

*ICAR Short Course*  
*On*  
**ADVANCES IN APPLICATIONS OF  
NANOTECHNOLOGY IN AGRICULTURE**

**(Jan 29 to Feb 8, 2024)**



Organized by  
**ICAR-Central Institute for Research on Cotton Technology  
(ICAR-CIRCOT)**

Adenwala Road, Matunga, Mumbai 400 019, Maharashtra, India



**भारत  
ICAR**

Sponsored by

**Indian Council of Agricultural Research**

New Delhi 110012

## INTRODUCTION

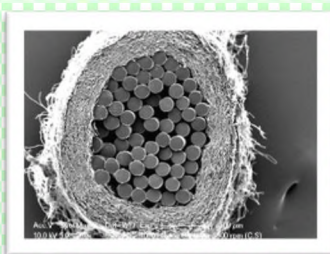
ICAR-Central Institute for Research on Cotton Technology, established in 1924, a premier constituent institute of Indian Council of Agricultural Research, is engaged in carrying out basic and strategic research in processing of cotton & its agro-residues, development of value added products and quality assessment of cotton. The Institute extends effective technological support to the country's cotton breeding programme for varietal development with improved productivity and quality that suits industry needs. ICAR-CIRCOT is an ISO 9001:2015 certified institute and is an accredited laboratory under NABL (ISO 17025:2015), functioning as Referral Laboratory for cotton textiles.

## ABOUT THE TRAINING PROGRAMME

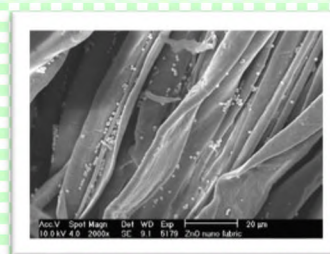
Nanotechnology deals with the manipulation of atoms, molecules, or molecular clusters into functional structures to create functional materials and devices of vastly different properties. The first use of the concept of 'nanotechnology' was in "*There's Plenty of Room at the Bottom*", a talk given by physicist Richard Feynman in 1959. ICAR-CIRCOT, a leader in the field of nanotechnology applications in agriculture & allied sectors, cotton textiles, sensors and biocomposites, has over two decades of experience and expertise in nanomaterials synthesis, characterization and applications. In 2015, India's first Nanocellulose Pilot Plant was commissioned and dedicated to the nation. On the occasion of Centenary Year (2023-24) celebration, this nanotechnology training is being organized to impart basic and advanced knowledge of nanotechnology and its applications in agriculture and allied sectors.



*Nanocellulose Pilot Plant*



*Core-sheath nanofibers*



*Nanoparticles on cotton fibres*

## OBJECTIVES

- ✓ To acquaint the participants with recent advances in the field of nanotechnology
- ✓ To impart hands-on training on synthesis & characterization of nanomaterials and their applications
- ✓ To demonstrate the application of nanomaterials in agriculture & allied sectors, textiles, composites, pulp & paper, filtration and sensors
- ✓ To sensitize the participants about business potential of nanotechnology along with life cycle assessment, safety and toxicology of nanomaterials

## CURRICULUM

A series of lectures and practical demonstrations will cover the basics of nanotechnology, synthesis and characterization of various nanomaterials their application in agriculture & allied sectors, textiles, composites, pulp & paper, filtration and sensors. This Institute is well equipped with machineries for nanomaterials synthesis (high energy & shear homogenizers, ball mills – planetary & cryogenic, friction grinder, membrane reactor & fermentor) and instruments for characterization (AFM, DLS size and zeta analyzer, Laser diffraction size analyzer, SEM, FTIR, AAS, XRD, fluorescence microscope, fluorimeter).

## HOW TO APPLY

For online application, register at <http://cbp.icar.gov.in/> and fill up the form, submit and take a printout and send the same duly forwarded by the competent authority to the Course Director on or before 15<sup>th</sup> Jan 2024. A non-refundable registration fee of Rs. 50/- (Rupees Fifty only) in the form of an Indian Postal Order / Demand Draft drawn in favour of “Director, CIRCOT” payable at Mumbai should be sent along with the application form. Payment can also be made online in the account of “Director, ICAR-CIRCOT”, SBI A/c No. 10001710244 and IFSC code SBIN0004114. In such a case, the transaction details need to mentioned in the application form.

## ELIGIBILITY

Applicant should have Master’s Degree in agriculture or related basic science and working not below the rank of Scientist in ICAR institutes or Assistant Professor in any of SAUs / Central Agricultural University / Deemed University / General University with agriculture faculty and Krishi Vigyan Kendra. The total number for participants will be restricted to 25. Selection will be primarily based on the above said eligibility conditions and first-come-first-serve basis.

## BOARDING & LODGING

Participants will be paid travel fare of to and fro journey by rail or bus as per their entitlement, restricted to the maximum of AC II Tier. TA will be paid on production of valid tickets. Free boarding will be provided. **Free lodging will be provided on first-come-first-serve basis, on sharing basis.** Since the accommodation is very limited in our guest house, participants are requested to arrange for their stay, if possible. Cash allowance in lieu of boarding & lodging are not permitted. Participants are requested not to bring their family members with them, as the Institute has limited guest house facilities.

## HOW TO REACH CIRCOT, MUMBAI

From Airport (Domestic)	: 10 km
From Airport (International)	: 12 km
Nearest Railway Station	: Dadar (1.0 km)
Nearest Bus Stops	: Kopol Nivas in Dr. Ambedkar Rd, Five Gardens
Google Map Location	: <a href="https://maps.app.goo.gl/5KQqkzJurvTJFn9A8">https://maps.app.goo.gl/5KQqkzJurvTJFn9A8</a>

## WEATHER

February is the winter season in Mumbai and it will be comfortable. The average temperature fluctuates between 18 and 31°C. No rain is expected.

## IMPORTANT DATES TO REMEMBER

Last date for receipt of nomination	: Jan 15, 2024
Intimation to selected participants	: Jan 16, 2024
Course commencement	: Jan 29, 2024

## ORGANIZERS

<b>Director, CIRCOT</b>	<b>: Dr. S. K. Shukla</b>
Course Director	: Dr. N. Vigneshwaran
Course Coordinators	: Dr. A.K. Bharimalla and Dr. A. Arputharaj

## ADDRESS FOR CORRESPONDANCE

**Dr. N. Vigneshwaran FNAAS**

Principal Scientist & Course Director

ICAR-Central Institute for Research on Cotton Technology

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Updates are available at [circot.icar.gov.in](http://circot.icar.gov.in)