D, and Teamcenter | Trained nearly 750 students and 170 professionals from leading organizations including the Indian Navy and Mahindra & Mahindra

FEES & ACCOMMODATION

Accommodation (Optional) - 12,500 per participant (incl. GST), covering 4 days of stay in CEMS VIZAG (3 training days + 1 flexible day), breakfast, lunch and dinner.



Course Fee for Academic Professionals, faculty members & Ph.D. students from academic institutions : ₹6,000 + GST

**Contact us
for more**



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CEMS, VIZAG

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SCAN ME



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Course Fee (Corporates): ₹20,000 + GST



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