5-Day Online Faculty Development Program (FDP) on "Modelling and Simulation for Structural and CFD Analysis in Aeronautical, Aerospace, and Mechanical Engineering
21 July 2025, 9:45am – 25 July 2025, 12:15pm

Fig. 1. Invitation for the Faculty Development Program.

Fig. 2. Main Banner for Faculty Development Program.

ACS COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi)

#207, Kambipura, Mysore Road, Bengaluru – 560074

DEPARTMENT OF AERONAUTICAL, AEROSPACE AND MECHANICAL ENGINEERING

Five Days Online Faculty Development Program (FDP) on "Modelling and Simulation for Structural and CFD Analysis in Aeronautical, Aerospace, and Mechanical Engineering"

EVENT SCHEDULE

S.No.	Date / Day	Timings	Resource Person	Topic of the Discussion	Moderator(s)
1.	21.07.2025 / Monday	10 am to 10.30 am	Event Organizers	FDP Inauguration	Organizing Committee
2.	21.07.2025 / Monday	10.30 am to 12.30 pm	Mr. Ravindra Bhucherla, Senior Application Engineer, ANSYS-ARK solutions pvt. Ltd, Bengaluru	Structural Simulations through ANSYS	Dr. Anand, Asso.Prof. / AE
3.	22.07.2025 / Tuesday	10 am to 12 pm	Dr. Nikhil Vijay Shende, Director, S&I Engineering Solutions Bengaluru	Role of High Performance Computing in accelerating CFD simulations	Mr. Albert D Mellan AP / AE
4.	23.07.2025 / Wednesday	10 am to 12 pm	Mr. D Praveen Kumar, Scientist E, ADA, Bengaluru	General applications of CFD in Defence Manufacturing in India	Dr. Sunitraj B Asso. Prof / ME
5.	24.07.2025 / Thursday	10 am to 12 pm	Mr. T Thamodharan, Scientist C, ADA, Bengaluru	Health Monitoring of Aircraft Systems using AIML simulations	Mr. Vijay M AP / ASE
6.	25.07.2025 / Friday	10 am to 12 pm	Dr. Sendhil Kumar Natarajan, Associate Professor, Department of Mechanical Engineering, Dean (Student Welfare), National Institute of Technology Puducherry, Thiruvettakudy, Karaikal- 609609,	Numerical Investigation on Solar Cavity Receiver for Concentrated Solar Power Systems	Dr. Elavarasan E Asso.Prof. / ASE
6.	25.07.2025 / Friday	12 pm to 12.30 pm	Event Organizers	Feedback session & Valediction	Organizing Committee

Note : Attendance and Feedback form submission is mandatory on every day for the participants to get certificate.

Fig. 3. Faculty Development Program Schedule.

ACS College of Engineering

#207, Kambipura, Mysore Road, Bengaluru – 560074

(Approved by AICTE, New Delhi, Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi)

5-Day Online Faculty Development Program (FDP) on "Modelling and Simulation for Structural and CFD Analysis in Aeronautical, Aerospace, and Mechanical Engineering

21 July 2025– 25 July 2025

Organized by the Departments of Aeronautical, Aerospace & Mechanical Engineering, ACSCE

DAY: 1 [21 July 2025]

Google Meet Link: https://meet.google.com/nci-yebe-kbz

ACS College of Engineering proudly invites you to the Inauguration of a 5-Day Online Faculty Development Program (FDP) on:

Day 1 – Faculty Development Program (Date: 21st July 2025) :

Moderator: Dr. Anand A, Associate Professor – AE

Topic: Structural Simulations through ANSYS

Resource Person:

Mr. Ravindra Bhucherla

Senior Application Engineer

M/s. ANSYS – ARK Solutions Pvt. Ltd., Bengaluru.

Session Highlights:

The inaugural session of FDP was started with the welcome address by Dr.G.Ramanan, Professor and Head, Aeronautical Engineering. Then the Principal Dr.Anndthirtha B Gudi delivered the felicitation address. Then Dr.Anand A had introduced the chief guest to the participants.The resource person discussed the following point:

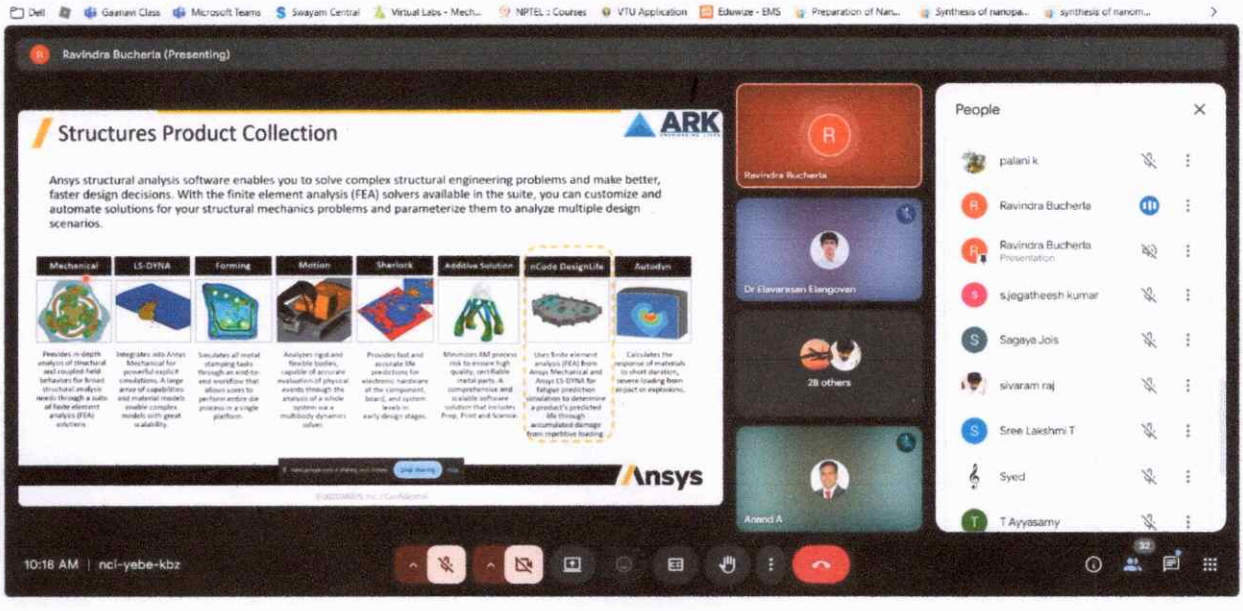
- Model real-world structural problems and apply appropriate material and boundary conditions
- Interpret simulation results to make engineering decisions and optimize structural performance

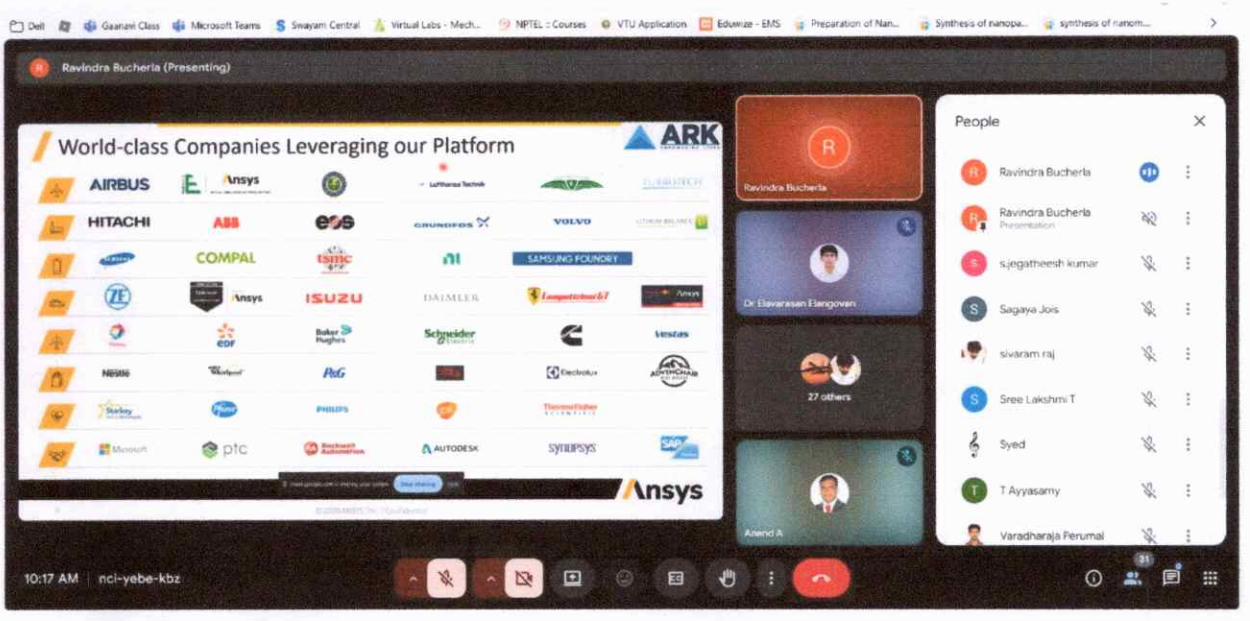
The session ended with the Q&A session, feedback session and vote of thanks.

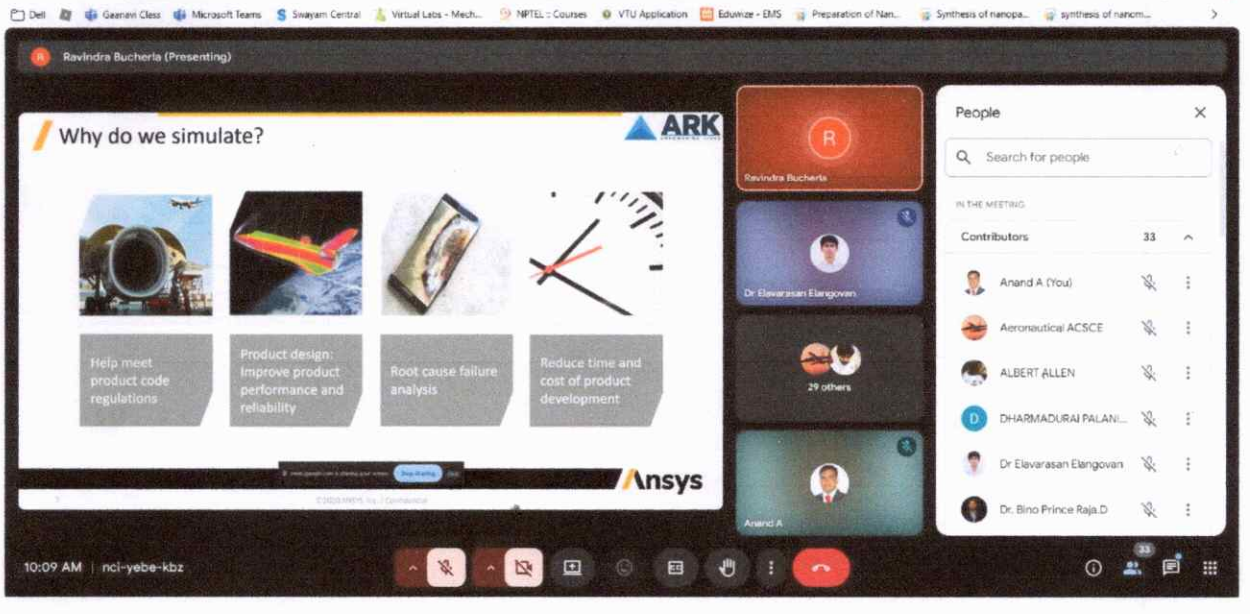
Gallery :

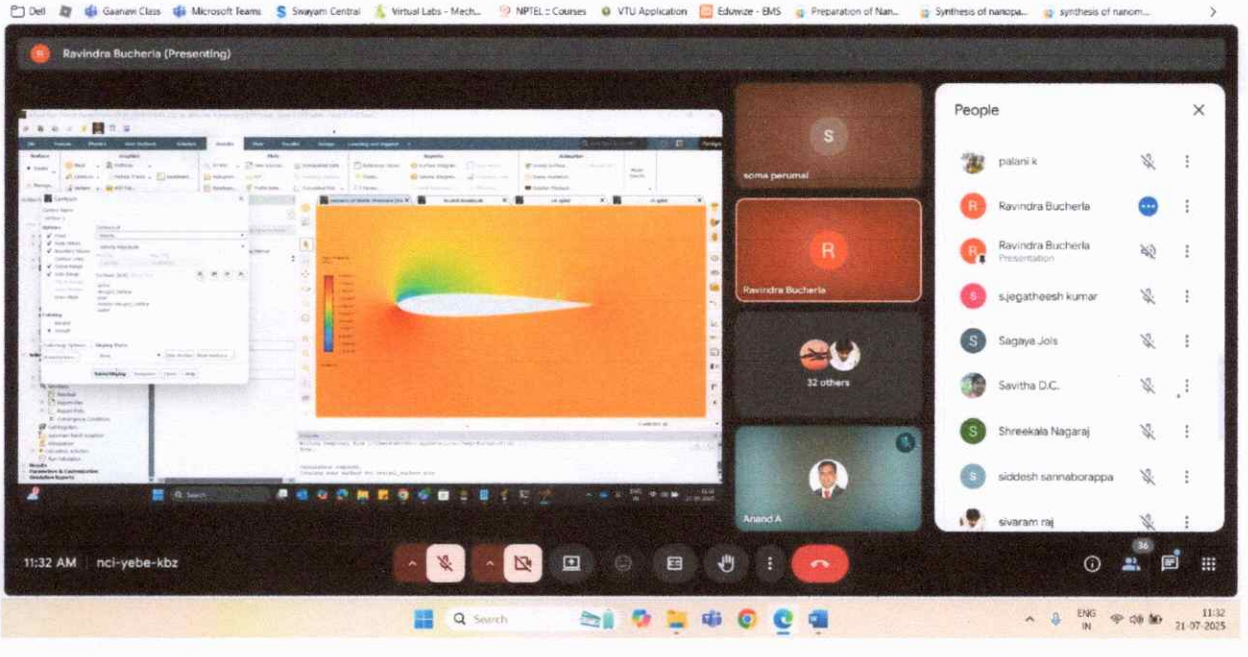

People
Search for people
IN THE MEETING
Contributors 28
Anand A (You)
ACSCE ACS COLLEGE
Aeronautical ACSCE
ALBERT ALLEN
DHARMADURAI PALANI...
Dr Elavarasan Elangovan
Dr. Bino Prince Raja.D
24 others
Syed
Anand A
ACSCE ACS COLLEGE
9:53 AM | nci-yebe-kbz


People
Search for people
IN THE MEETING
Contributors 30
Anand A (You)
ACSCE ACS COLLEGE
Aeronautical ACSCE
ALBERT ALLEN
DHARMADURAI PALANI...
Dr Elavarasan Elangovan
Dr. Bino Prince Raja.D
Sree Lakshmi T
26 others
Anand A
9:57 AM | nci-yebe-kbz


Ravindra Bucherla (Presenting)
Structures Product Collection
ARK
Ansys structural analysis software enables you to solve complex structural engineering problems and make better, faster design decisions. With the finite element analysis (FEA) solvers available in the suite, you can customize and automate solutions for your structural mechanics problems and parameterize them to analyze multiple design scenarios.
Mechanical
LS-DYNA
Forming
Motion
Sherlock
Additive Solution
nCode DesignLife
Autodyn
Ansys
People
palani k
Ravindra Bucherla
Ravindra Bucherla Presentation
s.jegatheesh kumar
Sagaya Jois
sivaram raj
Sree Lakshmi T
Syed
T Ayyasamy
Dr Elavarasan Elangovan
28 others
Anand A
10:18 AM | nci-yebe-kbz


Ravindra Bucherla (Presenting)
World-class Companies Leveraging our Platform
ARK
AIRBUS
Ansys
HITACHI
ABB
COMPAL
ISUZU
SAMSUNG FOUNDRY
Ansys
People
Ravindra Bucherla
Ravindra Bucherla
Presentation
sjegatheesh kumar
Sagaya Jois
sivaram raj
Sree Lakshmi T
Syed
T Ayyasamy
Varadharaja Perumal
Dr Elavarasan Elangovan
27 others
Anand A
10:17 AM | nci-yebe-kbz


Ravindra Bucherla (Presenting)
Why do we simulate?
ARK
Help meet product code regulations
Product design: Improve product performance and reliability
Root cause failure analysis
Reduce time and cost of product development
Ansys
People
Search for people
IN THE MEETING
Contributors 33
Anand A (You)
Aeronautical ACSCE
ALBERT ALLEN
DHARMADURAI PALANI...
Dr Elavarasan Elangovan
Dr. Bino Prince Raja.D
Ravindra Bucherla
Dr Elavarasan Elangovan
29 others
Anand A
10:09 AM | nci-yebe-kbz


Ravindra Bucherla (Presenting)
People
palani k
Ravindra Bucherla
Ravindra Bucherla
Presentation
sjegatheesh kumar
Sagaya Jois
Savitha D.C.
Shreekala Nagaraj
siddesh sannaborappa
sivaram raj
soma perumal
Ravindra Bucherla
32 others
Anand A
11:32 AM | nci-yebe-kbz
Search
ENG
IN
11:32
21-07-2025

ACS College of Engineering

#207, Kambipura, Mysore Road, Bengaluru – 560074

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🚀 Day 2 – Faculty Development Program

📅 Date: 22nd July 2025

🕙 Time: 10:00 AM to 12:00 PM

Topic:"Role of High Performance Computing in Accelerating CFD Simulations"

👨‍🏫 Resource Person:

Dr. Nikhil Vijay Shrende

Director - M/s. S & I Engineering Solutions, Bengaluru

Moderator: Mr. Albert D Mello, Asst. Professor - AE

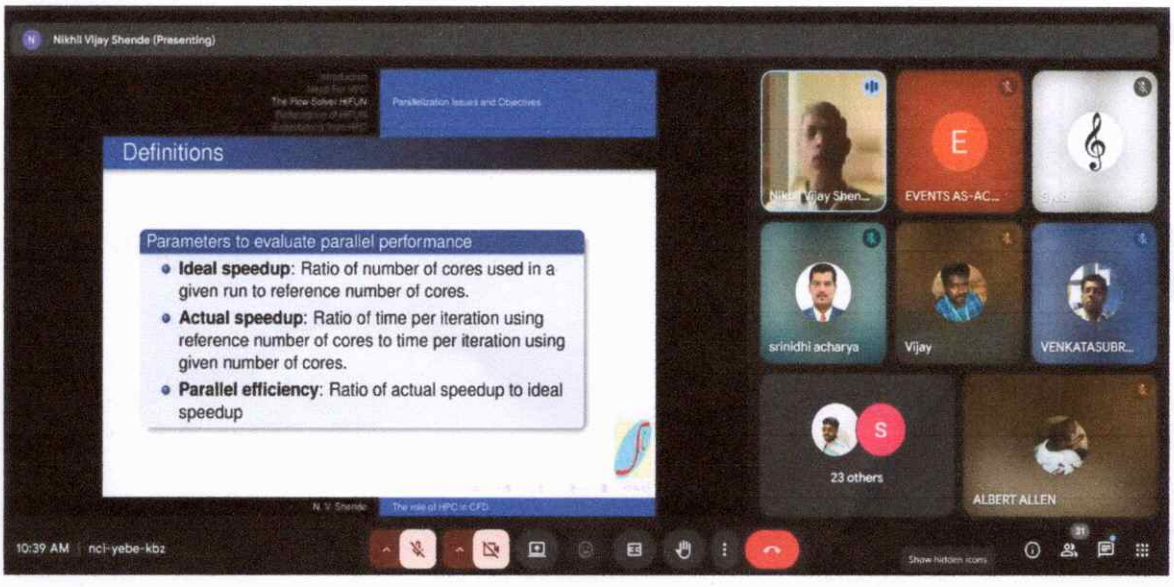
Session Highlights:

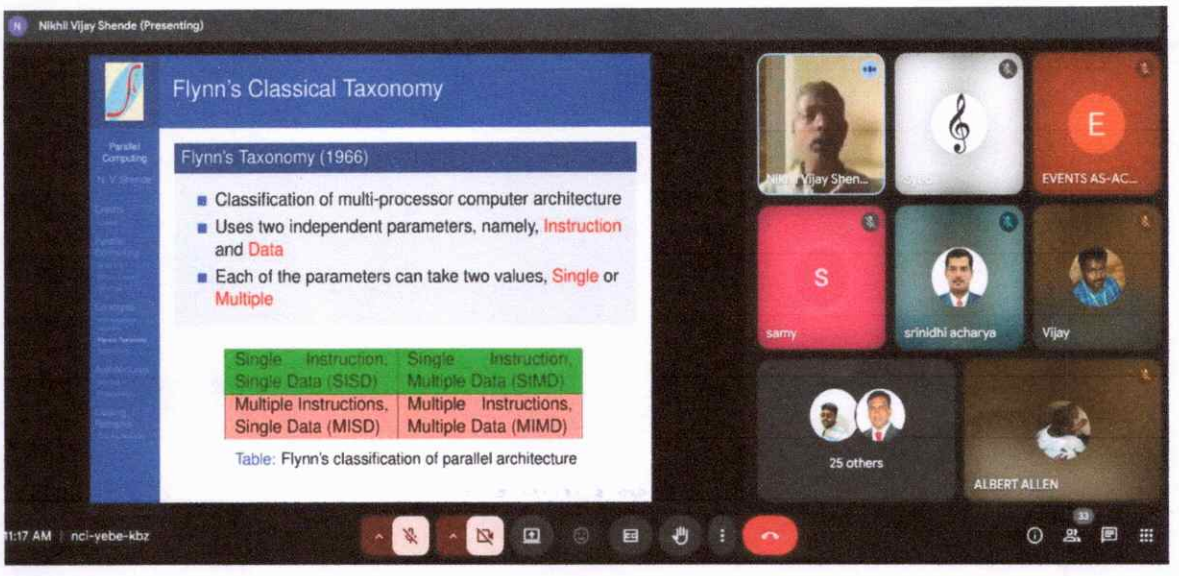
Mr.Albert D mello had welcomed and introduced the chief guest to the participants. The resource person discussed the following point:

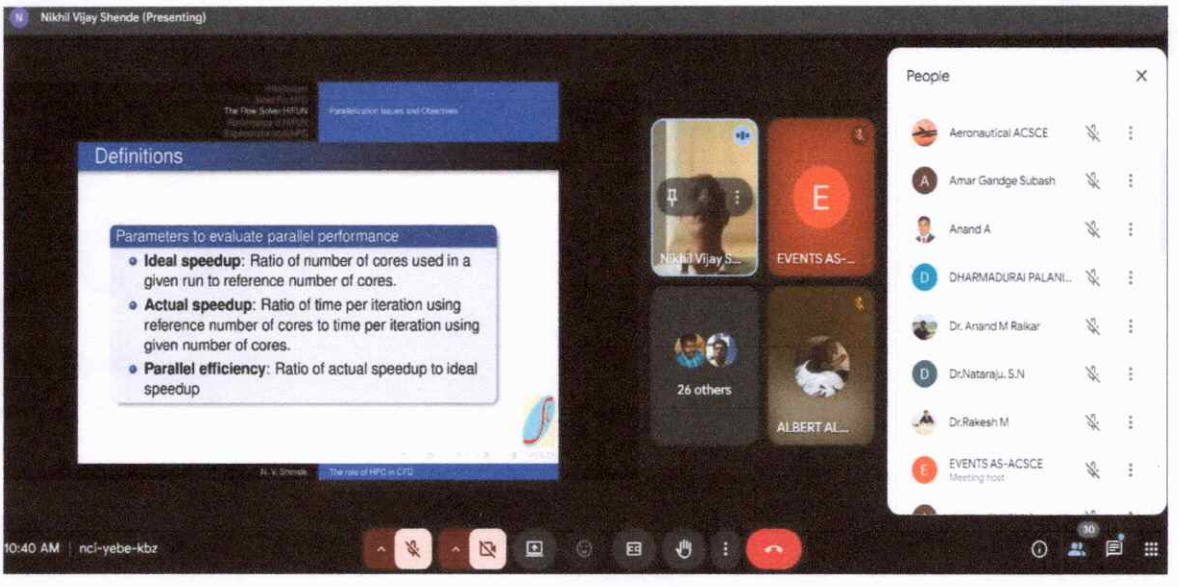
- Explain the role of High Performance Computing (HPC) in enhancing the speed, scale, and accuracy of CFD simulations.
- Identify key HPC architectures and technologies (e.g., parallel computing, GPU acceleration, cluster/cloud computing) relevant to CFD.
- Explore industrial and research applications where HPC has significantly advanced fluid flow modeling and engineering innovation.
- Recognize the challenges and best practices in setting up CFD simulations on HPC platforms (e.g., job scheduling, memory management, scalability).

The session ended with the Q&A session, feedback session and vote of thanks.

Gallery:




Nikhil Vijay Shende (Presenting)
Flynn's Classical Taxonomy
Flynn's Taxonomy (1966)
Classification of multi-processor computer architecture
Uses two independent parameters, namely, Instruction and Data
Each of the parameters can take two values, Single or Multiple
Single Instruction, Single Data (SISD)
Single Instruction, Multiple Data (SIMD)
Multiple Instructions, Single Data (MISD)
Multiple Instructions, Multiple Data (MIMD)
Table: Flynn's classification of parallel architecture
EVENTS AS-AC...
samy
srinidhi acharya
Vijay
25 others
ALBERT ALLEN
11:17 AM | ncl-yebe-kbz


Nikhil Vijay Shende (Presenting)
Definitions
Parameters to evaluate parallel performance
Ideal speedup: Ratio of number of cores used in a given run to reference number of cores.
Actual speedup: Ratio of time per iteration using reference number of cores to time per iteration using given number of cores.
Parallel efficiency: Ratio of actual speedup to ideal speedup
EVENTS AS-...
26 others
ALBERT AL...
People
Aeronautical ACSCE
Amar Gandge Subash
Anand A
DHARMADURAI PALANI...
Dr. Anand M Raikar
Dr.Nataraju. S.N
Dr.Rakesh M
EVENTS AS-ACSCE
Meeting host
10:40 AM | ncl-yebe-kbz

🚀 **Day 3 – Faculty Development Program:**

🗓️ Date: 23rd July 2025

🕙 Time: 10:00 AM – 12:00 PM

🎯 Session Topic:**"General Applications of CFD in Defence Manufacturing in India"**

👩‍🏫 **Resource Person:**

Mr. D. Praveen Kumar, Scientist E, ADA, Bengaluru

🎤 Moderator:

Dr. Sunil Raj B

Associate Professor – Department of Mechanical Engineering

📚 Organized by the Departments of Aeronautical, Aerospace & Mechanical Engineering

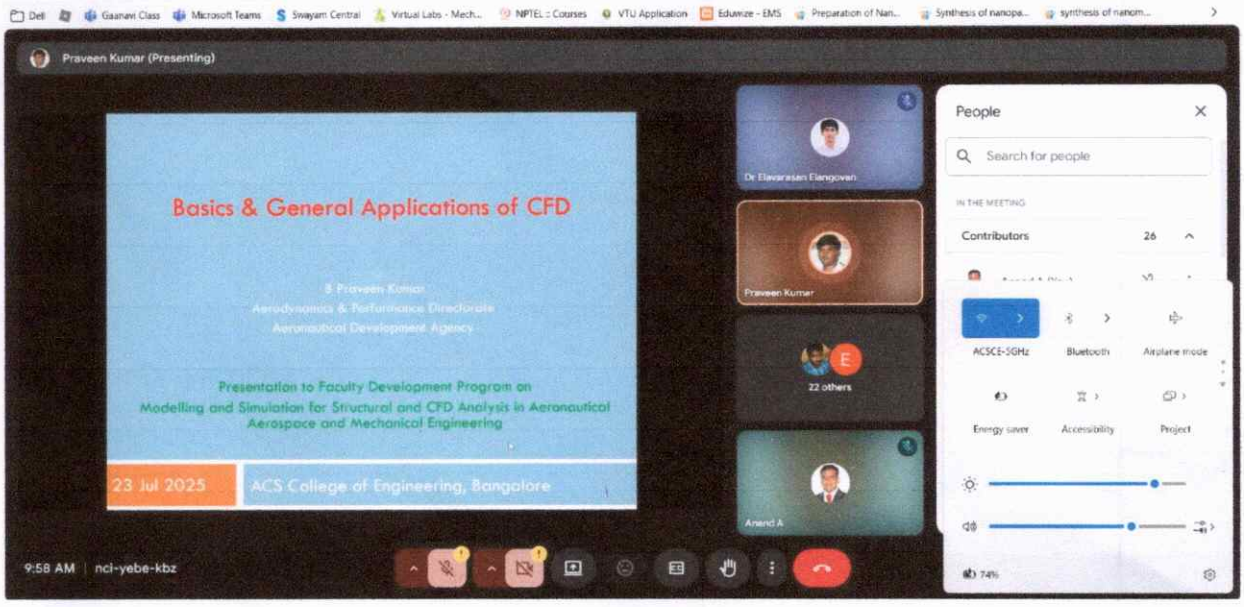
Session Highlights:

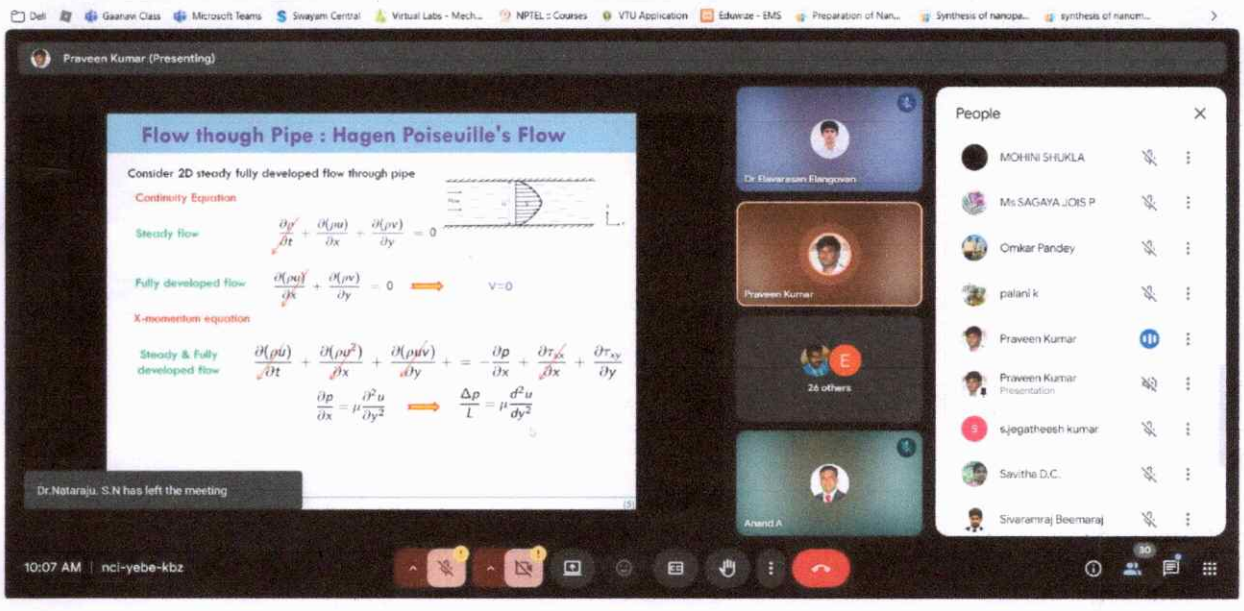
Dr. Sunil Raj B had welcomed and introduced the chief guest to the participants.

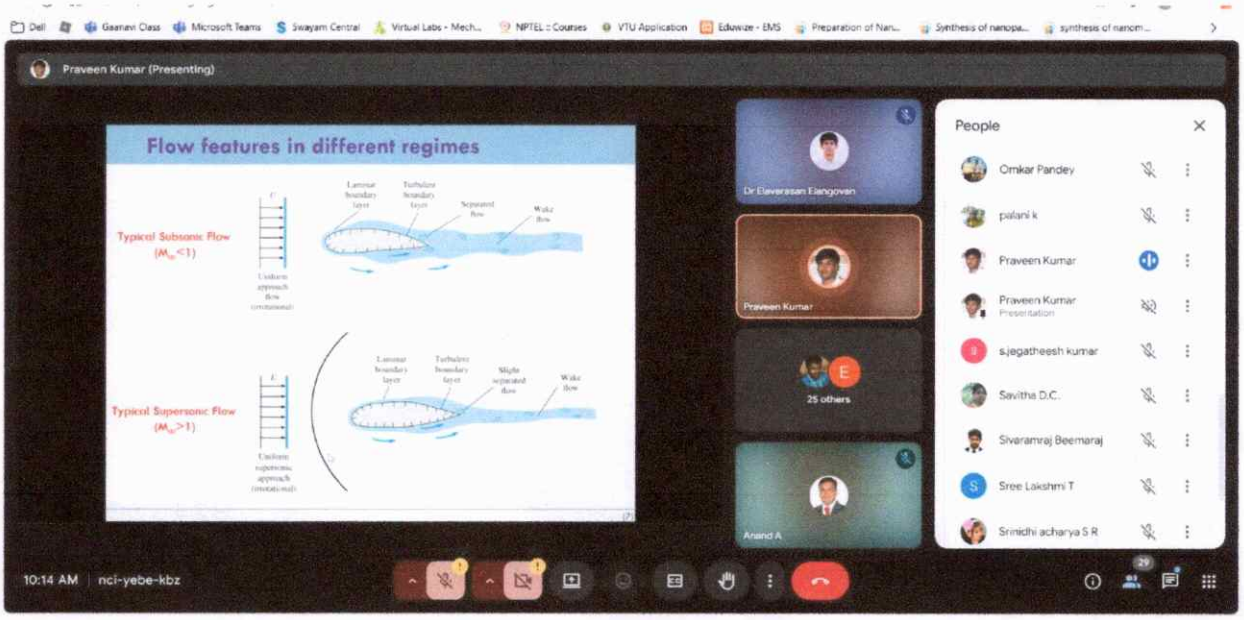
The resource person discussed the following point:

- Understand the role of Computational Fluid Dynamics (CFD) in enhancing design and development across various defence manufacturing sectors in India.
- Identify key CFD applications in defence systems, such as aerodynamics of missiles, submarines, UAVs, and ventilation systems in armored vehicles.
- Describe how CFD contributes to performance optimization of weapon systems, thermal management, propulsion systems, and stealth technologies.

The session ended with the Q&A session, feedback session and vote of thanks.


Praveen Kumar (Presenting)
Basics & General Applications of CFD
S Praveen Kumar
Aerodynamics & Performance Directorate
Aeronautical Development Agency
Presentation to Faculty Development Program on
Modelling and Simulation for Structural and CFD Analysis in Aeronautical
Aerospace and Mechanical Engineering
23 Jul 2025
ACS College of Engineering, Bangalore
Dr Elavarasan Elangovan
Praveen Kumar
22 others
Anand A
People
Search for people
IN THE MEETING
Contributors 26
ACSCE-5GHz
Bluetooth
Airplane mode
Energy saver
Accessibility
Project
74%
9:58 AM | nci-yebe-kbz


Praveen Kumar (Presenting)
Flow though Pipe : Hagen Poiseuille's Flow
Consider 2D steady fully developed flow through pipe
Continuity Equation
Steady flow
Fully developed flow
V=0
X-momentum equation
Steady & Fully developed flow
Dr.Nataraju. S.N has left the meeting
Dr Elavarasan Elangovan
Praveen Kumar
26 others
Anand A
People
MOHINI SHUKLA
Ms.SAGAYA JOIS P
Omkar Pandey
palani k
Praveen Kumar
Praveen Kumar Presentation
s.jegatheesh kumar
Savitha D.C.
Sivaramraj Beemaraj
10:07 AM | nci-yebe-kbz


Praveen Kumar (Presenting)
Flow features in different regimes
Typical Subsonic Flow
Typical Supersonic Flow
Dr Elavarasan Elangovan
Praveen Kumar
25 others
Anand A
People
Omkar Pandey
palani k
Praveen Kumar
Praveen Kumar Presentation
s.jegatheesh kumar
Savitha D.C.
Sivaramraj Beemaraj
Sree Lakshmi T
Srinidhi acharya S R
10:14 AM | nci-yebe-kbz

DAY: 4 [24 July 2025] – Faculty Development Program

💡 **Topic: Health Monitoring of Aircraft Systems using AIML Simulations**

👨‍🔬 Resource Person: **Mr. T. Thamodharan**

Scientist C, Aeronautical Development Agency (ADA), Bengaluru

🎙️ Moderator:

Mr. Vijay M, Assistant Professor, Aerospace Engineering

🗓️ Date: 24th July 2025

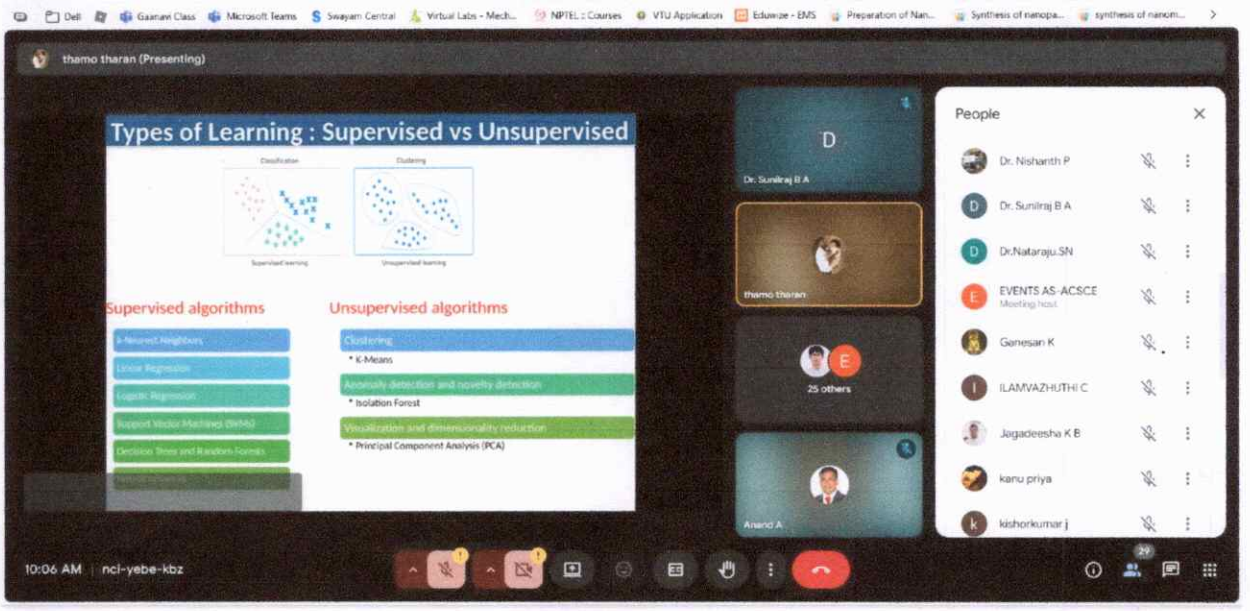
🕙 Time: 10:00 AM to 12:00 PM

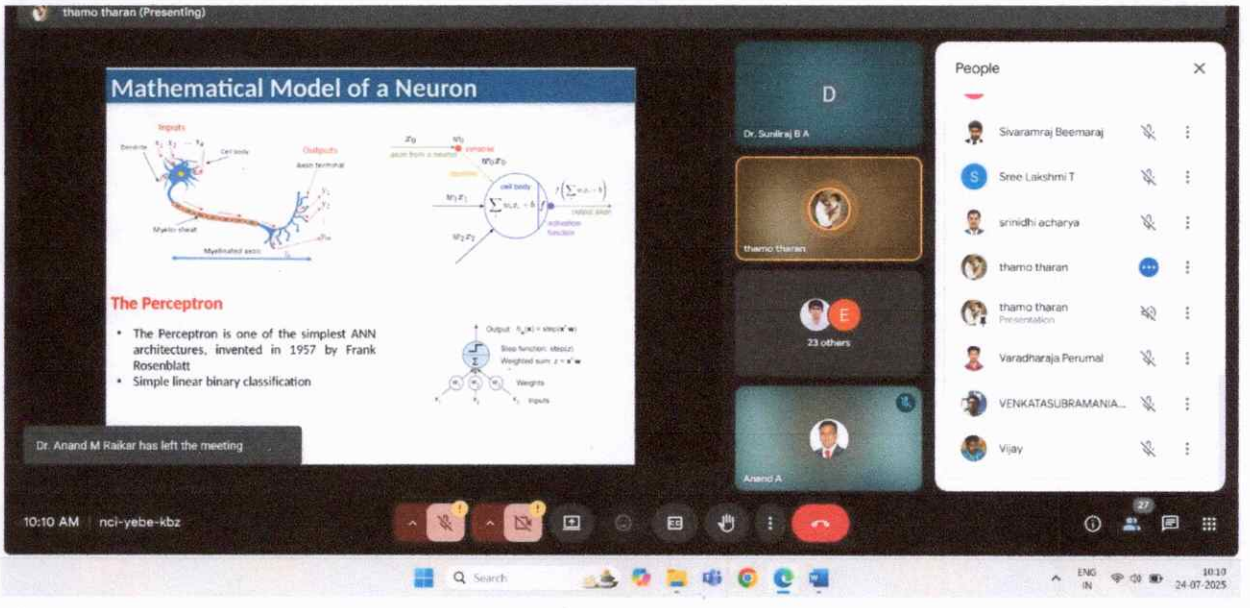
Session Highlights:

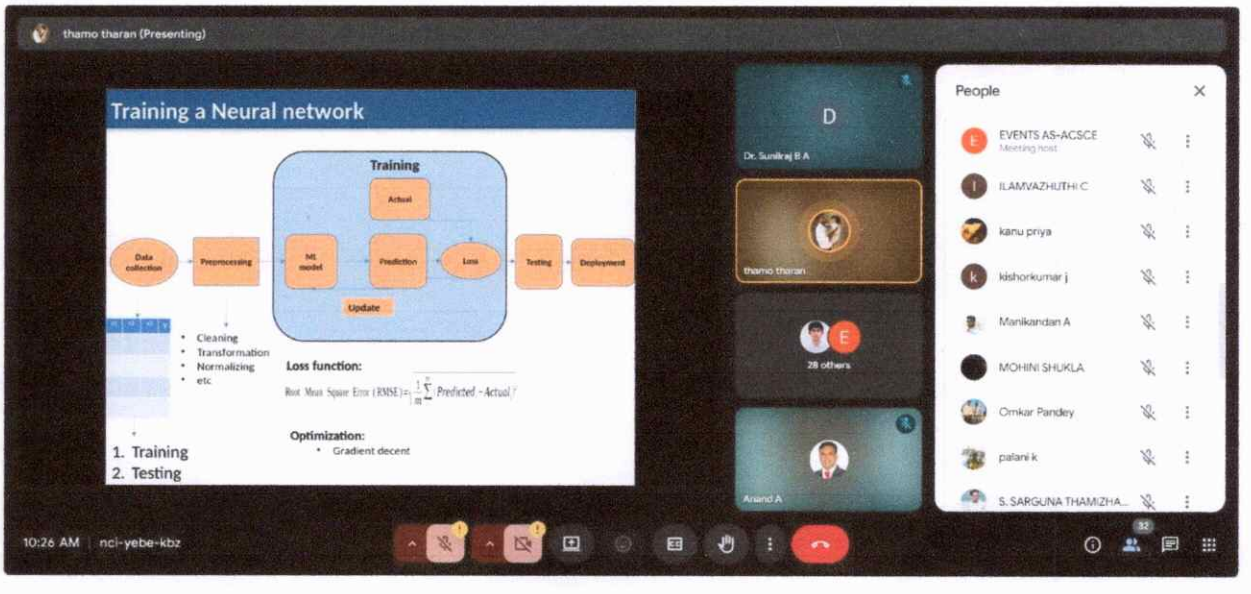
Mr.Vijay M had welcomed and introduced the chief guest to the participants. The resource person discussed the following point:

- Apply AI/ML techniques such as anomaly detection, classification, regression, and clustering to real-time and historical sensor data.
- Recognize the integration of digital twins and simulations for continuous condition monitoring and lifecycle management of aircraft systems.
- Evaluate case studies or simulation models demonstrating AI/ML applications in early failure prediction, wear analysis, and adaptive maintenance scheduling.
- Explain the role of Artificial Intelligence (AI) and Machine Learning (ML) in predictive maintenance and fault detection in aircraft systems.

The session ended with the Q&A session, feedback session and vote of thanks.


thamo tharan (Presenting)
Types of Learning : Supervised vs Unsupervised
Supervised algorithms
Unsupervised algorithms
Clustering
* K-Means
Anomaly detection and novelty detection
* Isolation Forest
Visualization and dimensionality reduction
* Principal Component Analysis (PCA)
People
Dr. Nisharth P
Dr. Sunilraj B A
Dr.Nataraju.SN
EVENTS AS-ACSCE
Ganesan K
ILAMVAZHUTHI C
Jagadeesha K B
kanu priya
kishorkumar j
25 others
Anand A
10:06 AM | nci-yebe-kbz


thamo tharan (Presenting)
Mathematical Model of a Neuron
The Perceptron
• The Perceptron is one of the simplest ANN architectures, invented in 1957 by Frank Rosenblatt
• Simple linear binary classification
Dr. Anand M Raikar has left the meeting
People
Sivaramraj Beemaraj
Sree Lakshmi T
srinidhi acharya
thamo tharan
thamo tharan
Presentation
Varadharaja Perumal
VENKATASUBRAMANIA...
Vijay
23 others
Anand A
10:10 AM | nci-yebe-kbz


thamo tharan (Presenting)
Training a Neural network
Training
Actual
Data collection
Preprocessing
ML model
Prediction
Loss
Testing
Deployment
Update
• Cleaning
• Transformation
• Normalizing
• etc
Loss function:
Optimization:
• Gradient decent
1. Training
2. Testing
People
EVENTS AS-ACSCE
ILAMVAZHUTHI C
kanu priya
kishorkumar j
Manikandan A
MOHINI SHUKLA
Omkar Pandey
palani k
S.SARGUNA THAMIZHA...
28 others
Anand A
10:26 AM | nci-yebe-kbz

DAY: 5 [25 July 2025]– Online Faculty Development Program at ACSCE!

🕙 Time: 10:00 AM – 12:00 PM

🎙️ **Resource Person:**

Dr. Sendhil Kumar Natarajan, Associate Professor, Dept. of ME

Dean (Student Welfare), National Institute of Technology, Puducherry

🎯 Topic: "**Numerical Investigation on Solar Cavity Receiver for Concentrated Solar Power Systems**"

🗣️ Moderator: Dr. Elavarasan E, Associate Professor, Department of Aerospace Engineering

Session Highlights:

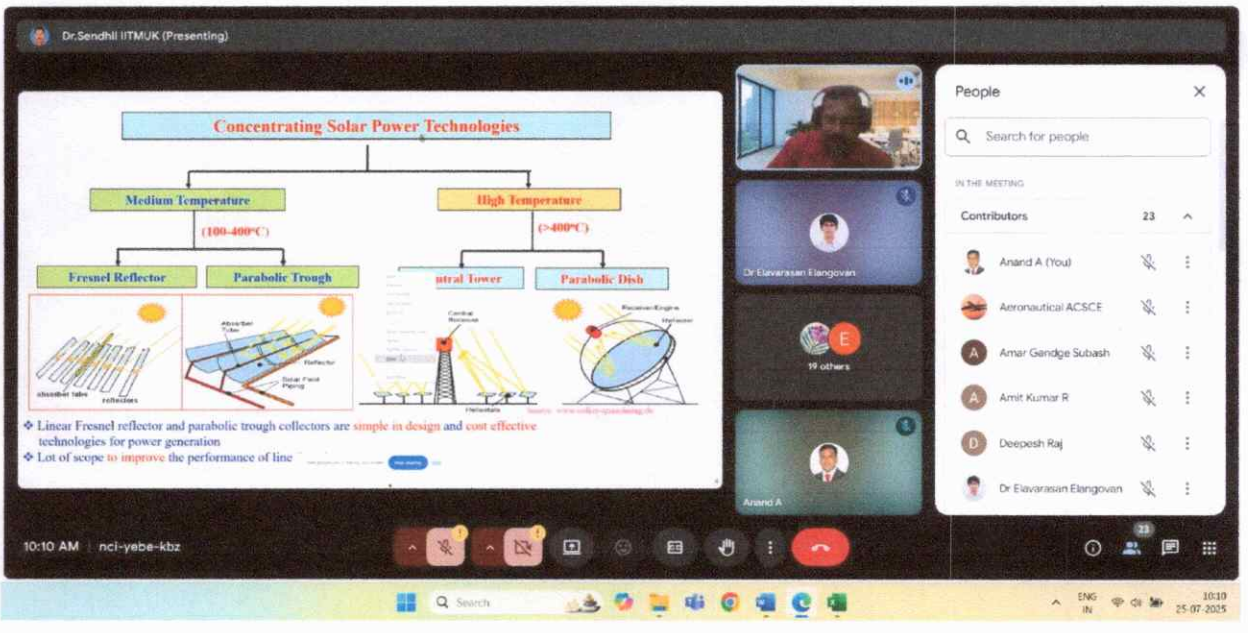
Dr.Elavarasan E had welcomed and introduced the chief guest to the participants.

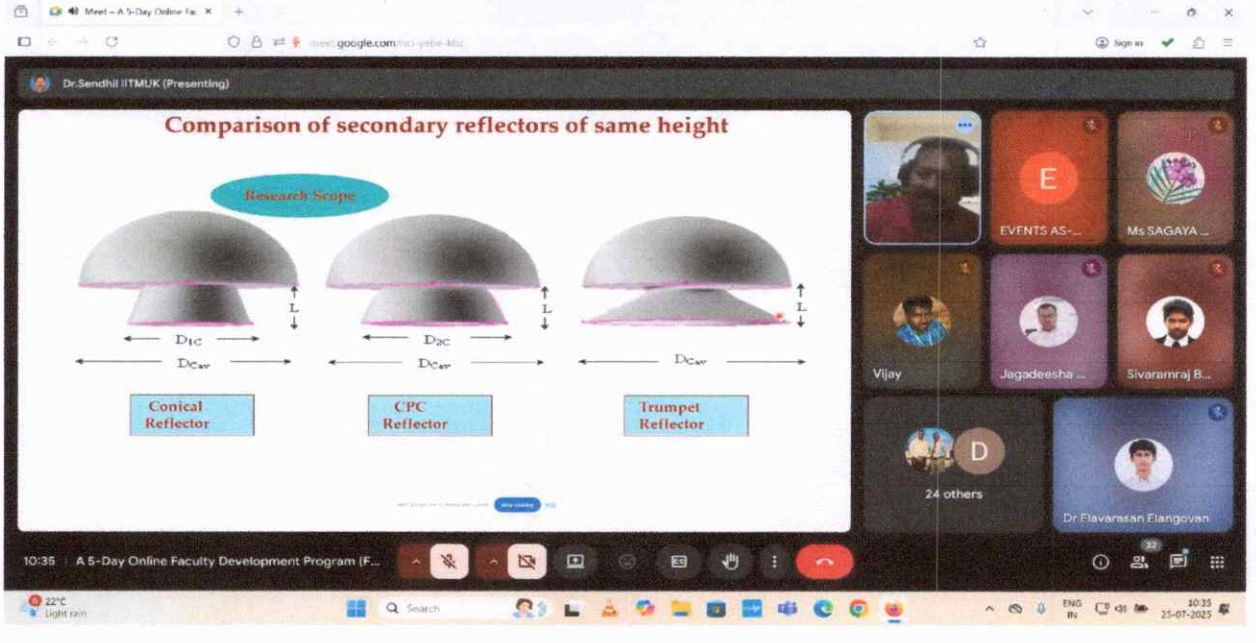
The resource person discussed the following point:

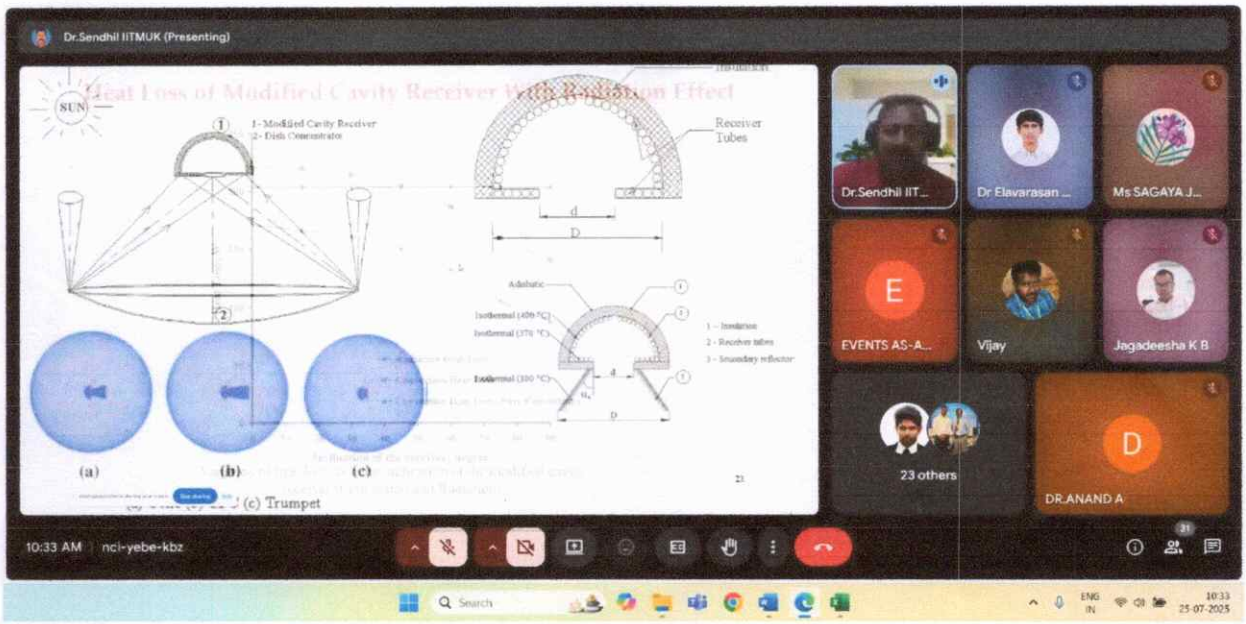
- Understand the working principles of solar cavity receivers and their role in Concentrated Solar Power (CSP) systems.
- Explain the importance of numerical simulation in evaluating thermal performance, heat losses, and efficiency of cavity receivers.
- Apply computational tools (e.g., CFD or FEM) to model heat transfer mechanisms (conduction, convection, and radiation) within the receiver.
- Investigate the impact of key design parameters, such as aperture size, cavity geometry, insulation, and material properties, on thermal performance.

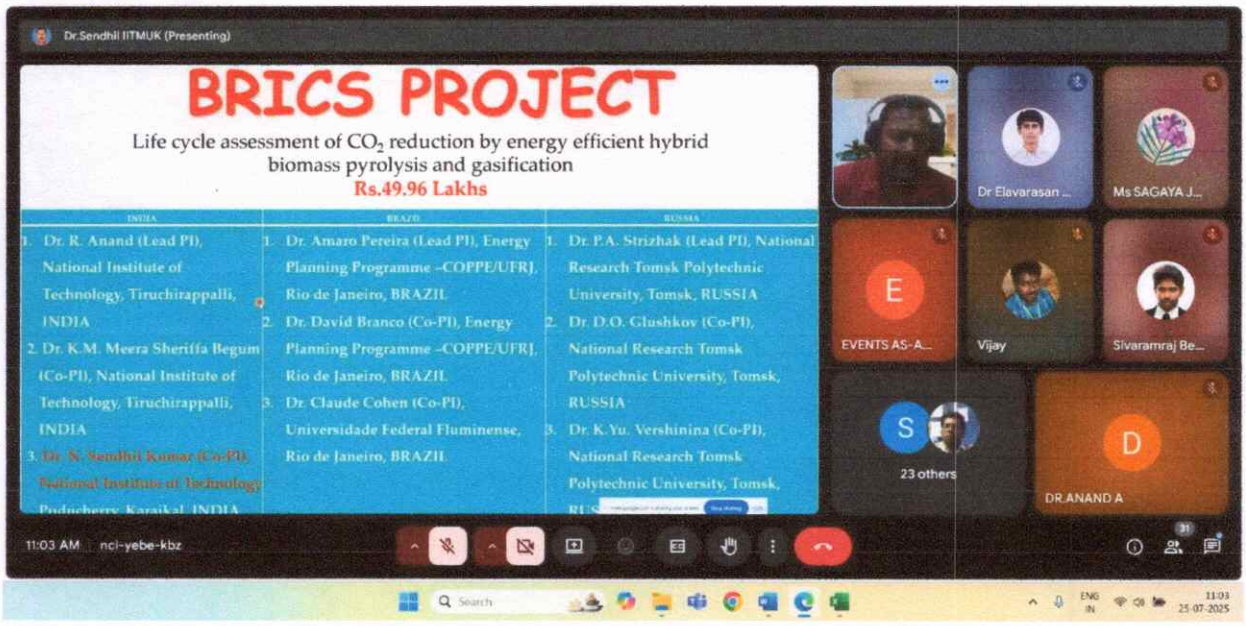
Dr. Suresh C, HoD / Aerospace Engineering felicitated the valedictory function. Dr. Elavarasan E has delivered the valedictory address by thanking the resource persons, Management, Principal, Vice Principal and the participants for supporting and making the program a grant success. Finally, the session ended with feedback session and vote of thanks.

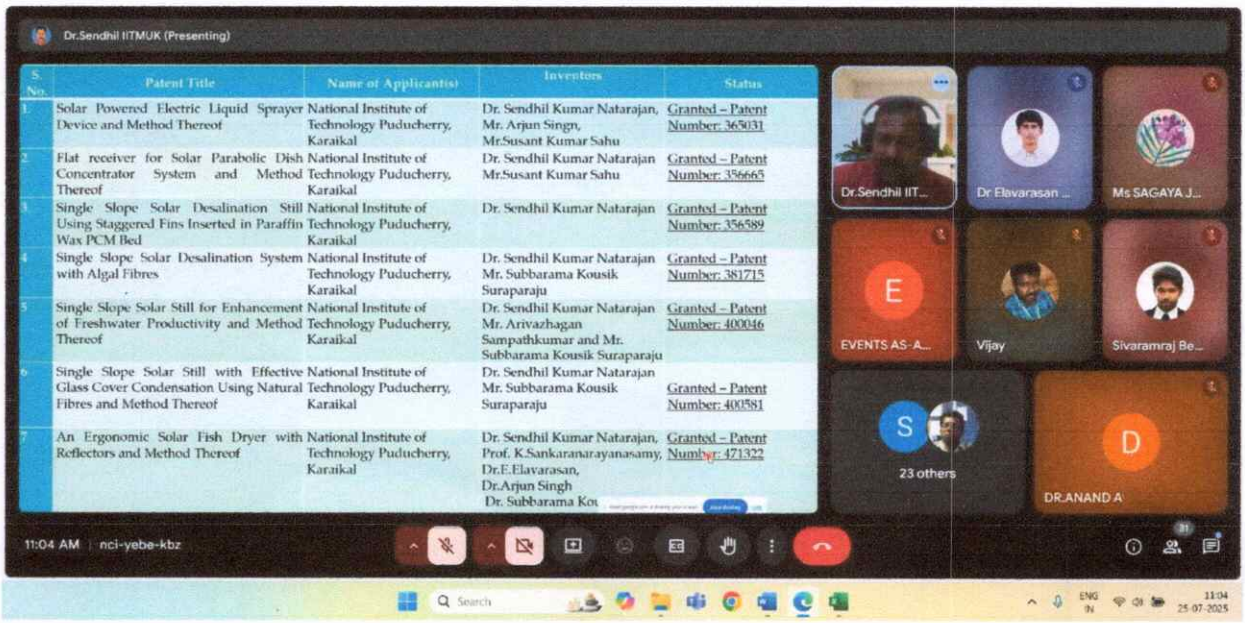

Dr.Sendhil IITMUK (Presenting)
Cont..
Receiver for Dish Concentrator
1. Deep Dish (rim angle ≥ 90°;
Shorter focal length)
❖Flat or Surface Receiver (More losses)
2. Shallow Dish (Rim angle < 90°;
Longer focal length)
❖Cavity Type Receiver (To reduce heat loss)
People
Dr T Ayyasamy/ASP, AC...
Dr. Nishanth P
Dr.Nataraju. S.N
Dr.Sendhil IITMUK
Dr.Sendhil IITMUK
EVENTS AS-ACSCE
Ganesan K
ILAMVAZHUTHI C
Dr Elavarasan Elangovan
23 others
Anand A
10:18 AM | nci-yebe-kbz


Dr.Sendhil IITMUK (Presenting)
Concentrating Solar Power Technologies
Medium Temperature
(100-400°C)
High Temperature
(>400°C)
Fresnel Reflector
Parabolic Trough
Parabolic Dish
❖ Linear Fresnel reflector and parabolic trough collectors are simple in design and cost effective technologies for power generation
❖ Lot of scope to improve the performance of line
People
Search for people
IN THE MEETING
Contributors 23
Anand A (You)
Aeronautical ACSCE
Amar Gandge Subash
Amit Kumar R
Deepesh Raj
Dr Elavarasan Elangovan
Dr Elavarasan Elangovan
19 others
Anand A
10:10 AM | nci-yebe-kbz


Dr.Sendhil IITMUK (Presenting)
Comparison of secondary reflectors of same height
Research Scope
Conical Reflector
CPC Reflector
Trumpet Reflector
EVENTS AS-...
Ms SAGAYA ...
Vijay
Jagadeesha ...
Sivaramraj B...
24 others
Dr Elavarasan Elangovan
10:35 | A 5-Day Online Faculty Development Program (F...







S. No.	Patent Title	Name of Applicant(s)	Inventors	Status
1	Solar Powered Electric Liquid Sprayer Device and Method Thereof	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan, Mr. Arjun Singn, Mr.Susant Kumar Sahu	Granted – Patent Number: 369031
2	Flat receiver for Solar Parabolic Dish Concentrator System and Method Thereof	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan Mr.Susant Kumar Sahu	Granted – Patent Number: 356665
3	Single Slope Solar Desalination Still Using Staggered Fins Inserted in Paraffin Wax PCM Bed	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan	Granted – Patent Number: 356589
4	Single Slope Solar Desalination System with Algal Fibres	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan Mr. Subbarama Kousik Suraparaju	Granted – Patent Number: 381715
5	Single Slope Solar Still for Enhancement of Freshwater Productivity and Method Thereof	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan Mr. Arivazhagan Sampathkumar and Mr. Subbarama Kousik Suraparaju	Granted – Patent Number: 400046
6	Single Slope Solar Still with Effective Glass Cover Condensation Using Natural Fibres and Method Thereof	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan Mr. Subbarama Kousik Suraparaju	Granted – Patent Number: 400581
7	An Ergonomic Solar Fish Dryer with Reflectors and Method Thereof	National Institute of Technology Puducherry, Karaikal	Dr. Sendhil Kumar Natarajan, Prof. K.Sankaranarayanasamy, Dr.E.Elavarasan, Dr.Arjun Singh Dr. Subbarama Kou	Granted – Patent Number: 471322

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List of Participate for the 5 days FDP on "Modelling and Simulation for Structural and CFD Analysis in Aeronautical, Aerospace and Mechanical Engineering".

Sl.no	Participant Name
1	Manjunatha A R
2	Madhu H T
3	Srinidhi Acharya S R
4	Dr. MADHUKESHWARA. N
5	Dr Ramesh R S
6	Dr. Madhu H J
7	Puneeth S
8	RAVIKUMAR T R
9	VIJAY ANAND MARIMUTHU.M
10	EZHILMARAN G
11	Dr. Anand M Raikar
12	Dr Anand A
13	Jagadeesha K B
14	Dr. Kanu Priya Jhanji
15	R. AMIT KUMAR
16	G R Gurunagendra
17	Mrs LATHA M R
18	Varadharaja perumal.E
19	ILAMVAZHUTHI C
20	SARGUNA THAMIZHAN S
21	Dr Katherasan Duraisamy
22	Palanivel
23	Mr. R. Vivek
24	T Sreelakshmi
25	Dr Ravi Kumar V
26	Dr N SIVAKUMAR
27	K. GANESAN
28	Dr K Palani
29	Dr V Venkatasubramanian
30	Savitha D C
31	Syed Tahir Hussain
32	Mrs. Sagaya Jois P
33	Dr. Shreekala N
34	Dr. Nataraj S N
35	MANI KANDAN A
36	VIJAY M
37	A MOHANA PRATHEEP
38	MR. MOIN UDDIN S K
39	Jegatheeshkumar Sivadesalingam
40	Dr Elavarasan E
41	Amar Gandge Subash
42	Dr. Radhakrishna R Kumshikar

Sl.no	Participant Name
43	Dr. Thanuj Kumar M
44	Dr. Abhilash S G
45	J. KISHOR KUMAR
46	Mr. Omkar Pandey
47	J.K. BHUSHAN
48	Dr. Nishanth P
49	SWETHANA R
50	Sivaramraj M
51	MOHINI SHUKLA
52	ARUN RAJA K K
53	MANOJ KUMAR K
54	Dr. Rakesh.M
55	Dr. Niranjan Kumar K A
56	S. SHOBA
57	Deepesh Raj

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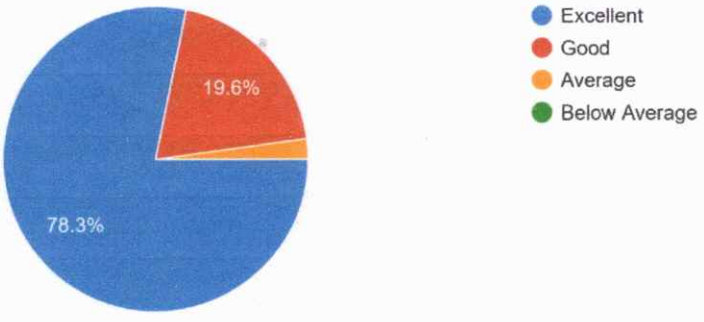
Feedback for the 5 days FDP on "Modelling and Simulation for Structural and CFD Analysis in Aeronautical, Aerospace and Mechanical Engineering".

1) How satisfied are you with the overall content and delivery of the FDP sessions?

46 responses

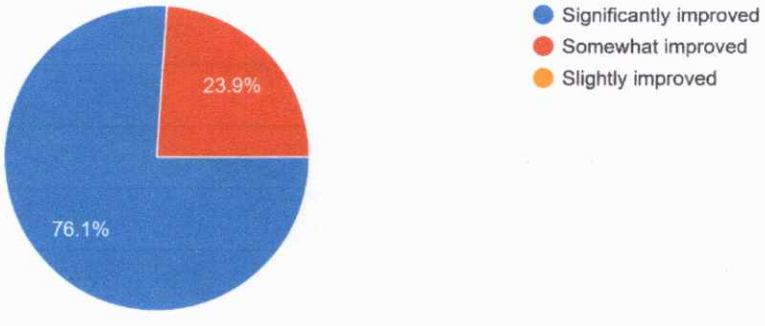


2) Which session did you find the most useful or relevant to your domain?

46 responses

3) Did the FDP help enhance your knowledge in modeling and simulation tools like ANSYS, CFD, or AIML?

46 responses



4) How would you rate the coordination and organization of the entire FDP?

46 responses

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