



VIT-AP
UNIVERSITY
Apply Knowledge. Improve Life!®

5-Day Workshop on Advanced Materials Characterization Techniques with Live Demonstrations

Organizer: Department of Physics, School of Advanced Sciences (SAS)

Date: 12 - 16 December 2023 (Tuesday to Saturday)



**E-Certificate
for Participation**



Registration Link :

<https://vtop1.vitap.ac.in/AMC/Conferenceinitial>

Last date for Registration: 01st December 2023

About the University

With a history of 39 years of innovation in education and research domains, VIT has been a forerunner in delivering quality education. Consistently ranked among the top educational institutes in the country, the VIT group of institutions have been endeavouring relentlessly in their pursuit for excellence in engineering and science education. In keeping up with this tradition, the leadership at VIT-AP University resonates a dynamic blend of academia-industry partnership with a vision of creating a competent work force of young generations to tackle modern day problems on par with some of the finest academic institutions in the world. The VIT-AP campus, poised to become one of the country's best campuses, offers several avenues to explore students' interests, enables realising core competencies, engages in life-long learning, inculcates broad-minded thinking, enthusiasm to face challenges and contribute solutions.

About the WorkShop

The School of Advanced Sciences (SAS), VIT-AP University is pleased to organize the five-day workshop focused on materials characterization techniques of great importance in fundamental and applied research. The techniques include spectral, thermal, electrical, morphological, mechanical and phase characterizations-based on advanced instruments without which designing new materials, synthesis and tailoring properties as desired would be farfetched. The workshop forms a platform for imparting the Physics behind different techniques; the operating principles and working mechanisms of analytical instruments based on these principles and characterization of materials subjected to different processing conditions. This will be followed by real-world examples to illustrate the significance of materials characterization in the development of advanced engineering materials for specified applications. Instruments such as X-Ray Diffractometer (XRD), Field Emission Scanning Electron Microscope (FE-SEM), Fourier Transform Infrared (FTIR) Spectrometer, UV-Visible Spectrometer, Photoluminescence Spectrometer (PLS), Impedance Analyzer, Electrochemical Analyzer, Mechanical Testing Machine (MTM), Differential Scanning Calorimeter (DSC) and Thermogravimetric Analyzer (TGA) form quintessential analytical tools for an advanced materials characterization laboratory. The unique features of this workshop are the talks by industry experts and VIT faculty in conjunction with dedicated sessions of live demonstrations on different characterizations at our advanced instrument facilities to impart knowledge on their operation, functioning, sample preparation, parameter control, taking measurements and data analysis. True appreciation of Physics behind the instrument would be possible only when one sees it in action via an instrument which is an engineering manifestation of multidisciplinary knowledge that enables measurements. This workshop offers practical knowledge of dealing with sophisticated instruments for a variety of aforesaid characterizations.

The basic objective of the five-day training workshop is to bring together participants from academic institutions, R & D organizations and industries to offer practical knowledge of measurement techniques and materials characterization via advanced instrumental facilities based in VIT-AP University. This workshop will form an excellent platform for cross-disciplinary interactions and new collaborations. It will be a great learning experience for PhD scholars while interacting with expert speakers backed by a wealth of expertise and international exposure.

Workshop Objectives:

- X-Ray Diffractometer
- FTIR Spectrometer
- FE-SEM/EDS
- UV-Visible Spectrometer
- Photoluminescence Spectrometer (PLS)
- Impedance Analyzer
- Electrochemical Analyzer
- Universal Testing Machine (UTM)
- Differential Scanning Calorimeter (DSC) and Thermogravimetric Analyzer (TGA)

Who should Attend: Undergraduate/Graduate students, Research Scholars, Research Associates, Faculty, Members from Industry and Government Organisations.

E-Certificate: A certificate of participation will be awarded to each registered participant after successful completion of workshop.

Venue: Einstein Hall, Ab1.

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Workshop Dates: 12-16 December 2023

Last date for Registration: 1 December 2023.

Program Schedule Details:

	Morning	Time		Afternoon	Time
Day-1 (Tuesday) 12/12/2023	Faculty/Industrial Expert Mr. Satya Srinivas (FE-SEM/EDS) (Theory followed by Demonstration)	9:30 AM to 11.00 AM 30 Minutes Break 11.30 AM to 1.00 PM	1.00 PM to 2.00 PM LUNCH Break	Faculty/Industrial Expert Dr. Ramakanth Illa (FTIR Spectrometer) (Theory followed by Demonstration)	2:00 PM to 3.30 PM 30 Minutes Break 4.00 PM to 5.30 PM
Day-2 (Wednesday) 13/12/2023	Faculty/Industrial Expert Dr. Nishant Kumar Varshney (X-Ray Diffractometer) (Theory followed by Demonstration)	9:30 AM to 11.00 AM 30 Minutes Break 11.30 AM to 1.00 PM	1.00 PM to 2.00 PM LUNCH Break	Faculty/Industrial Expert Dr. Ganesh Kotagiri Muneeswaran Muniyand (Impedance Analyzer) (Theory followed by Demonstration)	2:00 PM to 3.30 PM 30 Minutes Break 4.00 PM to 5.30 PM
Day-3 (Thursday) 14/12/2023	Faculty/Industrial Expert Dr. Siva Kumar Reddy (DSC/TGA Analyzer) (Theory followed by Demonstration)	9:30 AM to 11.00 AM 30 Minutes Break 11.30 AM to 1.00 PM	1.00 PM to 2.00 PM LUNCH Break	Faculty/Industrial Expert Dr. Tufan Goush (Photoluminescence Spectrometer (PLS)) (Theory followed by Demonstration)	2:00 PM to 3.30 PM 30 Minutes Break 4.00 PM to 5.30 PM
Day-4 (Friday) 15/12/2023	Faculty/Industrial Expert Dr. Pankaj Tambe (UTM) (Theory followed by Demonstration)	9:30 AM to 11.00 AM 30 Minutes Break 11.30 AM to 1.00 PM	1.00 PM to 2.00 PM LUNCH Break	Faculty/Industrial Expert Dr. Ramakanth Illa (UV-Visible Spectrometer) (Theory followed by Demonstration)	2:00 PM to 3.30 PM 30 Minutes Break 4.00 PM to 5.30 PM
Day-5 (Saturday) 16/12/2023	Faculty/Industrial Expert Dr. Satyanarayana Moru (Electrochemical Analyzer) (Theory followed by Demonstration)	9:30 AM to 11.00 AM 30 Minutes Break 11.30 AM to 1.00 PM	1.00 PM to 2.00 PM LUNCH Break	Concluding Remarks by Dr. Venkata Rajanikanth M	2:00 PM to 4.30 PM

About Physics Department

Department of Physics offers MSc program with specialization in frontline areas of modern-day technologies such as Energy technology, Battery Technology, Solar Technology, Fuel Technology etc. The Physics department also offers more than 10 different courses at UG and PG levels for other Schools of the University. Students are trained on developing foundational knowledge of concepts leading to an advanced understanding of practical aspects of engineering sciences. Laboratory hours complement their study by providing them with hands-on experience of experimentation, measurements and data analysis. Additionally, students have the opportunity to engage in research projects with faculty members starting from their undergraduate level. Research at our department helps the students to develop analytical and problem-solving skills to deal with the current and future technological challenges.

The Physics department is actively engaged in research in the following fields: Nanomaterials, Transparent Conducting Materials for Optoelectronic Applications, Photonics, Photovoltaics, Sensors, Composite Materials, Coatings, Condensed Matter and Biological Physics.

Programs offered

- ✓ Msc Physics (General)
- ✓ MSc Physics in collaboration with NoPo Nanotechnologies, India Pvt. Ltd. and QpiAI India Pvt. Ltd.
- ✓ MSc Physics (Specialization in Energy Technologies)
- ✓ PhD in Physics



Broad Areas of Innovation and Research

- ✓ Nano-materials
- ✓ Optical Communications
- ✓ Bio-physics
- ✓ Quantum Physics
- ✓ Semiconducting Materials and Devices
- ✓ Magnetic Materials
- ✓ Energy Materials

Students Fellowships and Benefits

VIT Fellowship for PhD students	GATE Qualified (Above 60% in PG)	Others
First Year	Rs. 31,000/Month	Rs. 25,000/Month
Second and Third Year	Rs. 35,000/Month	Rs. 31,000/Month

- ✓ Raman Research Award up to 1 lakh for publications exclusively for research scholars
- ✓ Contingency amount of Rs. 10,000 per year for all Scholars
- ✓ Open access research publication support for Q1 and Q2 Journals
- ✓ Financial support for attending conferences/workshop/training etc.
- ✓ Five external funded projects (More than Rs. 70 lakhs)
- ✓ More than 20 projects funded by the university to the SAS faculties and students
- ✓ The department has more than 20 faculties, all with Ph. D.s and Postdocs from top-tier global universities

Registration fee

Graduate/Undergraduate Students: Rs. 800/-

Research scholars: Rs. 1500/-

Faculty/Research Associate: Rs. 2000/-

Industry Person: Rs. 2500/-

(The registration fee includes: welcome kit, snacks and lunch for five days. No accommodation provided for attendees.)

Convener: Dr. Ashok Nandam

Co-Conveners: Dr. Manmadharao Banki
Dr. Nagarjuna Neella
Dr. Lakshmi Sowjanya Pali
Dr. Venkata Rajanikanth M

Coordinators:

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Dr. Narendranath Dutta

Publicity Committee Coordinators: Dr. Sudagar J
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Dr. Virendra Kumar Verma
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Dr. Muneeswaran Muniyandi
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Registration Committee Coordinators:

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Dr. Prabhakaran Thandapani
Dr. Ganesh Kotagiri
Dr. Siva Kumar Reddy
Dr. Ganesh Kotnana
Dr. Nallamuthu

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Dr. Nallamuthu	Dr. Narendranath Dutta
Dr. Muneeswaran Muniyandi	

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