

## **NITK SURATHKAL**

Since its inception in 1960, the National Institute of Technology Karnataka (NITK), Surathkal has established itself as a premier Institution engaged in imparting quality technological education and providing support to research and development activities. NITK has conferred the status of an Institution of National Importance vide NIT Act No.29 of 2007 by Govt. of India and is consistently ranked as one of the top ten technical institutions in India. Presently, NITK offers 9 Bachelors, 28 Masters and Doctoral Degree programs. The institute is located 22 kilometers north of Mangalore City along the Kanyakumari-Mumbai National Highway-66, amid 300 acres of sylvan surrounding with the picturesque Western Ghats on the east and sun-kissed sands of the Arabian Sea to the west.

NITK is committed to enhancing the capabilities and potential of our human resources with the objective of transforming them into leaders in their chosen areas of interest. Our vision is to strive for excellence, be globally competitive in technical education and focus on knowledge assimilation, generation, and dissemination. The year-long activities during the occasion showcased the glorious contributions of NITK in various fields of its activities and projected new initiatives for the coming years.

## **DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

The Department of Metallurgical and Materials Engineering (MME), one of the oldest Department at National Institute of Technology was established in the year 1965 with an objective to impart education and training in Metallurgical Engineering.

The Department offers one UG course and three PG level courses (Process Metallurgy, Materials Engineering, and Nano Technology). The Department has been active in carrying out funded R&D projects and many facilities for research are added in recent years. The Department has shown strong presence in the areas of physical metallurgy, solidification, quenching, powder metallurgy, corrosion, ceramics, polymer, metal joining and forming. Some of the advanced facilities include TEM, SEM with EDS, FTIR, XRD, Optical Microscope with digital imaging, micro hardness, and impedance setup testing facilities are available for research and consultancy.

## **ABOUT THE E-WORKSHOP**

Surface characterization plays a significant part in understanding the surface structure-property relationships and suitable material applications. With the advance in science and technology, surface characterization tools have progressed extensively and they are now available to assess and facilitate in analyzing the surface properties of the materials. While the surface characterization is a vital arena for materials scientists, it remains as a crucial aspect for all engineering areas and sciences. In spite of being a multidisciplinary pursuit, understanding and interpreting data from surface characterization tools can be difficult and misleading. In view of this, it is extremely important to know about the various surface characterization tools such as X-ray diffraction, scanning and transmission electron microscopies, atomic force microscopy, UV-Visible spectroscopy, X-Ray photoelectron spectroscopy, nanoindentation etc. and their applications. At the same time, it is considerably essential to utilize the obtained results carefully for better and correct conclusions. The current E-Workshop provides a great opportunity in learning and understanding the above-mentioned surface characterization tools and their usage in appropriate applications.

## **ATTENDING THE E-WORKSHOP WILL HELP THE PARTICIPANT TO**

- Learn basic and emerging trends in surface characterization tools applications
- To understand how surface characterization to support the various materials
- Learn important aspects of surface characterization tools

## **CONTENTS OF PROGRAMME**

- **Advanced materials and their characterization**
- **SEM and HRTEM**
- **X-Ray photoelectron spectroscopy**
- **Fundamentals of EBSD & analysis of metals using EBSD**
- **Atomic force microscopy**
- **Texture and residual stress analysis**
- **Nanoindentation**

Lectures will be delivered by Faculties & Scientists from IISc, IITs, Premier Research Laboratories, Foreign Universities and Industries.

## **ELIGIBILITY AND SELECTION CRITERIA**

Programme is open to Faculties, Research Scholars and PG students of Engineering Colleges in the Department of Metallurgical & Materials Engineering and related Engineering and Science disciplines. Filled-in registration form in PDF should reach [sctaworkshop2020@gmail.com](mailto:sctaworkshop2020@gmail.com) on or before 5<sup>th</sup> Dec, 2020. The selected participants will be informed via an email before 8<sup>th</sup> Dec, 2020. APPLICATION SHOULD BE SENT THROUGH E-MAIL ONLY.

## **REGISTRATION**

There is no registration fee for NITK students and Non-NITKian for attending the E-workshop for five days. The E-certificate will be provided through registered e-mail.

## **RESOURCE PERSONS**

1. **Prof. B. S. Murty**, IIT Hyderabad
2. **Prof. N. Ravishankar**, IISc Bangalore
3. **Prof. Kantesh Balani**, IIT Kanpur
4. **Dr. Harish C. Barshilia**, NAL Bangalore
5. **Dr. Anirban Chowdhury**, IIT Patna
6. **Dr. Sairam K. Malladi**, IIT Hyderabad
7. **Dr. Mohammad Imteyaz Ahmad**, IIT (BHU)
8. **Dr. Ashutosh Kumar Dubey**, IIT (BHU)
9. **Dr. Md. Waseem Akthar**, Jamia Millia Islamia
10. **Dr. Badri Narayanan**, University of Louisville, USA
11. **Dr. Sraddha Vachchani**, Iowa State University, USA
12. **Dr. Maya K. Kini**, Max Planck Institute, Germany
13. **Dr. Ajmalghan M**, Université de Bourgogne, France
14. **Dr. Pavan Pujar**, SKKU, South Korea
15. **Dr. Sidhanth Tyagi**, Sorbonne Universités, France
16. **Dr. Mangesh Mahajan**, Malvern Panalytical
17. **Dr. Rohit Sarkar**, Intel USA
18. **Dr. Karanveer Singh Aneja**, Talga Resources Ltd

## REGISTRATION FORM

**(SUBMIT THIS FORM ELECTRONICALLY IN PDF - DO NOT POST - Editable registration form is attached with the mail and is also available on NITK website)**

National Institute of Technology Karnataka, Surathkal  
Srinivasnagar, Mangaluru 575025, India.

### Five-day National E-Workshop on Surface Characterization: Tools and Applications (SCTA-2020) 14th - 18th of December 2020

Name : .....

Designation: .....

Organisation: .....

Mailing Address: .....

PIN: ..... Telephone: .....

Mobile: ..... Email: .....

### DECLARATION BY THE PARTICIPANT

The information furnished above is true to the best of my knowledge. I agree to abide by the rules and regulations governing the programme. If selected, I shall attend the programme for the entire duration. I also undertake the responsibility to inform the Coordinator sufficiently in advance, in case I am unable to attend the programme.

Date: ..... Signature of Applicant

### SPONSORSHIP CERTIFICATE

Certified that Dr./Mr./Ms ..... is an employee of our institute and is hereby permitted to attend the Five-day National Workshop on Advanced Materials and Characterization Techniques", if selected.

Signature of the Head of the Institution/Department  
(with seal)

Place:

Date:

## Five-day National E-Workshop on Surface Characterization: Tools and Applications (SCTA-2020) 14<sup>th</sup> - 18<sup>th</sup> of December 2020 Sponsored by TEQIP PHASE-III



### Chief Patron

**Prof. Karanam Umamaheshwar Rao**

Director

National Institute of Technology Karnataka, Surathkal

### Patron

**Prof. K. Narayan Prabhu**

Professor and Head,

Dept. of Metallurgical & Materials Engineering

National Institute of Technology Karnataka, Surathkal



### Organized by

**Department of Metallurgical and Materials Engineering  
National Institute of Technology Karnataka  
Surathkal, Srinivasnagar P.O., Mangaluru-575 025**

[www.nitk.ac.in](http://www.nitk.ac.in)

## HOW TO REACH NITK

Being situated right on the NH-66, the Institute is very well connected by bus routes to the North and South. Mangaluru is also connected by NH-48 to Bengaluru and there are a number of luxury buses plying daily between Mangaluru and Bengaluru all through the day. Surathkal, on the Konkan Railway line (linking Mumbai to Kanyakumari), is the nearest railway station and is a stopover for most trains passing through Konkan Railway. While Surathkal and Kankanady (Mangaluru Jn.) are the closest alighting points for visitors coming by train from north: Mangaluru Central is the terminus for many trains from South India. The Mangaluru (Bajpe) airport is just 20 km from the campus.

## IMPORTANT DATES

**Last date for receipt of application: 1<sup>st</sup> Dec, 2020**

**Intimation of selection (via an e-mail): 5<sup>th</sup> Dec, 2020**

**Confirmation by participant: 8<sup>th</sup> Dec, 2020**

## WORKSHOP VENUE

**E-Seminar: Microsoft Teams**

## CONTACT INFORMATION OF CO-ORDINATORS

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