



**Blended Technical Education Model
The Vanguard Lectures**

<p>Guest</p>	<p>Prof. C. Venkatesan Emeritus Fellow Department of Aerospace Engineering IIT-Kanpur</p>	
<p>Date</p>	<p>27th Oct 2017</p>	
<p>Title</p>	<p>" Autonomous Mini Helicopter Development at IIT-Kanpur: My Journey & Learning"</p>	
<p>Attendees</p>	<p>B.Tech. (All) Students + M.Tech./ M.Sc./ Ph.D. (All) Students Faculty Members and Technical Staff Members, who do not have urgent work at that time</p>	
<p>Venue</p>	<p>Lecture Hall Complex (Room number 105)</p>	
<p>Time</p>	<p>04:00 – 05:30 (75 minutes lecture + 15 minutes Questions & Answers)</p>	
<p>Abstract</p>	<p>Helicopters are complex dynamic vehicles. The complexity arises due to structural dynamics and aerodynamics of rotor blades, and their interaction with flexible fuselage. However due to their unique hovering capability, the utility of these vehicles has been growing steadily in civil and military applications. Also there is a lot of potential for use of helicopters in unmanned autonomous operations. Ever since the first successful flight of an operationally simple and mechanically reliable helicopter by Sikorsky in late 1930's to early 1940's, continued improvements are incorporated in the design and development of helicopters. These improvements are made possible with advancements in fundamental understanding of the rotor-fuselage dynamics, materials, electronics, testing techniques and computational capabilities. Currently, several research programs are pursued to improve the performance of the rotorcraft. Of these, one of the important and current research activities is on the development of autonomous helicopters. In this lecture, a detailed study, undertaken by the speaker, on the development of an autonomous mini helicopter at IIT-Kanpur will be presented in a chronological manner. The challenges faced, the lessons learnt, the current status of the autonomous flight of the mini helicopter and future directions will be presented.</p>	
<p>Bio-data</p>	<p>Prof. C. Venkatesan obtained Master of Science in Physics from Indian Institute of Technology, Madras, and Master of Science and Doctoral degrees in Engineering from Indian Institute of Science Bangalore. After gaining experience in both industry and academic research, he joined the Department of Aerospace Engineering at Indian Institute of Technology Kanpur as faculty member. His research interests are in the field of helicopter dynamics and aeroelasticity, smart structures and autonomous helicopter. With funding from Department of Science and Technology, Prof. Venkatesan established an autonomous helicopter laboratory at IIT-Kanpur. He has more than hundred research publications both in journals and conferences. He has been recognized for his contributions to helicopter Technology. He is a recipient of Dr VM Ghatage Award from The Aeronautical Society of India, Lifetime Contribution to Indian Helicopter Technology Award by Asian/Australian Rotorcraft Forum, Best Paper awards at Asian/Australian Rotorcraft Forum, and National Seminar on Aero Structures. He has delivered Prof. AK Rao Memorial Lecture organized by ISAMPE, Prof Joga Rao Memorial Lecture organized by AR&DB and Prof. Sateesh Dhawan Memorial Lecture organized by Aeronautical Society of India. He is a Fellow of Indian National Academy of Engineering and an Associate Fellow of the American Institute of Aeronautics and Astronautics. He held the position of Pandit Ramachandra Dwivedi Chair Professor and HAL Chair Professor at IIT Kanpur. Presently he is an Emeritus Fellow at IIT-Kanpur. He has established a strong industry (HAL)-academic-user(Test Pilots School) interaction in the field of helicopters in India. He has authored a book titled Fundamentals of Helicopter Dynamics, which is adopted as text book in universities abroad and India.</p>	