Five Days Online Short-Term Course (Self-sponsored)
on
Three-Dimensional Textile Structures: Manufacturing, Properties, and Applications
April 30th to May 4th, 2025
Organized by
Department of Textile Technology
Dr. B R Ambedkar National Institute of Technology Jalandhar, Punjab, India-144008

The Five-Day Short-Term Course (STC) on *"Three-Dimensional Textile Structures: Manufacturing, Properties, and Applications"* was a self-sponsored program conducted in virtual mode by the Department of Textile Technology, Dr. B R Ambedkar National Institute of Technology, Jalandhar, from April 30th to May 4th, 2025. The STC received registrations from across India, including participation from students, faculty members, and industry professionals. Further, registrations from Germany and USA were also received.

The course aimed to provide an in-depth understanding of the rapidly evolving field of 3D textile structures, covering various aspects such as 3D weaving, knitting, braiding, nonwovens, composite manufacturing, and functional applications. Each session lasted for at least 1 hour, followed by active discussions and Q&A.

Distinguished experts from reputed institutions such as IIT Delhi, NIT Jalandhar, Technical University of Liberec (Czech Republic), Czech University of Life Sciences Prague, Hochschule Niederrhein University of Applied Sciences (Germany), and industry leaders like Reliance Industries Ltd. delivered talks during the course. Topics ranged from:

- Advanced 3D weaving, knitting, and braiding techniques
- Auxetic and intelligent textile structures
- Robotic fibre placement
- Textile composites for automotive and biomedical applications
- 3D nonwoven structures
- 3D printing in textile composites

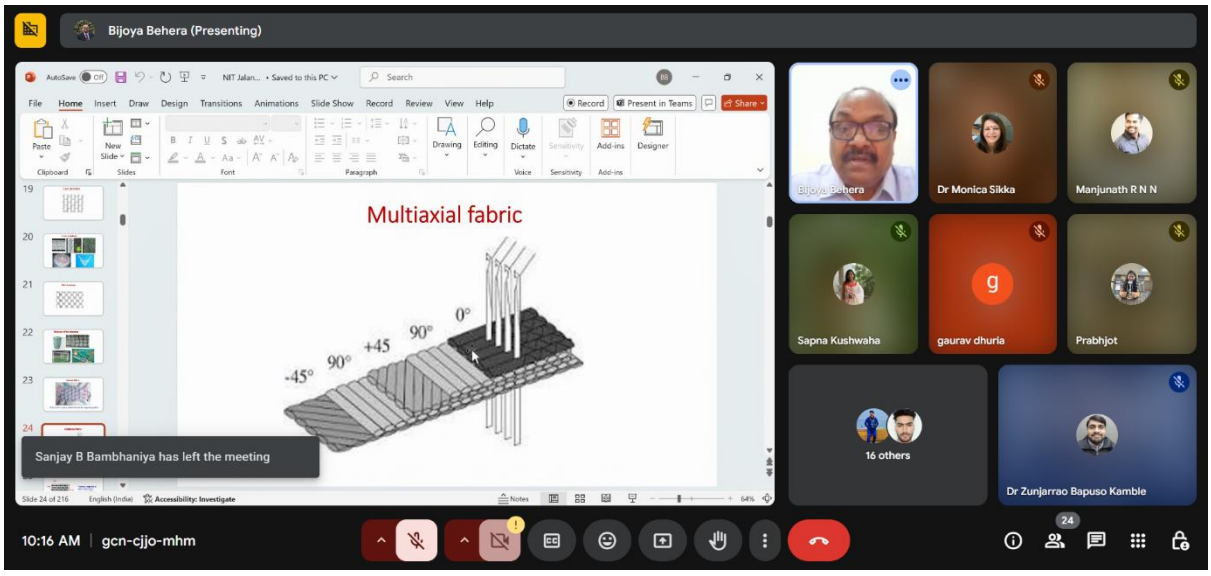
The STC was inaugurated on April 30th, 2025, by Prof. Monica Sikka, Head of the Department of Textile Technology. She welcomed all the participants and distinguished speakers, introduced the theme of the STC, and highlighted the department's ongoing initiatives and future research directions.

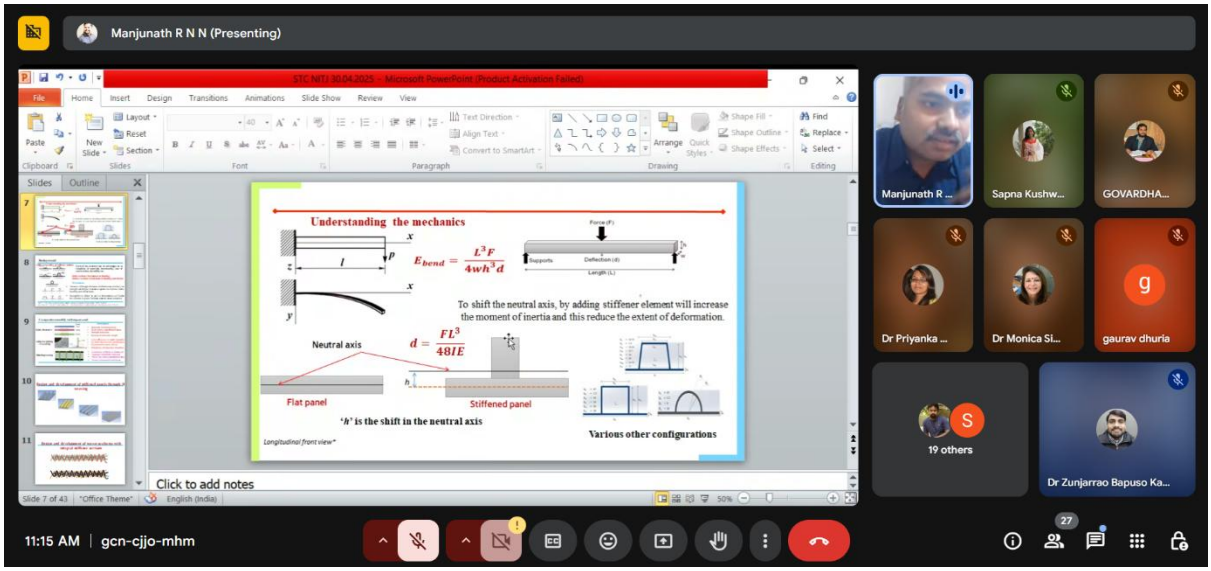
The valedictory session was held on May 4th, 2025, following the final technical lectures. It marked the successful completion of the course, with acknowledgments to all the speakers, participants, and organizing team members.

Feedback was collected via Google Forms, and the responses were overwhelmingly positive. Participants appreciated the relevance, quality, and depth of the sessions. Many expressed interest in attending similar future STCs, particularly on dedicated themes such as 3D weaving, technical knitting, and textile composites in offline mode.

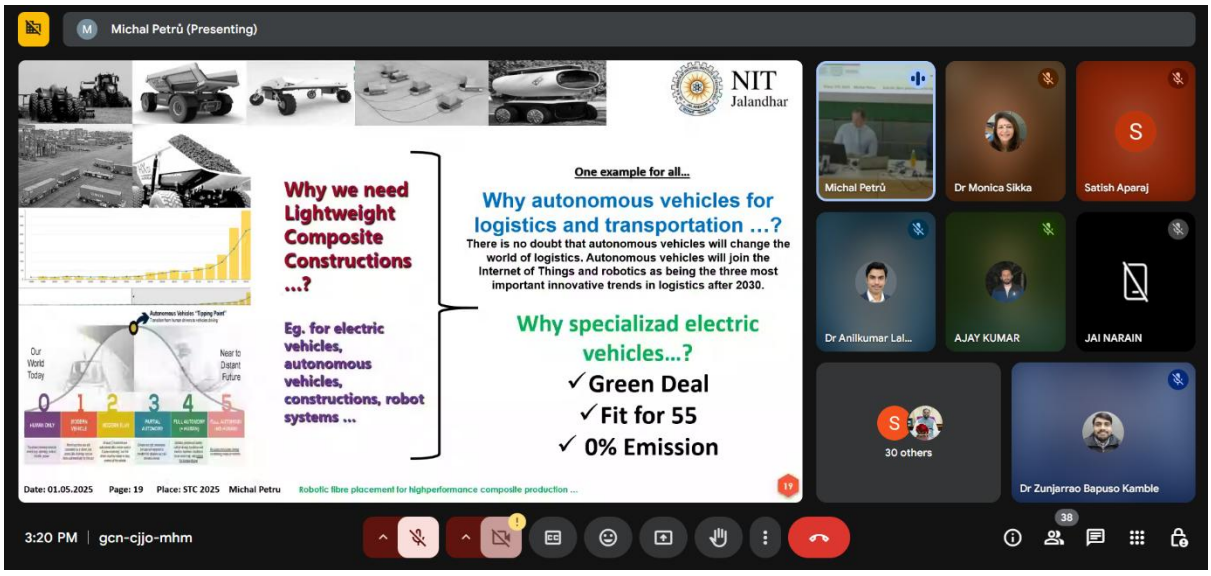
The coordinators extend heartfelt thanks to the organizing committee, technical staff, and the Head of the Department for their unwavering support. Special gratitude is also due to the Honourable Director, Dr. B. K. Kanaujia, for his encouragement and guidance in conducting this program.

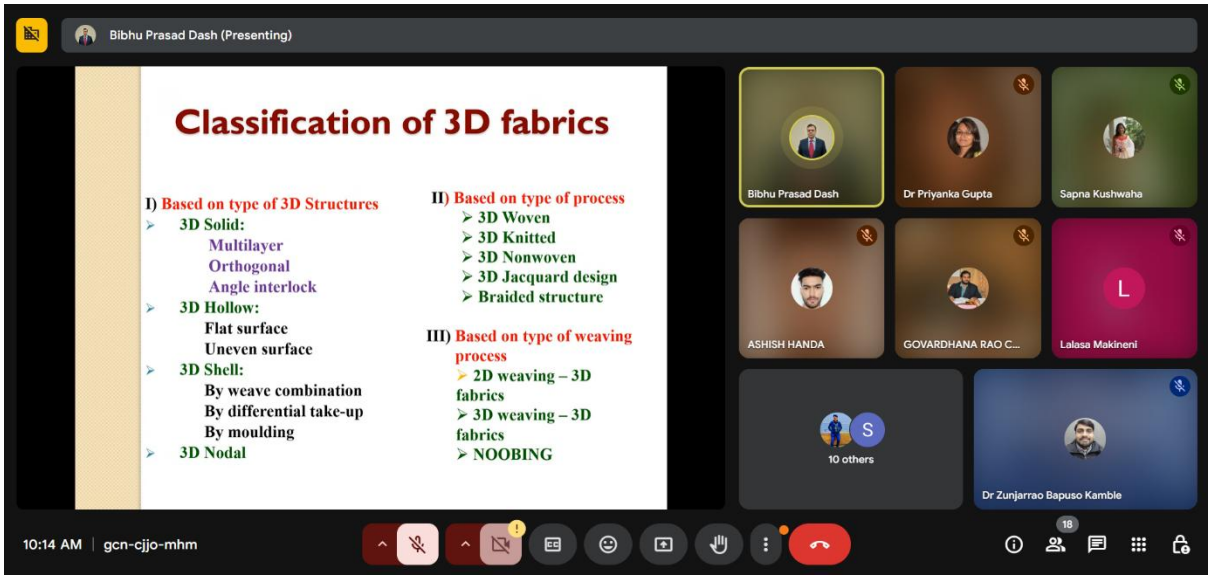
As part of the STC, e-certificates of participation were issued to all registered participants.




Manjunath R N N (Presenting)
Understanding the mechanics
To shift the neutral axis, by adding stiffener element will increase the moment of inertia and this reduce the extent of deformation.
Neutral axis
Flat panel
Stiffened panel
'h' is the shift in the neutral axis
Various other configurations
Click to add notes
Manjunath R ...
Sapna Kushw...
GOVARDHA...
Dr Priyanka ...
Dr Monica Si...
gaurav dhuria
19 others
Dr Zunjarrao Bapuso Ka...
11:15 AM | gcn-cjjo-mhm


Rajesh Mishra
Dr. Sanjay Parmar
Dr. Prakash ...
Satish Aparaj
sapna kushwaha
anas shah
Kanchan Patil
15 others
Dr Zunjarrao Bapuso Kamble
3:55 PM | gcn-cjjo-mhm


Michal Petrů (Presenting)
NIT Jalandhar
Why we need Lightweight Composite Constructions ...?
Eg. for electric vehicles, autonomous vehicles, constructions, robot systems ...
One example for all...
Why autonomous vehicles for logistics and transportation ...?
There is no doubt that autonomous vehicles will change the world of logistics. Autonomous vehicles will join the Internet of Things and robotics as being the three most important innovative trends in logistics after 2030.
Why specializad electric vehicles...?
✓Green Deal
✓Fit for 55
✓ 0% Emission
Our World Today
Near to Distant Future
Date: 01.05.2025 Page: 19 Place: STC 2025 Michal Petru
Robotic fibre placement for highperformance composite production ...
Michal Petrů
Dr Monica Sikka
Satish Aparaj
Dr Anilkumar Lal...
AJAY KUMAR
JAI NARAIN
30 others
Dr Zunjarrao Bapuso Kamble
3:20 PM | gcn-cjjo-mhm


Bibhu Prasad Dash (Presenting)
Classification of 3D fabrics
I) Based on type of 3D Structures
3D Solid:
Multilayer
Orthogonal
Angle interlock
3D Hollow:
Flat surface
Uneven surface
3D Shell:
By weave combination
By differential take-up
By moulding
3D Nodal
II) Based on type of process
3D Woven
3D Knitted
3D Nonwoven
3D Jacquard design
Braided structure
III) Based on type of weaving process
2D weaving – 3D fabrics
3D weaving – 3D fabrics
NOOBING
Bibhu Prasad Dash
Dr Priyanka Gupta
Sapna Kushwaha
ASHISH HANDA
GOVARDHANA RAO C...
Lalasa Makineni
10 others
Dr Zunjarrao Bapuso Kamble
10:14 AM | gcn-cjjo-mhm