ICAR-CIRCOT/TRG/2026/14/Leaflet

भा. कृ. अनु. प. – के. क. प्रौ. अ. सं.

"पदार्थ के स्पेक्ट्रोस्कोपिक एवं क्रोमैटोग्राफिक अभिलक्षणन तथा डेटा विश्लेषण में कृत्रिम बुद्धिमत्ता (AI) आधारित उपकरणों के अनुप्रयोग पर प्रशिक्षण"

ICAR-CIRCOT

Training on

"Spectroscopic and Chromatographic Characterization of Materials and Applications of AI Tools for Data Analysis"

Date: August 17-19, 2026

Venue: ICAR-CIRCOT, Mumbai

Organized by

भा.कृ.अनु.प.- केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान,
एडनवाला रोड, माटुंगा (पूर्व), मुंबई- 400 019

ICAR-Central Institute for Research on Cotton Technology Adenwala Road, Matunga (East), Mumbai 400019

About the Institute

The ICAR-CIRCOT, located at Matunga in Mumbai, was established in the year 1924. ICAR-CIRCOT, a unit under the Division of Agricultural Engineering of the Indian Council of Agricultural Research (Department of Agricultural Research and Education, Ministry of Agriculture and Farmers Welfare, Government of India is engaged in research and development of new technologies for better utilization of cotton and its by-products with following Mandate:

- Basic and strategic research on processing cotton and its agro-residues, development of value added products and quality assessment.
- Skill development and business incubation services and function as a referral laboratory for cotton fibres.

It has well equipped laboratories for characterization of cotton & its by-products and testing of textiles and other materials.

About the Training program

Newer materials are being developed every day for diversified applications and to meet the consumer demand for improved performance. It is true even for the basic human needs of food and clothing. Food has to be nutritious and free from harmful substances such as heavy metals and pesticides. Similarly, textiles today not only meet the basic human need for clothing and fulfill various quality parameters but are also expected to have various functional characteristics such as antibacterial, flame retardant, UV protective etc. Spectroscopy and chromatography are the two modern techniques which prove to be very helpful in study and characterization of materials. Various forms of spectroscopy such as UV-Visible Spectroscopy, FITR, and Atomic Absorption Spectroscopy (AAS) are powerful tools in characterization of any material. Chromatographic techniques such as HPLC on the other hand are separation tool where compounds of interest present in a complex matrix are separated and then identified and characterized. A thorough knowledge of these methods is very much important for the researchers, students and personnel working in the industry. This unique training programme on spectroscopic and chromatographic methods for material characterization has been designed by ICAR-CIRCOT for the benefit of the industry personnel as well as researchers to provide them hands on training and to acquaint them with the basics of these techniques and their applications.

Objectives

- ✓ To acquaint the trainees about basic and advanced spectroscopic and chromatographic methods for the characterization of materials including textiles.
- ✓ To demonstrate various analytical techniques and to provide hands on training.

Course Content

- Overview of spectroscopic and chromatographic techniques for material characterization.
- Quantification and identification of compounds using UV-Visible spectroscopy.
- Analysis of fluorescence properties using spectrofluorimetry.
- Colour measurement using CCM and determination of UPF by UV transmittance measurement
- Molecular structure characterization with FTIR and Raman spectroscopy.
- Principles of chromatography and Analysis of volatiles by gas chromatography
- Separation principles and quantification using HPLC.
- Elemental and heavy metals analysis using AAS and ICP-MS.
- Use of AI tools for Data Interpretation.
- Machine learning techniques for FTIR spectra analysis.
- Hyperspectral data and its analysis.

Training fee

The Programme fee is Rs. 8000/- +18% GST per participant. The charges include course fee, course material and working lunch. The fee does not include travel, lodging, conveyance and other personal expenses. Students and academic participants would be charged Rs. 5000/- +18% GST as course fee.

Facilities available

- UV – Visible spectrophotometer
- Spectrofluorimeter
- FTIR Spectrophotometer
- UPF analyzer

- Advanced Computer Colour Matching system (CCM)
- Atomic Absorption Spectrophotometer (AAS)
- ICP-MS
- High-Performance Liquid Chromatography (HPLC)
- Gas Chromatograph (GC)
- Gas Chromatograph-Mass Spectrophotometer (GC-MS)

Date and Venue

August 17-19, 2026 at ICAR Central Institute for Research on Cotton Technology (CIRCOT), Adenwala Road, Matunga (East), Near Five Gardens, Mumbai – 400019

How to reach ICAR-CIRCOT, Mumbai

From Airport (Domestic)	10 km
From Airport (International)	12 km
Nearest Railway Station	Dadar
Land Mark	Five Gardens, Matunga (East) (Opp. Customs Quarters)
Google Map Link	https://goo.gl/maps/fst1KuarqCnYA5T26

Accommodation

Guest house accommodation at ICAR-CIRCOT is limited and shall be provided at standard rate on first-come-first-served basis for 10 participants on sharing basis.

Registration

Interested participants may submit their application in the prescribed format in google form https://tinyurl.com/circotmh.Last date for Registration is August 14, 2026. After confirmation from the organizer, the fee has to be paid to the mentioned institute account number by NEFT transfer/UPI.

Account Name	Director, ICAR-CIRCOT	QR Code
Bank Name	State Bank of India, Commercial Branch, Dadar East,Mumbai400014	
Account No	10001710244	
IFSC Code	SBIN0004114	

Programme Director	:	**Dr. S. K. Shukla,** Director, ICAR-CIRCOT, Mumbai
Course Director	:	**Dr. N. Vigneshwaran** HoD, CBPD
Course Coordinators	:	Dr. A. Arputharaj, Senior Scientist Dr. Manoj Puniya, Scientist Dr. Kanika Sharma, Scientist Dr. Jyoti Dhakane-Lad, Scientist

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