

ABOUT FDP

The increase in population and depletion of both the fossil fuels and non-renewable resources are going on simultaneously with time. The production of energy is important but the storage of energy is equally important. The energy storage plays a significant role in today's era and will continue to do so in the coming future. So, there is a vital need for flourishing this field for now and near-future applications.

The energy storage devices must meet wide-ranging device system, ranging from domestic applications to very-large capacity (MWh) used for wind power generators. Although, there is significant potential for the application of energy storage technologies but their operating performance is still lagging behind the increasingly harsh requirements of industry. The proposed program covers fundamental understanding and application of the advance energy storage technologies. This also includes the key challenges and their resolution in this field.

ABOUT DEPARTMENT

The Department of Physics came into existence from April, 2003. Prior to this it constituted a section of the Department of Applied Mathematics, Applied Sciences & Humanities. The department offers courses in B. Tech. and runs Ph. D. Programme. The faculty members of the Departments are actively involved in research & development in the emerging areas of theoretical and experimental physics. The department has well equipped research laboratories. Faculty

members have completed many research projects from DST, CSIR, etc.

COURSE CONTENT

- Non-renewable and renewable energy sources
- Types of energy storage technologies
- Key challenges and their solution in the field of energy storage technologies
- Batteries, capacitor and supercapacitor
- Materials, electrode design strategies and crucial parameters for high performance energy storage.
- Fractal analysis and energy storage system
- Fabrication of flexible solid state supercapacitor and their future scope

ABOUT ATAL

The objective of the academy is to train faculties, students and research scholars in recent technological developments. In addition, the training will be mandatory for new teachers from 2019 and it will be necessary for existing teachers and assistant teachers while applying for promotions. AICTE is statutory body established in November 1945. It comes under aegis of Department of Higher Education, Ministry of Human Resources Development. It is national-level council for technical education responsible for planning and coordination of technical education management of education system in the country. It's headquartered is in New Delhi.

ABOUT THE INSTITUTE

MNNIT Allahabad was established in 1961 and is one of the premiere engineering institutions in the country. It offers B. Tech. programmes in nine branches of technology, M. Tech. programmes in twenty disciplines, MCA, MBA, M. Sc. (Mathematics and Scientific Computing), Master of Social Work (MSW) and Ph.D. programme in all branches of engineering, science and management. Post-doctoral work has also been taken up. It has been able to establish itself as a leading technical institution in the country. Allahabad has been a centre of religious, cultural, political and educational activities since historical times. Allahabad is directly connected by train with most of the important cities in India and by air. There are several places of interest in and around Prayagraj.

ORGANIZING COMMITTEE

Patron

Prof. Rajeev Tripathi, Director, MNNIT Allahabad.

Coordinator

Prof. S. N. Pandey
Department of Physics
MNNIT Allahabad

RESOURCES PERSON

The course content will be delivered from a pool of resource persons from IITs, NITs and renowned Universities.

REGISTRATION FEE AND PROCEDURE

There is no registration fee and participants are requested to register and to login on AICTE ATAL portal <https://atalacademy.aicte-india.org/>.

OTHER IMPORTANT INFORMATIONS FOR THE PARTICIPANT

- This FDP is only for faculty members of the AICTE approved institutions, research scholars, PG Scholars, participants from Government and Industry.
- The FDP will be conducted in online mode. Participants willing to participate in this online FDP should have the provision of laptop/desktop/smart phone with good quality internet connections and other audio visual facilities, as required for online training.
- Course Registration is free for all participants.
- Seats are limited (only 200) and the participants are selected by organizer on first come first serve basis.
- Selected candidates can check their status online. On completion of the course an objective/quiz based assessment of all participants will done.
- Those who have an attendance of minimum 80 % and score more than 60% in the test will be issued a digital certificate by the ATAL Academy.

CONTACT DETAILS

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SCHEDULE

Date	Time	Topics	Speaker
September 20, 2021	10:00 AM to 12:00 Noon	Inauguration	
	12:05 PM to 02:05 PM	Source of Energy (for Storage): Solar Photovoltaics	Prof. V. K. Komarala
	02:05 PM to 03:00 PM	Lunch Break	
	03:00 PM to 05:00 PM	Designing of Materials for Solar Energy Harvesting and Energy Storage	Dr. A. K. Ojha
	05:15 PM to 07:15 PM	Functional Materials for Renewable Energy Storage Devices	Dr. A.L. Sharma
September 21, 2021	09:15 AM to 11:15 AM	State of Art Synthesis of Nanomaterials for the Development of Device Grade Flexible Solid-State Supercapacitor	Prof. B. R. Sankapal
	11:30 AM to 01:30 PM	Energy Storage Devices: From Powder to Power	Dr. Y. K. Sharma
	01:30 PM to 03:00 PM	Lunch Break	
	03:00 PM to 05:00 PM	Principle, Application and Current Research on Super capacitor Electrode Materials	Dr. Raj. K. Sharma
September 22, 2021	09:15 AM to 11:15 AM	Carbon Electrodes for Supercapacitors: Fundamental Aspects and Few Recent Case Studies	Prof. S.A. Hashmi
	11:30 AM to 01:30 PM	Need for Clean and Green Energy Alternatives: Pros and Cons	Dr. A. K. Thakur
	01:30 PM to 03:00 PM	Lunch Break	
	03:00 PM to 05:00 PM	Transition Metal Oxide Based Pseudocapacitors – An Energy Storage Device	Prof. P. P. Sahay
September 23, 2021	09:15 AM to 11:15 AM	Fundamental aspects of electrochemical supercapacitors	Prof. Anupam Sharma
	11:30 AM to 01:30 PM	Pulsed Laser Deposition /Ablation: Synthesis of Nanomaterials & Thin Films for energy storage	Dr. Naresh Kumar
	01:30 PM to 03:00 PM	Lunch Break	
	03:00 PM to 05:00 PM	Nonlinear Dynamics and Fractal Analysis: Application to Energy Storage	Prof. M. Lakshmanan
September 24, 2021	09:15 AM to 11:15 AM	Yoga and Stress Management	Dr. Anjani K Pundrik
	11:30 AM to 01:30 PM	Energy Storage Beyond Battery and Capacitor: Supercapacitor	Prof. S. N. Pandey
	01:30 PM to 03:00 PM	Lunch Break	
	03:00 PM to 05:00 PM	Valedictory Function/ Feedback	



AICTE Training and Learning (ATAL) Sponsored

ONLINE

Faculty Development Program on Energy Storage: Science & Technology

20th September 2021 to 24th September 2021



Organized by
 Department of Physics
 Motilal Nehru National Institute of Technology
 Allahabad, Prayagraj