

**VIT**<sup>®</sup>  
**B H O P A L**  
www.vitbhopal.ac.in

School of Mechanical Engineering (SMEC)  
VIT Bhopal University, Madhya Pradesh, India

4<sup>th</sup> International Conference

on

**“SUSTAINABLE TECHNOLOGIES AND ADVANCES IN  
AUTOMATION, AEROSPACE AND ROBOTICS  
(STAAAR 2025)”**

17 Dec 2025 - 18 Dec 2025



Co-sponsored by



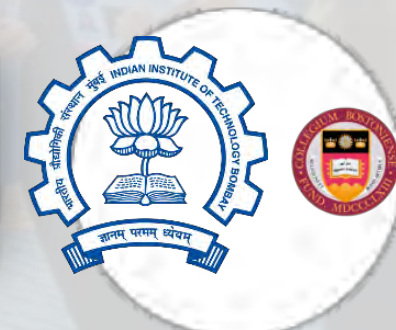
Publishing partner



In Associate with



In Collaboration with



**BOSTON  
COLLEGE**

**4<sup>th</sup> International Conference**

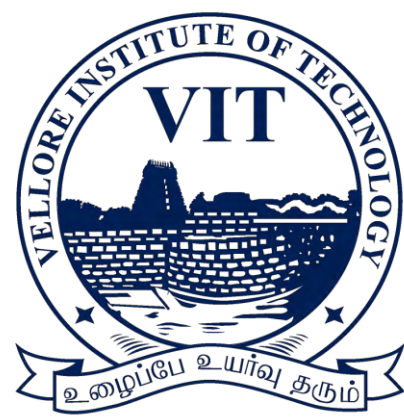
*on*

Sustainable Technologies and Advances in  
Automation,  
Aerospace and Robotics



**(STAAAR 2025)**

17 Dec 2025 - 18 Dec 2025



**VIT<sup>®</sup>**  
**B H O P A L**  
[www.vitbhopal.ac.in](http://www.vitbhopal.ac.in)

Organized by  
**School of Mechanical Engineering (SMEC)**  
**VIT Bhopal University**  
**Madhya Pradesh, India**

The image features a white background with a prominent horizontal blue bar across the middle. The text 'COMMITTEE MEMBERS' is centered within this bar in a white, serif font. Above and below the blue bar are decorative elements consisting of overlapping squares in various shades of blue and grey, some with thin black outlines. A dark blue rounded rectangle is positioned at the bottom left corner.

# COMMITTEE MEMBERS

# ORGANIZING COMMITTEE

(VIT Bhopal University)

## Chief Patron



**Dr. G Vishwanathan**  
[Founder & Chancellor]

## Patrons



**Mr. Sankar Vishwanathan**  
[Vice President]



**Ms. Kadhambari S Vishwanathan**  
[Asst. Vice President]

## Co-Patrons



**Dr. T.B. Sridharan**  
[Pro Vice Chancellor]



**Mr. KK Nair**  
[Registrar]

# ORGANIZING COMMITTEE

(VIT Bhopal University)

## Conference Chair



**Dr. S. Balaguru**

[Dean of SMEC, VIT Bhopal University]

## Organizing Secretaries



**Dr. Rohit Sharma**

[SMEC, VIT-B]



**Dr. Pushpdant Jain**

[SMEC, VIT-B]

## Conveners



**Dr. Prashant G K** [SMEC, VIT]



**Dr. Shiv Manjaree Gopaliya**

[SMEC, VIT-B]

## Co-Conveners



**Dr. Ankush Tharkar**

[SMEC, VIT B]



**Dr. Abhishek Shrivastava**

[SMEC, VIT B]



**Dr. Kumari Ambe Verma**

[SMEC, VIT B]

# ORGANIZING COMMITTEE

(VIT Bhopal University)

## Secretary - Public Relations



**Mr. Deepak Kumar**



**Mr. Mayur Kumar Rajak**

## SCIENTIFIC COMMITTEE

**Prof. Jayendran Venkateswaran, Professor, IIT Bombay**

**Prof. IA Palani, Professor, IIT Indore**

**Prof. Devendra Deshmukh, Professor, IIT Indore**

**Prof. Mohammed Rajik Khan, Professor, NIT Rourkela**

**Dr. Kumar Abhishek, Associate Professor, IITRAM, Ahmedabad**

**Dr. Gajendra Singh, Assistant Professor, IIT Mandi**

**Dr. Rohit Tamrakar, Assistant Professor, NIT Surat**

## INTERNATIONAL ADVISORY COMMITTEE

**Dr. Praveen Kumar, Associate Professor, Boston College, USA**

**Dr. J. Paolo Davim, University of Aveiro, Aveiro, Portugal**

**Dr. Mohammad Irfan Alam, King Fahad University, Saudi Arabia**

**Dr. Supriyo Ganguly, Cranfield University, UK**

**Dr. Ashish Vashishtha, SETU, Ireland**

**Dr. David Chua Sing Ngie, University Malaysia, Sarawak**

**Dr. Yong Ki Lee, Dongseo University, South Korea**

# STUDENT COMMITTEE

VIT Bhopal University

## Student Coordinators



Pophare Ayan Sanjiv



Anmol Sharma



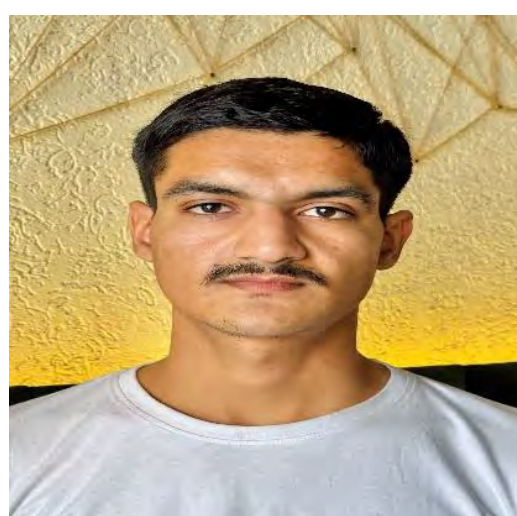
Arjun Raghuvanshi



Ishika Joshi



Pradeep Kumar  
Shukla



Ajeet Singh



Raghav Gurjar

# ORGANIZING COMMITTEE

(VIT Bhopal University)

## Student Volunteers

NAME	REGISTRATION NO
Pophare Ayan Sanjiv	23BME10002
Pradeep Kumar Shukla	23BMR10008
Suyash Mekaad	24BME10006
Anmol Sharma	24BME10007
Ishika Joshi	24BME10008
Siddharth Mahapatra	24BME10016
Ajeet Singh	24BMR10012
Lakshya Yadav	24BMR10020
Arjun Raghuvanshi	24BMR10021
Raghav Gurjar	24BMR10022
Rachit Tiwari	24BAI10309

## —ABOUT STAAAR 2025—

STAAAR 2025, the 4<sup>th</sup> International Conference on Sustainable Technologies and Advances in Automation, Aerospace, and Robotics, mainly focus on advancement in innovation and sustainability. It is an interdisciplinary platform for researchers, practitioners, and educators as well as students who are working in the area of aerodynamics, biomaterials and biomechanics, AL and ML in fluid dynamics and heat transfer, computational fluid dynamics and additive manufacturing

## VIT BHOPAL UNIVERSITY

The VIT legacy, started from Vellore Engineering College 40 years ago under the visionary leadership of Dr. G. Viswanathan, Founder-Chancellor, to offer world-class education for the development of society. VIT Bhopal University is aiming to become the primary hub of education, with leading-edge and high-tech developments in a wide variety of areas. At present, VIT Bhopal University offers core engineering programs such as Mechanical Engineering, Aerospace Engineering, Computer Science and Engineering, Electronics and Communication Engineering leading to B. Tech degree, M. Tech and allied subject programs such as MSc, MCA, BBA, etc., are also offered. At VIT Bhopal University, the extra-curricular activities and employment needs of the students will be taken care of by various clubs and dedicated career development cells



## SCHOOL OF MECHANICAL ENGINEERING (SMEC)

The School of Mechanical Engineering (SMEC) at VIT Bhopal offers undergraduate degrees and research programs in Mechanical Engineering, Aerospace Engineering, and Mechanical Engineering with specialization in Artificial intelligence and Robotics. SMEC has been an integral part of the university since its inception. Our faculty members possess diverse expertise, spanning areas such as Machine Design, Thermal & Fluid Sciences, and Manufacturing Engineering within the Mechanical Engineering domain. Our Aerospace Engineering faculty specializes in structures and propulsion, while those in AI and Robotics come from backgrounds in Robotics and Automation. The school offers a comprehensive array of core courses along with a variety of elective courses, carefully designed in consultation with industry experts.



# LEGACY HIGHLIGHTS

2025

**TITLE:** 4th International Conference on “Sustainable Technologies and Advances in Automation, Aerospace and Robotics” (STAAAR 2025)

**TITLE:** 3rd International Conference on “Sustainable Technologies and Advances in Automation, Aerospace and Robotics” (STAAAR 2024)

2024

**TITLE:** 2nd International Conference on “Sustainable Technologies and Advances in Automation, Aerospace and Robotics” (STAAAR 2023)

2023

**TITLE:** 1st International Conference on “Sustainable Technologies and Advances in Automation, Aerospace and Robotics” (STAAAR 2022)

2022

# Conference Support

Co-sponsored by



Publishing Partners



In Association with



In Collaboration with





## Programme Schedule

<b>Date: 17/12/2025</b>		
<b>Inaugural function (10:00 – 11:00)</b>		
<b>Online streaming platform: YouTube</b>		
10:00 am-10:02 am	Invocation, Tamil Thai Vazhthu	--
10:02 am-10:05am	Lighting of lamp	---
10:05 am-10:10 am	Welcome Address	Dr. S Balaguru Conference Chair & Dean-SMEC
10:10 am-10:13 am	Honouring the Chief Guest and Guest of Honour	Guest of Honour – by Dr. Debashis Adhikari, Dean Faculty Affairs  Chief Guest – by Mr. KK Nair Registrar
10:13 am-10:18 am	About the Conference	Dr. Rohit Sharma Organising Secretary of STAAAR-2025
10:18 am-10:20 am	Releasing STAAAR-2025 conference Souvenir	By Chief Guest and Guest of Honour
10:20 am-10:25 am	Felicitation address	Mr. K.K. Nair Registrar
10:25 am-10:30 am	Special address	Dr. T B Sridharan Pro Vice Chancellor
10:30 am-10:32 am	Introduction of Guest of Honour	Dr. Shiv Manjaree Gopaliya Convener, STAAAR-2025
10:32 am-10:40 am	Inaugural address by the Guest of Honour	Dr. Praveen Kumar Associate Professor Environmental Studies Program, Boston College, USA
10:40 am-10:42 am	Introduction of the Chief Guest	Dr. Ambe Verma Co-Convener, STAAAR-2025
10:42 am-10:50 am	Inaugural address by the Chief Guest	Prof. Jayendran Venkateswaran Professor Indian Institute of Technology Bombay, Mumbai, India
10:50 am-10:55 am	Vote of Thanks	Dr. Pushpdant Jain Organising Secretary of STAAAR-2025
	National Anthem	

*# for all the participants, it is mandatory to attend the inaugural function.*





## Conference schedule

Day-1 Schedule (17 December 2025)			
08:30 – 09:45 am	<b>Registration</b>		
	<p><b>Inaugural Function Join Zoom Meeting: Link</b>  <b>Meeting ID:</b> xxx xxxx xxx  <b>Passcode:</b> xxxxx  <b>Faculty In-charge:</b> Dr Pushpdant Jain/Dr. Ambe Verma</p>		
09:45– 11:00 am	Inaugural Function @ Auditorium - I		
11:00 – 11:10 am	<b>High Tea @ Auditorium – II + Photo Session</b>		
11:10 – 11:55 am	<p><b>Keynote Talk-I @ Auditorium – I</b>  <b>Prof. Jayendran Venkateswaran</b>            Professor            Indian Institute of Technology Bombay, Mumbai, India.  <b>Title:</b> Digital Twin for Complex Systems for Sustainability</p>		
12:00 – 12:45 pm	<p><b>Keynote Talk-II @ Auditorium - I</b>  <b>Dr. Praveen Kumar</b>            Associate Professor            Environmental Studies Program, Boston College, USA  <b>Title:</b> Sorry engineers, we need more than Technology Imperialism to achieve Sustainability</p>		
12:50 – 01:40 pm	<b>Lunch @ Auditorium - II</b>		
01:40 – 02:40 pm	Session-A1 (online)	Session-B1 (online)	Session-C1 (online)
02:40 – 02:55 pm	<b>Tea Break @ Auditorium - II</b>		
	<p><b>Keynote talk -III GMeet link:</b> <a href="https://tinyurl.com/StaarInaugural">https://tinyurl.com/StaarInaugural</a>  <b>Faculty In-charge:</b> Dr. Shiv Manjaree Gopaliya</p>		
02:55 – 03:35 pm	<p><b>Keynote Talk-III (Online)</b>  <b>Dr. Jyotindra Narayan</b>            Assistant Professor, Indian Institute of Technology Patna &amp; Imperial College London,            Honorary Associate, Department of Computing Imperial College London, South Kennington  <b>Title:</b> Human-in-the-Loop Rehabilitation Robotics: Adaptive Control, AI Synergies,            and Clinical Translations</p>		
03:35 – 04:15 pm	Session-A2 (online)	Session-B2 (online)	Session-C2 (online)





Day-2 Schedule (18 December 2025)			
<b>Keynote talk -IV and V</b>			
<b>GMeet link:</b>			
<b>Faculty In-charge:</b> Dr Prashant G K			
09:00– 09:45 am	<b>Keynote Talk-IV (Online)</b> <b>Dr. D.P. Mondal</b> Ex-Chief Scientist, CSIR-AMPRI <b>Title:</b>		
09:50 – 10:35 am	<b>Keynote Talk-V (Online)</b> <b>Dr Yong Ki Lee</b> Lab director, Dongseo University, South Korea <b>Title:</b> Learning to Adapt: Design Education, Durable Skills, and Future-readiness in Uncertain Times		
10:30 – 10:40 am	<b>Tea Break @ Auditorium - II</b>		
10:40 – 11:20 pm	Session-A3 (online)	Session-B3 (online)	Session-C3 (online)
<b>Keynote talk -VI and VII GMeet link:</b> <a href="https://tinyurl.com/5a2nfxay">https://tinyurl.com/5a2nfxay</a>			
<b>Faculty In-charge:</b> Dr. Ankush Tharkar			
11:20 – 12:00 pm	<b>Keynote Talk-VI (Online)</b> <b>Dr. Gajendra Singh</b> Assistant Professor School of Mechanical and Materials Engineering, Indian Institute of Technology (IIT) Mandi, India <b>Title:</b> Fluid and Thermal Sciences		
12:00 – 12:50 pm	Session-A4 (online)	Session-B4 (online)	Session-C4 (online)
12:50 – 02:15 pm	<b>Lunch @ Auditorium - II</b>		
<b>Keynote Talk-VIII and Valedictory Function Zoom Meeting:</b> <a href="https://vit-ac-in-chennai.zoom.us/j/97312599382?pwd=YKsiAbVpN0ukGdpealGhdVvVzE4Wnx.1">https://vit-ac-in-chennai.zoom.us/j/97312599382?pwd=YKsiAbVpN0ukGdpealGhdVvVzE4Wnx.1</a> <b>Meeting ID:</b> 973 1259 9382 <b>Passcode:</b> 320066 <b>Faculty In-charge:</b> Dr Pushpdant Jain			
02:15 – 03:00 pm	<b>Keynote Talk-VIII (Hybrid)</b> <b>Dr. Puneet Tandon</b> Professor PDPM Indian Institute of Information Technology, Design & Manufacturing (IIITDM), Jabalpur, India <b>Title:</b> Design Thinking		
03:00– 03:20 pm	<b>Tea Break @ Auditorium - II</b>		
03:20 – 03:55 pm	<b>Valedictory Function (Offline)</b> <b>Dr. Puneet Tandon</b> Professor PDPM Indian Institute of Information Technology, Design & Manufacturing (IIITDM), Jabalpur, India		
03:55 – 04:10 pm	Photo Session		





<b>Valedictory Function (03:20 – 04:00 pm)</b> Online streaming platform: YouTube		
03:20 – 03:22 pm	Invocation	Dignitaries will occupy the dais
03:22 – 03:23 pm	Tamil Thai Vazhthu	The song will be played
03:23 – 03:27 pm	Welcome Address	<b>Dr. S Balaguru</b> Conference Chair & Dean-SMEC
03:27 – 03:29 pm	Honouring the Chief Guest	By <b>Dr. Debashis Adhikari</b> Dean Faculty Affairs
03:29 – 03:31 pm	Introduction of the Chief Guest	By <b>Dr Prashant GK</b> Convener STAAAR-2025
03:31– 03:37 pm	Felicitation address	<b>Mr. K.K. Nair</b> Registrar
03:37– 03:43 pm	Special address	<b>Dr. T B Sridharan</b> Pro Vice Chancellor
03:43– 03:50 pm	Valedictory address by the Chief Guest	<b>Dr. Puneet Tandon</b> Professor of Mechanical Engineering Professor of Design IIITDM Jabalpur
03:50 – 03:55pm	Announcement of Best Paper	By <b>Dr. Rohit Sharma</b> Organising Secretary of STAAAR-2025
03.55 – 03.57 pm	Vote of Thanks	By <b>Dr Abhishek Shrivastava</b> Co-convener – STAAAR 2025
03.57 – 03.58 pm	National Anthem	The song will be played
03:58– 04:00 pm	Photo Session	



## STAAAR 2025

The 4th International Conference on “Sustainable Technologies and Advances in Automation, Aerospace and Robotics (STAAAR 2025)”, organized by the Department of Mechanical Engineering, VIT Bhopal University, Madhya Pradesh, on December 17-18, 2025. Scheduled for the beginning of the new year, aims to bring together engineers, technologists, entrepreneurs, researchers, and academicians from across the globe to address emerging industry challenges and explore advancements in automation, aerospace, and robotics for global and Indian industries.

The financial support by the Anusandhan National Research Foundation (ANRF), DST, Government of India, and our publication partner, EDP Sciences, France which will publish selected research articles in EPJ Web of Conferences Proceedings, indexed in Scopus. The conference is organized in association with the Material Advantage Chapter of VIT Bhopal, IIT Bombay and Boston College, USA.

The STAAAR 2025 will feature an engaging program, including the presentation of ~60 peer-reviewed research papers, selected from 135+ research submissions. We have received research submissions from renowned institutions in India, including IITs, NITs and leading government & private institutes. Additionally, we have received research submissions from Australia, Uzbekistan, and Kyrgyzstan.

Over two days, the conference will host seven keynote addresses, renowned experts, from IIT Bombay, Boston College, USA, IIITDM Jabalpur, Dongseo University in Busan, Republic of Korea, CSIR-AMPRI, Bhopal, Indian Institute of Technology (IIT) Mandi and six parallel technical sessions each day, covering diverse tracks in related to sustainable technologies, automation, aerospace, and robotics.

The chief guest, Dr. Jayendran Venkateswaran, Professor Department of Industrial Engineering & Operations Research, India and guest of honor Dr. Praveen Kumar, Associate Professor, Faculty Affiliate, Global Public Health and the Common Good Faculty Affiliate, Environmental Studies Program, Boston College USA.

The keynote speakers Prof. Jayendran Venkateswaran Dr. Praveen Kumar, Prof. Puneet Tandon. Dr. Yong Ki Lee, Dr. Jyotindra Narayan, Dr. D.P. Mondal, and Dr. Gajendra Singh.

**Dr. Rohit Sharma**  
&  
**Dr. Pushpdant Jain**  
(Organizing Secretaries)

School of Mechanical Engineering,  
VIT Bhopal University, Madhya Pradesh