About the Institution

SCMS School of Engineering and Technology (SSET), established in 2001 under the SCMS Group, is an autonomous institution approved by AICTE and affiliated to APJ Abdul Kalam Technological University. It is accredited by NAAC, with NBA-accredited B.Tech programmes, and its campus at Karukutty houses two Centres of Excellence.

VISION

To be a premier institution moulding ethical and socially responsible engineers with emphasis on 'Service Learning'.

To be among the top ten institutions in India by 2040, shaping technology innovators and leaders for spearheading research relating to sustainable development goals.

MISSION

Innovative education and research for shaping techno-leaders.

About the Department

The Department of Mechanical Engineering, established in 2001, offers B.Tech and Ph.D. programmes. Its B.Tech programme is NBA accredited, and the department is an approved research centre of APJ Abdul Kalam Technological University. Research areas include advanced and sustainable manufacturing, nanoscience and technology, composite materials, industrial engineering and safety, computational heat transfer and fluid dynamics, and renewable energy.

VISION

To be a leader in Mechanical Engineering education through sustainable innovation and impactful research.

MISSION

- Integrate service-learning into Mechanical Engineering education to solve local and global challenges.
- Upskill students in emerging technologies to lead design, manufacturing, and allied industrial sectors.
- Promote innovative and interdisciplinary research in Mechanical Engineering, emphasizing sustainable and ethical practices.

Registration

1. Sign in or create a participant account on the ATAL Academy portal, **atalacademy.aicte.gov.in**.
2. Find this FDP in the list of offline Advanced FDPs. Host: SCMS School of Engineering & Technology. Application No. **1777273470**.
3. Apply through the portal. Selected participants will be informed by email.

REGISTRATION FEE
None

SEATS
Limited to 30

LAST DATE TO REGISTER
5 November 2026

Register
ATAL Academy portal

Route map
SSET campus, Karukutty

Contact

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Venue: SCMS School of Engineering and Technology (Autonomous), Vidya Nagar, Palissery, Karukutty, Ernakulam – 683 576, Kerala.
+91 484 288 2900 · www.scmsgroup.org/sset

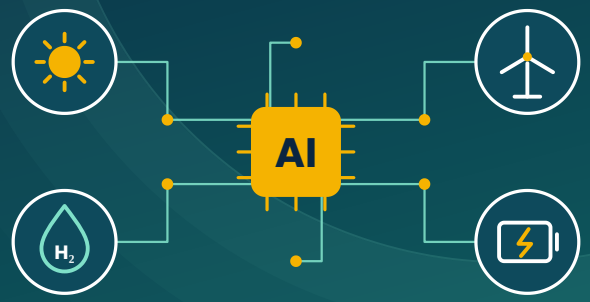
AICTE Training and Learning (ATAL) Academy sponsored

Two-Week Offline Advanced
Faculty Development Programme on

Intelligent Systems for Energy Independence and Sustainability

16 – 28 November 2026

12 days · On campus at SSET, Karukutty, Kerala



ORGANISED BY

Department of Mechanical Engineering

Accredited by NBA CE, CSE, ME ECE, EEE

SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)
Vidya Nagar, Palissery, Karukutty, Ernakulam - 683576, Kerala, India.
www.scmsgroup.org/sset

25th ANNIVERSARY

About the FDP

This twelve-day Advanced FDP brings together faculty from different engineering and science disciplines around one question: how can intelligent systems help India reach energy independence and a net-zero future?

The first week is spent on campus in expert sessions and journal-article discussions. The second week moves to industry, with a hands-on Modelica workshop followed by four days at operating energy and automation facilities.

Energy, Sustainability & Climate Change

Artificial Intelligence & Applications

Objectives

- Build a working understanding of AI, machine learning and intelligent systems as applied to renewable energy, decentralised power generation, green hydrogen and sustainable engineering.
- Connect academic knowledge with industrial practice through a full week of industry immersion.
- Encourage collaboration among faculty from mechanical, electrical, chemical and computer science backgrounds.
- Strengthen research and scholarly output in smart grids, energy storage, AI-driven energy optimisation and green hydrogen.

What You Will Take Back

- The ability to apply AI and ML methods to model, monitor and optimise solar, wind, hydrogen and hybrid energy systems.
- First-hand exposure to operating energy systems and AI-integrated power management.
- Material for industry-aligned, sustainability-focused curriculum modules.
- A starting point for interdisciplinary research proposals to agencies such as DST and MNRE.

Topics Covered

- AI for renewable energy
- AI-powered energy storage systems and battery management
- Machine learning for intelligent energy management
- Intelligent energy systems and digital twins, with hands-on Modelica
- Electric vehicle powertrain and intelligent battery management
- Hybrid vehicles
- Design principles for energy-efficient buildings
- Smart manufacturing and intelligent systems for automation
- Sustainable infrastructure
- Sustainable shift to hydrogen fuel
- Data-assisted farming

Programme Structure

WEEK 1 · 16 – 21 NOVEMBER

Academic sessions

Twelve expert sessions, two each day, with a journal-article discussion after every session.

WEEK 2 · 23 – 28 NOVEMBER

Workshop and industry immersion

A full-day Modelica workshop, four days in industry, team presentations, assessment and the valedictory function.

Industry Immersion

- **Cochin International Airport Ltd. (CIAL)**
  Hydrogen system design challenges and AI integration scenarios
- **Inker Robotic Solutions Pvt. Ltd., Thrissur**
  Interaction with technical teams and AI tool demonstrations
- **Zonergia Services Pvt. Ltd., Technopark**
  Hands-on: ML-assisted energy management solutions
- **Heman Auto Robopark Pvt. Ltd.**
  Automation for sustainable manufacturing

The day-wise schedule follows on the next two pages.

Resource Persons

- **Dr. A. Gopalkrishnan Iyer**
  Founder President, Markenomy Foundation
- **Dr. Santhakumar Mohan**
  Professor, Mechanical Engineering, IIT Palakkad
- **Dr. Krishna Sesha Giri**
  Associate Professor, IIT Palakkad
- **Dr. Prajof P.**
  Assistant Professor, EEE, NITK Surathkal
- **Dr. Sekar M.**
  Principal, AAA College of Engineering, Sivakasi
- **Dr. Jinsha B. S.**
  Lead Engineer, GE Appliances, Hyderabad
- **Mr. Sivaramakrishnan Ganesha Iyer**
  Consultant, Quantech Energy Solutions & Services
- **Mr. Motti Iype Thomas**
  Fluitron India Pvt. Ltd.
- **Mr. Amith Raman**
  CEO, Inker Robotics, Thrissur
- **Mr. Aron Chacko**
  Head – Academics, Inker Robotics, Thrissur
- **Dr. Manu V. Thottakkad**
  Associate Professor, Govt. Engineering College, Kozhikode
- **Dr. Jayanand B.**
  Professor, Electrical & Electronics Engineering, SSET
- **Dr. Vidya Chandran**
  Head, Mechanical Engineering, SSET

Who Can Attend

Faculty members of AICTE-approved institutions and universities, research scholars, and professionals from government, industry and R&D laboratories.

Certificates

Certificates are issued by the AICTE Training and Learning (ATAL) Academy to participants who have at least 80% attendance and score 60% or more in the final test.

ATAL Academy

The AICTE Training and Learning (ATAL) Academy runs faculty development programmes across India in line with the National Education Policy 2020, helping faculty grow as teachers, researchers and innovators.

Intelligent Systems for Energy Independence and Sustainability

ATAL Offline Advanced FDP · Application No. 1777273470 · Department of Mechanical Engineering, SCMS School of Engineering and Technology (Autonomous), Karukutty

Week 1
16 – 21 November 2026
Academic sessions

Time	Day 1 Mon, 16 Nov	Day 2 Tue, 17 Nov	Day 3 Wed, 18 Nov	Day 4 Thu, 19 Nov	Day 5 Fri, 20 Nov	Day 6 Sat, 21 Nov
9:30 – 10:00	INAUGURATION **Chief Guest: Dr. A. Gopalkrishnan Iyer** Founder President, Markenomy Foundation					
10:00 – 12:00	SESSION 1 **AI for Renewable Energy** Dr. A. Gopalkrishnan Iyer Founder President, Markenomy Foundation	SESSION 3 **Smart Manufacturing** Dr. Sekar M. Principal, AAA College of Engineering, Sivakasi	SESSION 5 **AI-Powered Energy Storage Systems and Battery Management** Dr. Krishna Sesha Giri Associate Professor, IIT Palakkad	SESSION 7 **Sustainable Infrastructure** Mr. Aron Chacko Head – Academics, Inker Robotics, Thrissur	SESSION 9 **Design Principles for Energy-Efficient Buildings** Mr. Sivaramakrishnan Ganesha Iyer Consultant, Quantech Energy Solutions & Services	SESSION 11 **Electric Vehicle Powertrain and Intelligent Battery Management for Sustainable Mobility** Dr. Prajof P. Assistant Professor, Dept. of EEE, NITK Surathkal
12:00 – 1:00	ARTICLE DISCUSSION **AI in Renewable Energy: A Comprehensive Review** *Renewable & Sustainable Energy Reviews, Elsevier, 2023*	ARTICLE DISCUSSION **Bayesian Optimization for Solar Farm Management** *Applied Energy, Elsevier, 2022*	ARTICLE DISCUSSION **Green Hydrogen: Production Pathways and Cost Analysis** *International Journal of Hydrogen Energy, 2024*	ARTICLE DISCUSSION **Deep Learning for Predictive Maintenance in Wind Turbines** *Energy Conversion & Management, 2023*	ARTICLE DISCUSSION **Reinforcement Learning in Power Systems: A Survey** *IEEE Transactions on Power Systems, 2023*	ARTICLE DISCUSSION **Net-Zero Energy Buildings: AI-Enabled Design Strategies** *Energy & Buildings, Elsevier, 2023*
1:00 – 1:30	LUNCH BREAK					
1:30 – 3:30	SESSION 2 **Intelligent Systems for Automation** Dr. Santhakumar Mohan Professor, Dept. of Mechanical Engineering, IIT Palakkad	SESSION 4 **Hybrid Vehicles** Dr. Jayanand B. Professor, Dept. of Electrical & Electronics Engineering, SSET	SESSION 6 **Data-Assisted Farming** Dr. Manu V. Thottakkad Associate Professor, Govt. Engineering College, Kozhikode	SESSION 8 **Sustainable Infrastructure** Mr. Amith Raman CEO, Inker Robotics, Thrissur	SESSION 10 **Sustainable Shift to Hydrogen Fuel** Mr. Motti Iype Thomas Fluitron India Pvt. Ltd.	SESSION 12 **Machine Learning for Intelligent Energy Management** Dr. Vidya Chandran Head, Dept. of Mechanical Engineering, SSET
3:30 – 4:00	BREAK					
4:00 – 5:00	ARTICLE DISCUSSION **Techno-Economic Analysis of Hybrid Renewable Systems** *Energy, Elsevier, 2023*	ARTICLE DISCUSSION **Digital Twin Applications in Power Grid Monitoring** *IEEE Access, 2022*	ARTICLE DISCUSSION **ML-Based Heat Transfer Prediction in Industrial Processes** *Int. Journal of Heat & Mass Transfer, 2023*	ARTICLE DISCUSSION **Safety Codes for High-Pressure Hydrogen Storage** *International Journal of Hydrogen Energy, 2024*	ARTICLE DISCUSSION **Edge Computing in Smart Energy Metering** *IEEE Internet of Things Journal, 2023*	SUMMARY & REFLECTION **Article Summary and Reflection** *Participant-led discussion on key learnings from the Week 1 sessions*

Expert session · Article discussion · Industry immersion

Sunday, 22 November is a rest day. The schedule may see minor changes; registered participants will be informed.

Intelligent Systems for Energy Independence and Sustainability

ATAL Offline Advanced FDP · Application No. 1777273470 · Department of Mechanical Engineering, SCMS School of Engineering and Technology (Autonomous), Karukutty

Week 2
23 – 28 November 2026
Academic sessions & industry immersion

Time	Day 7 Mon, 23 Nov	Day 8 Tue, 24 Nov	Day 9 Wed, 25 Nov	Day 10 Thu, 26 Nov	Day 11 Fri, 27 Nov	Day 12 Sat, 28 Nov
10:00 – 12:00	SESSION 13 **Intelligent Energy Systems and Digital Twins: A Practical Modelica Workshop** Dr. Jinsha B. S. Lead Engineer, GE Appliances, Hyderabad	FACILITY VISIT **Cochin International Airport Ltd. (CIAL)** Nedumbassery, Kochi	FACILITY VISIT **Inker Robotic Solutions Pvt. Ltd.** Thrissur	INDUSTRY IMMERSION **Zonergia Services Pvt. Ltd.** Technopark, Thiruvananthapuram	INDUSTRY IMMERSION **Heman Auto Robopark Pvt. Ltd.**	9:30 – 1:30 **Team-wise Presentation of Industry Immersion Outputs** Guided by Dr. Vidya Chandran, Head, Dept. of Mechanical Engineering, SSET
12:00 – 1:00	LUNCH BREAK	AT INDUSTRY · LUNCH AS ARRANGED BY THE HOST				LUNCH BREAK 1:30 – 2:00
1:00 – 4:00	SESSION 14 · 1:30 – 4:00 **Intelligent Energy Systems and Digital Twins: A Practical Modelica Workshop** Dr. Jinsha B. S. Lead Engineer, GE Appliances, Hyderabad *Workshop continues*	INDUSTRY ACTIVITY Hands-on: hydrogen system design challenges and AI integration scenarios	INDUSTRY ACTIVITY Interaction with technical teams and AI tool demonstrations	INDUSTRY ACTIVITY Hands-on: ML-assisted energy management solutions	INDUSTRY ACTIVITY Automation for sustainable manufacturing	2:00 – 3:00 Reflection Journal Writing 3:00 – 4:00 Feedback Collection and Assessment 4:00 – 5:00 Valedictory Function
4:00 – 5:00	ARTICLE SUMMARY Participant-led wrap-up *Week 1 key takeaways and peer learning*	Industry immersion continues: problem-solving and reporting sessions				

Expert session · Article discussion · Industry immersion

Sunday, 22 November is a rest day. The schedule may see minor changes; registered participants will be informed.