

**Department of Chemical Engineering, IIT Hyderabad**  
**CH5036-Industry Lecture Series**  
**Jan-April 2026**



*Date:* 11-03-2026

*Time:* 04:00 PM (IST)

*Speaker:* **Dr. Lakshmi VM**

*Affiliation:* Group Director, Analytical Project Engineering  
and Molecular Modeling Group,  
VSSC, ISRO

*Title:* **Role of Chemical Engineering in Human Space  
Flight**

*Venue:* **LHC-10**

### **Abstract**

The Presentation gives an overview of the role of Chemical Engineers and Chemical Engineering in the Human Space flight especially in the areas of Life Support System, Propulsion and fuel, Thermal management, In-situ resource utilisation, Process Engineering, Materials and safety

### **Biography**

Expert in Combustion studies on Ammonium Perchlorate and solid propellant, Performance prediction of solid stage motors of launch vehicles, Thermal design, analysis and simulation studies, Thermal Instrumentation (heat flux sensors and thermocouples) and Thermo-physical properties measurements of aerospace materials, scale-up studies on solid propellant systems, production of solid propellant motors and statistical modeling of propellant parameters prediction. Contributed in ISRO's launch vehicle programs PSLV, GSLV, LVM3, RLV which were the part of prestigious projects like MOM, Chandrayaan 1, 2 and 3.

Presently taking care of critical project deliverables like Liquid propellants, speciality coatings, polymeric films and solid film lubricants, managing world class analytical facility with more than 100 high value equipment and establishing an integrated pipeline encompassing materials design, development, testing and induction into launch vehicles and satellites.

**Academic Qualification:**

PhD in Rocket Propulsion, Aerospace Engineering, IIT Madras.

M.Tech in Chemical Engineering from IIT Kanpur

B.Tech in Chemical Engineering from Government Engineering College, Thrissur.

**Professional Experience:**

26 years of experience in solid propulsion and polymers

31 technical papers in international conferences

8 journal papers

Guided 7 M Tech projects.

Guiding 5 PhD scholars.

**Specialized training in research/design/management/projects:**

Advance Techno-Management Development Programme at Management Development Institute, Gurgaon (5 weeks program).

Management & Leadership Skill Development Programme at IIM Bangalore

**Awards:**

Awarded ISRO individual young scientist award for the year 2008

Awarded the HEMSI-MR Kurup Gold medal for the year 2015