

## TECHNIQUES COVERED IN THIS WORKSHOP



**Fourier Transform  
Infra-Red (FTIR)  
Spectrometer**  
Make: Agilent  
Model: Cary 630 FTIR  
Spectrometer

**Fluorometer**  
Make: Thermo Fischer  
Model: Qubit 4.0



**Spectrofluorometer**  
Make: Shimadzu  
Model: RF-5301PC



**UV-VIS  
Spectrophotometer**  
Make: Shimadzu  
Model: UV-1650PC



## OBJECTIVE OF THE WORKSHOP

The main objective of this program is to enable the participants to understand principles and applications of spectroscopic equipment's and to provide the participants hands-on-training on Fourier Transform Infrared Spectroscopy (FTIR), UV-VIS Spectrophotometer and Fluorescence Spectrophotometer.

## EXPECTED OUTCOME OF THE WORKSHOP

At the end of this program, the participants would be able to

1. Understand the principles and applications of Fourier Transform Infrared Spectroscopy (FTIR), UV-VIS Spectrophotometer and Fluorescence Spectrophotometer.
2. Proficiently operate FTIR and analyze the data for precise molecular analysis.
3. Utilize UV-VIS Spectrophotometry for absorbance and transmittance measurements and spectrofluorometer for fluorescence analysis and measurements.

## WORKSHOP FOCUSED ON

- Instrumentation and Calibration
- Sample Preparation and Troubleshooting
- Measuring Absorbance and Transmittance
- Recording and analyzing absorption spectra
- Measuring excitation and emission spectra of fluorescent dyes
- Nanoscale quantification of DNA
- Collecting high-resolution spectral data for materials
- Functional group identification using FTIR Spectra

# SRI VENKATESWARA COLLEGE OF ENGINEERING

(An Autonomous Institution, Affiliated to Anna University, Chennai)  
Approved by AICTE, New Delhi; Accredited by NAAC with A+ Grade  
Sriperumbudur, Tamil Nadu - 602117



## UNLOCKING SPECTROSCOPIC TECHNIQUES: A TWO DAYS HANDS-ON TRAINING WORKSHOP

organized by

### DEPARTMENT OF BIOTECHNOLOGY

11/10/2023 - 12/10/2023

### CONVENORS

Prof. M. Sivanandham - Secretary, SVEHT  
Prof. E. Nakkeeran - HOD/BIO

### ORGANIZING SECRETARIES

Dr. K. Divakar - ASP/BIO  
Dr. K. Vasantharaj - AP/BIO

### COORDINATORS

Dr. G. Karthigadevi - AP/BIO  
Dr. J. G. Aswin Jenio - AP/BIO

## ABOUT THE INSTITUTION

Sri Venkateswara College of Engineering (SVCE) is a unit of Sri Venkateswara Educational and Health Trust (SVEHT). SVCE is one of the premier technical institutions in Tamilnadu; the College is situated on the Chennai – Bangalore National Highway (NH4) about 37 km southwest of Chennai. The college is on a 90-acre lush green Campus. It is housed in architecturally exquisite buildings with ample infrastructure such as classrooms, laboratories, libraries, sports arena, canteen, hostels, dispensary etc., The college offers 12 UG programs and 7 PG programs. SVCE is an ISO 9001:2015 certified institution and Accredited by "NAAC" with A+ grade.

## ABOUT THE DEPARTMENT

Sri Venkateswara College of Engineering noted the growth in Modern Industrial Biotechnology. In order to support the growth in Biotechnology, SVCE started the Department of Biotechnology in 2005. The department offers B.Tech and M.Tech Biotechnology programs approved by AICTE. It is also approved as a Research Center in Biotechnology for MS (by Research) and Ph.D. programs by Anna University, Chennai. The Department has well-established laboratory facilities namely Genetic Engineering, Bioprocess, Research Lab, Animal house and Computational System Biotechnology Lab. The Department received Research Grants (2.85 Crores) from various funding agencies such as SERB, ICMR, AICTE, CTS and also several grants for organizing Short Term Training courses, Workshops, Faculty Development Programs from various funding agencies such as DBT, SERB, ICMR, CSIR and EDII.

## VISION OF THE DEPARTMENT

To produce higher caliber Biotechnologists to attain new heights in bioinformatics and bioprocess technology as per industrial needs and to provide leaders in the field of Biotechnology.

## MISSION OF THE DEPARTMENT

1. To progress the department to attain center of excellence in bioinformatics and bioprocess technologies by providing best Undergraduate, Postgraduate, Doctoral programs and R&D activities within a decade.
2. To develop special skilled training programs for graduates to meet the personality characters stipulated by the industries within a period of five years.
3. To build potential biotechnologists capable of dealing with new challenges and socio-ethical implications.

## DATES TO REMEMBER

Last Date for Registration : 04/10/2023

## WHO CAN REGISTER

Undergraduate and Postgraduate (Science & Engineering) pursuing students, research scholars aspiring for high quality research.

**Participants are limited to 25 numbers only (First cum first serve basis)**

## Registration Fee includes:

- Registration Kit
  - Working Lunch and refreshments
  - Sample Analysis using FTIR (2 numbers)
- Accommodation may be provided in the campus on prior notice, for which the participant bear the charges.
- Transport facility can be availed (Free) by the in-station participants.

**REGISTRATION FEES:  
RS. 1000/-**

## PAYMENT DETAILS

Account Number: 467302331  
Account Name:  
PRINCIPAL, SRI VENKATESWARA COLLEGE  
OF ENGINEERING  
Bank Name: Indian Bank  
Branch Name: Sriperumbudur  
IFSC Code: IDIB000S080  
MICR No: 600019112

## REGISTRATION LINK

<https://forms.gle/2L88HFHNDY8YWmhV7>



## CONTACT DETAILS:

Prof. E. Nakkeeran  
Head of the Department – Biotechnology  
Sri Venkateswara College of Engineering  
Sriperumbudur, Tamil Nadu – 602117.  
Email: hodbt@svce.ac.in  
**9488013671 / 9600202346**





**SRI VENKATESWARA COLLEGE OF ENGINEERING**

(An Autonomous Institution - Affiliated to Anna University, Chennai)

Sriperumbudur Tk - 602 117, Tamil Nadu



INSTITUTION'S  
INNOVATION  
COUNCIL  
(Ministry of HRD Initiative)

**Department of Biotechnology**



Solicit your esteemed presence for the **Inaugural Function**

of

**Unlocking Spectroscopic Techniques: A Two  
Days Hands-on Training Workshop**

**Chief Guest**



**Dr. PAZHANIMUTHU ANNAMALAI, PhD**  
**Managing Director,**  
**Aura Biotechnologies Pvt. Ltd, Chennai-95**

**Date: 11<sup>th</sup> October 2023**

**Time: 09:00 AM**

**Venue: Biotech Conference Hall**

**ALL ARE CORDIALLY INVITED!**

**Conveners**

Prof. M. Sivanandham, Secretary/SVEHT  
Prof. E. Nakkeeran, HOD/BIO

**Organising Secretaries**

Dr. K. Divakar, ASP/BIO  
Dr. K. Vasantharaj, AP/BIO

**Coordinators**

Dr. G. Karthigadevi, AP/BIO  
Dr. Aswin Jenoj J G, AP/BIO





**SRI VENKATESWARA COLLEGE OF ENGINEERING**

(An Autonomous Institution - Affiliated to Anna University, Chennai)

Sriperumbudur Tk - 602 117, Tamil Nadu



INSTITUTION'S  
INNOVATION  
COUNCIL  
(Ministry of HRD Initiative)

**Department of Biotechnology**



Solicit your esteemed presence for the **Inaugural Function**

*of*

**Unlocking Spectroscopic Techniques: A Two  
Days Hands-on Training Workshop**

**AGENDA**

**09:00 AM - Prayer song**

**09:05 AM - Welcome Address by Prof. E Nakkeeran, HoD/BIO**

**09:20 AM - About the Workshop by Dr. K. Divakar, ASP/BIO**

**09:25 AM - Introducing the Chief Guest by Dr. K. Vasantharaj, AP/BIO**

**09:30 AM - Inaugural Address followed by Keynote lecture**

**by the Chief Guest, Dr. Pazhanimuthu Annamalai**

**10:25 AM - Vote of Thanks by Dr. G. Karthigadevi, AP/BIO**







**SRI VENKATESWARA COLLEGE OF ENGINEERING**

(An Autonomous Institution - Affiliated to Anna University, Chennai)  
Sriperumbudur Tk - 602 117, Tamil Nadu



INSTITUTION'S  
INNOVATION  
COUNCIL  
(Ministry of HRD Initiative)

**Department of Biotechnology**



Solicit your esteemed presence for the **Valedictory Function**

of

**Unlocking Spectroscopic Techniques: A Two  
Days Hands-on Training Workshop**

**Chief Guest**



**Dr. R. Ramesh**  
**Professor and Dean Academics**  
**Sri Venkateswara College of Engineering**

**Date: 12<sup>th</sup> October 2023**

**Time: 02:30 PM**

**Venue: Biotech Conference Hall**

**ALL ARE CORDIALLY INVITED!**

**Conveners**

Prof. M. Sivanandham, Secretary/SVEHT  
Prof. E. Nakkeeran, HOD/BIO

**Organising Secretaries**

Dr. K. Divakar, ASP/BIO  
Dr. K. Vasantharaj, AP/BIO

**Coordinators**

Dr. G. Karthigadevi, AP/BIO  
Dr. Aswin Jenoj G, AP/BIO



## **DEPARTMENT OF BIOTECHNOLOGY**

### **REPORT ON**

# **"UNLOCKING SPECTROSCOPIC TECHNIQUES: A TWO DAYS HANDS-ON TRAINING WORKSHOP"**

**11<sup>th</sup> and 12<sup>th</sup> OCTOBER, 2023**

**DEPARTMENT OF BIOTECHNOLOGY**

**REPORT ON "UNLOCKING SPECTROSCOPIC TECHNIQUES: A TWO DAYS HANDS-  
ON TRAINING WORKSHOP"**

**11<sup>th</sup> and 12<sup>th</sup> OCTOBER, 2023**

The workshop, "**Unlocking Spectroscopic Techniques: A Two Days Hands-On Training Workshop**" started with an inaugural function which was held at the Biotechnology Conference Hall, SVCE on 11th October 2023 9.30 AM. The event started off with a devotional and vibrant prayer song, sung Ms. Sudharshini, a third year UG student of our department. The inaugural ceremony was graced by the presence of **Dr. Pazhanimuthu Annamalai**, Managing Director, Aura Biotechnologies Pvt. Ltd, Chennai, as the chief guest in the presence of our Head of the Department, Event coordinators, Faculty members and our participants. His motivating and energizing talk on the various aspects of biology in manufacturing sector enlightened the gathering. He also explained about the growth of his organization which inspired many young entrepreneurs among the participants. He also quoted the importance of various analytical techniques and its significance in the area of life sciences. The workshop was even more dignified with the arrival of participants from different colleges encompassing various streams like engineering, arts & sciences, pharmaceuticals and much more across Tamil Nadu.

A total of **25 participants** took part in the workshop who belong UG, PG and doctoral degrees. Out of which 3 participants were from the department of biotechnology, SVCE and all others from the external institutes. The participants were segregated into 3 teams in order to give them individual Hands-On sessions which is the prime motto of the workshop. After the inaugural ceremony, the participants were given exposure to the diversified and state-of-art instrumental facility which the department of Biotechnology, SVCE has and was followed by a tea break. After that, the first session of the Hands-On workshop was conducted with the common introductory lecture for all 3 teams by Dr. G. Karthiga Devi wherein she explained the principle, mechanism, instrumentation of various spectroscopy techniques. The Spectroscopy Techniques which were planned for the workshop are UV-Visible Spectroscopy, Fourier Transform InfraRed Spectroscopy (FTIR) and Fluorescence spectroscopy. She also covered the various terminologies and applications pertaining to the spectroscopy techniques. In addition to this one of our Research Scholars, Ms. R. Linekha gave a real-life case study where spectroscopic techniques are extensively used which gathered the attention of the participants to a great extent.

Post Lunch, the Day 1 Hands-On session started with 3 parallel sessions each covering one of the above 3 spectroscopic techniques. Each team was assigned with 1 spectroscopic technique on a rotation basis.

Fluorescence Spectroscopy was handled by Dr. K. Divakar wherein he detailed about the detailed instrumentation, procedure along with the various trouble shooting mechanisms to be done in Fluorescence spectroscopy. The participants in the team were given individual Hands-On wherein they quantified the amount of DNA present in the sample. Fourier Transform InfraRed Spectroscopy (FTIR) was handled by Dr. K. Vasantharaj wherein he detailed about the detailed instrumentation, procedure along with the various trouble shooting mechanisms to be done in FTIR spectroscopy. He was assisted by 2 of our second year PG students Ms. Abirami K and Ms. Yamunadevi B.

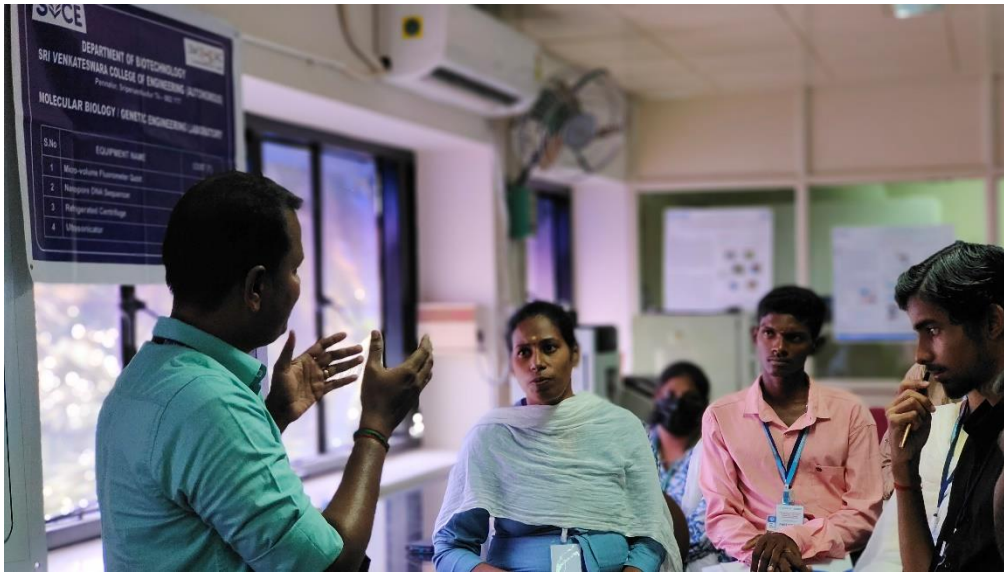
The participants in this team were given individual Hands-On training wherein they worked with various samples like dextrose, glucose, starch and much more. Participants were also taught the methods to interpret data from the graphs after FTIR analysis. As a motivating factor and as a form of service, 2 real life samples from the PhD scholars who were the participants, were analyzed in FTIR and the results of the same were provided to them as a part of the regular consultancy services which the Department of Biotechnology, SVCE provides to the science community.

UV – Visible spectroscopy was handled by Dr. G. Karthiga Devi wherein she detailed about the detailed instrumentation, procedure along with the various trouble shooting mechanisms to be done in UV - Visible spectroscopy. She was assisted by 3 of our third year UG students, Ms. ANUSHYA N, Ms. PARINITHA S and Ms. NANDITA S. The participants in this team were given individual Hands-On wherein they learnt to plot standard graphs, determine the absorbance values of samples like microbial culture and enzymatic assays. In all 3 sessions, the professors who handled gave a detailed explanation of the various sources of errors that are prone to occur in each spectroscopic technique. Finally, the organizing committee of the event along with the student volunteers (Mr. ARVIND SRINIVASAN A, Mr. GURUCHARAN J K, Mr. JAYARAMAN R, Mr. JEYA PRASATH R, Mr. SAKTHIVEL S, Mr. MOHAMED SHADIR V O A and Ms. NIVASHINI VINDHYA S) worked tirelessly to ensure the smooth conduct of the workshop including hospitality, technical support and much more.



**Pictures taken during the Event**









**Organizing Secretaries**

**Dr. K. Divakar**

**Dr. K. Vasantharaj**

**HoD/BIO**

**Prof. E. Nakkeeran**