ADVANCED TURBINE DIAGNOSTICS: CFD, SMART SENSORS, AND AI/ML

January 21-22, 2026

Department of Mechanical Engineering,

National Institute of Technology Warangal, Hanumkonda – 506004, Telangana, India

Program Schedule

21-01-2026 – Day 1 (Wednesday)		
Registration and Inauguration– Homi Bhabha Hall (Seminar Hall Complex)		
8:30 – 9:30	**Reception and Registration**	
9:30 – 10:15	**Inauguration**	
10:15 - 11:00	**Group photo session and High Tea**	
Session 1: Homi Bhabha Hall (Seminar Hall Complex)		
Time	**Speaker (Name and designation)**	**Topic**
11:00 – 12:00	**Prof. Alexandre Presas Batlló, Director, CDIF-UPC, Spain**	**Advanced Diagnostic Strategies for Hydraulic Turbines**
12:00 – 13:00	**Prof. David Valentín Ruiz, CDIF-UPC, Spain**	**Health Monitoring Objectives and Industrial Case Studies**
LUNCH BREAK (13:00 – 14:15): Kalam Guest House		
Session 2: Homi Bhabha Hall (Seminar Hall Complex)		
Time	**Speaker (Name and designation)**	**Topic**
14:15 – 15:15	**Prof. Alexandre Presas Batlló, Director, CDIF-UPC, Spain**	**Intelligent Monitoring and Smart Sensors for Turbine Diagnostics**
15:15 – 16:15	**Anuj Kumar, Associate Professor, VIT Vellore**	**CFD Driven Performance Optimization for Next-Generation Turbines**
TEA BREAK (16:15 – 16:30)		
16:30 – 17:30	**Prof. David Valentín Ruiz, CDIF-UPC, Spain**	**Data Acquisition and Signal Analytics for Turbines**
SPECIAL DINNER (19:30 – 21:30)		

22-01-2026 – Day 2 (Thursday)		
Session 3: Homi Bhabha Hall (Seminar Hall Complex)		
Time	**Speaker (Name and designation)**	**Topic**
9:00 – 10:00	**Prof. Chandra Shekhar Pant, Assistant Professor, HRED, IIT Roorkee**	**Understanding turbulence in hydro turbines using computational fluid dynamics (CFD)**
10:00 – 11:00	**Prof. David Valentín Ruiz, CDIF-UPC, Spain**	**Failure Mechanisms and Condition Assessment in Turbines**
TEA BREAK (11:00 – 11:15)		
11:15 – 12:15	**Prof. Pankaj P. Gohil, SCET**	**Cavitation Detection in Hydraulic Turbines**
12:15 – 13:15	**Prof. Anant Kumar Rai, NITW**	**Hydro-Abrasive Erosion: Diagnostic Indicators and Monitoring**
LUNCH BREAK (13:15 – 14:15): Kalam Guest House		
Session 4 – Homi Bhabha Hall (Seminar Hall Complex)		
Time	**Speaker (Name and designation)**	**Topic**
14:15 – 15:15	**Prof. Alexandre Presas Batlló, Director, CDIF-UPC, Spain**	**CFD-Based Turbine Diagnostics and Flow Analysis**
15:15 – 16:15	**Prof. David Valentín Ruiz, CDIF-UPC, Spain**	**AI/ML-Driven Condition Monitoring and Fault Detection**
TEA BREAK (16:15 – 16:30)		
16:30 – 17:30	**Prof. Alexandre Presas Batlló, Director, CDIF-UPC, Spain**	**AI-Based Digital Twins for Intelligent Turbine Diagnostics**
Valedictory function 17:30 – 18:00		
High Tea		

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BECAS LEONARDO
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