



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
CATEGORY - 1 UNIVERSITY BY UGC



Five Day Workshop cum Training on Advanced Thin Film Deposition Techniques and Characterization Methods

Centre for Nanoscience and Nanotechnology (CNSNT)
International Research Centre (IRC)
SATHYABAMA Institute of Science and Technology,
Chennai - 600119

Registration Link:
<https://forms.gle/GLxgKLRMM1sXx6ic6>

Registration Fee:
Student/Research Scholar: 4000/-
Faculty/Scientist: 5000/-
Industry: 6000/-

Account Name: Dean (Publications & Conferences),
Sathyabama Institute of Science and Technology,
Account Number: 891734627
IFSC Code : IDIB000T020
Branch Code : 098
Bank & Address : Indian Bank, Thousand lights

- Food & Accommodation will be provided
- Kit & Certificate will be provided
- **Registration is limited to 30 Nos only**

Last Date for Registration:
03 July 2024

**08 – 12,
July
2024**

Contact Us:

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ABOUT SATHYABAMA

Sathyabama Institute of Science and Technology (SIST) is a prestigious Institution that has excelled in Engineering, Science, and Technology for over three successful decades. It is established under Sec. 3 of the UGC Act, 1956, and has been accredited with an 'A++' Grade by the National Accreditation and Assessment Council. The Institution has been Graded as a Category 'I' University by UGC under the UGC (Categorization of Universities (only) for Grant of Graded Autonomy) Regulations, 2018. The Institution has a team of dynamic and outstanding faculty and scientists, innovative pedagogical practices, state-of-the-art infrastructure, and world-class Research Facilities. SIST has achieved good rankings and ratings at the National and International level. Sathyabama Institute of Science & Technology has alliances with leading Universities and research establishments at the National and International Levels. It is a research-intensive University with world-class laboratories and research facilities and is involved in research in the emerging areas of Science and Technology. SIST has undertaken various sponsored and collaborative R&D projects funded by National and International Organizations. SIST has emerged as a leading Institution and achieved excellence in higher education of international standards owing to its research and academic excellence.

ABOUT THE CENTRE FOR NANOSCIENCE AND NANOTECHNOLOGY

The Centre for Nanoscience and Nanotechnology was established in January 2006 at the University campus to accomplish the goal of enhancing advanced research in the areas of Nanoscience and Nanotechnology. The Centre of Excellence for Energy Research, a part of the Centre for Nanoscience and Nanotechnology has been funded by the Ministry of Human Resource Development, Govt. of India in 2014. The leading areas of research include nanomaterials, nanotechnology, nanocomposites, nanoelectronics, solar photovoltaics, solid oxide fuel cells, thermal barrier coatings, Supercapacitors, etc. In addition to research, the Centre also conducts training and awareness programs, workshops national and international conferences on recent trends and developments on various themes of national interests. The Centre is undertaking research and development projects from various agencies and is offering consultancy services to industries and research organizations in India and abroad. The Centre has several sophisticated instruments such as HRSTEM, FESEM, XRD, XPS, Raman, AFM, Hall Effect measurement, UV-vis spectrometer, FTIR, EBPVD, RF/DC Magnetron sputtering, PLD, Thermal Evaporation etc.

TECHNIQUES COVERED IN HANDS-ON TRAINING

Material/Substrate Preparation

- Cutting/Polishing (Metal Substrates)
- Ball Milling
- Pellet Preparation
- Sintering Process

Thin Film Techniques

- Thermal Evaporation
- Electron Beam Physical Vapour Deposition
- Pulsed Laser Deposition
- DC/RF Magnetron Sputtering

Characterization Techniques

Structural/Elemental Analysis

- X-ray Diffraction (XRD)
- Micro Raman Spectrometer
- X-ray Photoelectron Spectrometer (XPS)

Microstructural/Topological Analysis

- High-Resolution Transmission Electron Microscopy (HRSTEM)
- Field Emission Scanning Electron Microscopy (FESEM)
- Atomic Force Microscopy (AFM)

Optical/Electrical/ Electrochemical Property Measurement

- UV-Visible-NIR Spectrophotometer (UV-Vis-NIR)
- Fluorescence Spectrometer
- Hall Measurement
- Electrochemical Impedance Analyzer

Thickness/Tribological Measurement

- Stylus Profilometer
- Tribometer

CHIEF PATRONS

Dr. Mariazeena Johnson, **Chancellor**

Dr. Marie Johnson, **President**

Mrs. Maria Bernadatte Tamilarasi, **Vice - President**

Mr. J. Arul Selvan, **Vice - President**

Ms. Maria Catherine Jayapriya, **Vice - President**

PATRON

Dr. T. Sasipraba, **Vice - Chancellor**

ORGANIZING SECRETARY

Dr. P. Kuppusami, **Professor (Research)**

CONVENERS

Dr. S. Anandh Jesuraj, **Assistant Professor (Research)**

Dr. P. Vengatesh, **Assistant Professor (Research)**

CO - CONVENERS

Dr. G. Gopika, **Assistant Professor (Research)**

Dr. B. Vigneshwaran, **Assistant Professor (Research)**

Mr. M. Thangam, **Scientific Assistant**

ORGANIZING COMMITTEE

Dr. D. Ramachandran, **Assistant Professor (Research)**

Dr. K. Viswanathan, **Assistant Professor (Research)**

Dr. T. Dharini, **Assistant Professor (Research)**

Dr. D. Balaji, **Assistant Professor (Research)**

Mr. M. Rajasekaramoorthy, **Scientific Assistant**

Mr. J. Jayakanth, **Project Assistant**

TECHNICAL COMMITTEE

Mrs. K. Narthana, **Scientific Assistant**

Mr. H. Mohammad Nawaz, **Project Associate**

Ms. R.S. Devika, **Project Fellow**

Mr. J. Subash, **Project Fellow**

SPEAKERS



Dr. P. Kuppusami, Professor (Research)
Centre of Excellence for Energy Research,
Centre for Nanoscience & Nanotechnology,
Sathyabama Institute of Science &
Technology, Chennai, India



Dr. T. S. Shyju
Associate Professor (Research),
Centre of Excellence for Energy Research,
Centre for Nanoscience & Nanotechnology,
Sathyabama Institute of Science &
Technology, Chennai, India



Dr. G. Murugadoss
Associate Professor (Research),
Centre of Excellence for Energy Research,
Centre for Nanoscience & Nanotechnology,
Sathyabama Institute of Science &
Technology, Chennai, India



Dr. Subhenjit Hazra
Associate Professor (Research),
Centre for Nanoscience & Nanotechnology,
Sathyabama Institute of Science &
Technology, Chennai, India



Dr. D. Dinesh Kumar
Associate Professor (Research),
Centre for Nanoscience & Nanotechnology,
Sathyabama Institute of Science &
Technology, Chennai, India

Field of Expertise

- Surface Engineering
- Thermal barrier coatings
- X-ray Diffraction
- Supercapacitors
- Solid Oxide Fuel Cells
- Dielectrics
- Solar Cell
- Thin Film Technology
- Crystal Growth
- Thermal barrier coatings
- Nanomaterials
- Batteries
- Perovskite Solar Cell
- Supercapacitor
- Photocatalysis
- Sensors
- Catalysis
- Nano Chemistry
- Nanomaterials
- Tribological Coatings
- Hard Coating
- Biomedical Coatings
- Nanomaterials

DAY – I (08.07.2024)

09.00 am: Registration

09.50 am: Inauguration

10.15 am: **Expert Talk** - Dr. P. Kuppusami, Professor (Research)

11.15 am: Refreshment

11.30 am: Sample/Source Materials Preparation (Cutting/Polishing Ball Milling/Pelletizing/Sintering)

- Working Principle

- Operating Procedure (Sample loading, Process Parameters, etc.,)

- Hands-on Training

12.45 am: Lunch

01.40 am: Thermal Evaporation/Electron Beam Evaporation

- Working Principle

- Operating Procedure (Sample loading, Process Parameters, etc.,)

- Hands-on Training

03.30 pm: Refreshment

04.00 am: Thermal Evaporation/Electron Beam Evaporation

- Working Principle

- Operating Procedure (Sample loading, Process Parameters, etc.,)

- Hands-on Training

DAY – II (09.07.2024)

09.30 am: Expert Talk - Dr. Shyju T S, Associate Professor (Research)

10.30 am: Refreshment

11.00 pm: Expert Talk - Dr. D. Dinesh Kumar, Associate Professor (Research)

12.00 pm: Pulsed Laser Deposition/DC/RF Magnetron Sputtering

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters such as substrate temperature, distance, chamber pressure, deposition, etc.,)
- Hands-on Training

12.40 pm: Lunch

01.30 pm: Stylus Profilometer/Tribometer

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters, Data Acquisition, Analysis)
- Hands-on Training

03.30 pm: Refreshment

03.45 pm: Pulsed Laser Deposition/DC/RF Magnetron Sputtering

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters such as substrate temperature, distance, chamber pressure, deposition, etc.,)
- Hands-on Training

DAY – III (10.07.2024)

09.30 am: Expert Talk - Dr. G. Murugadoss, Associate Professor (Research)

10.30 am: Refreshment

11.00 am: Expert Talk - Dr. Subhenjit Hazra, Associate Professor (Research)

12.15 pm: Lunch

01.30 pm: UV-Visible-NIR Spectrophotometer/Electrochemical Impedance Analyzer

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters, Data Acquisition, Analysis)

03.30 pm: Refreshment

03.45 pm: Hall Measurement/Raman Spectrometer

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters such as substrate temperature, distance, chamber pressure, deposition, etc.,)
- Hands-on Training

DAY – IV (11.07.2024)

09.30 am: Expert Talk - Dr. P. Kuppusami, Professor (Research),

10.30 am: Refreshment

11.15 pm: Atomic Force Microscopy/Fluorescence Spectrometer

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters, Data Acquisition, Analysis, Instrument Handling procedures, etc.,)

12.45 pm: Lunch

01.30 pm: X-ray diffraction (XRD)/Field Emission Scanning Electron Microscopy (FESEM)

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters, Data Acquisition, Data Analysis, etc.,)

03.30 pm: Refreshment

03.45 pm: Hall Measurement/Raman Spectrometer

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters, Data Acquisition, Analysis, etc.,)
- Hands-on Training

DAY – V (12.07.2024)

09.30 am: Atomic Force Microscopy/Fluorescence Spectrometer

- Working Principle
- Operating Procedure (Sample Loading, Process Parameters, Data Acquisition, Analysis, Instrument Handling procedures)

10.30 am: Refreshment

11.00 am: X-ray Photoelectron Spectrometer (XPS)/High-Resolution Scanning Transmission Electron Microscopy (HRSTEM)

- Working Principle
- Operating Procedure (Sample Preparation, Sample Loading, Process Parameters, Data Acquisition, Basic Interpretation, Instrument handling procedures)

12.45 pm: Lunch

02.00 pm: Valedictory & Certificate Distribution

DEPOSITION & CHARACTERIZATION TECHNIQUES



Thermal Evaporation System (HHV, Bangalore)



EBPVD (MEB 600 Plassys, France)



XRD (Thermofisher Scientific, USA)



HRSTEM (Thermofisher Scientific, TALOS F200S G2)



AFM (NTEGRA PRIMA, Modular Mode, Ireland)



PLD (Quanta Systems, Italy)



RF and DC Sputtering (PLASSYS MP300, France)



Micro-Raman Spectrometer (Renishaw, UK)



XPS K-alpha, (Thermofisher Scientific, USA)



FESEM (Carl Zeiss SIGMA 300)



Stylus Profilometer, Dektak XT, Bruker, USA