

Report

One-week Short Term Course on “Cutting edge Advancements in Biomedical Engineering (CABE 2024): Lab to Industry (CABE-2025)” (Self-Sponsored) held from April 16th - April 20th, 2025.

The One week Short Term Course on “Cutting edge Advancements in Biomedical Engineering (CABE 2025): Lab to Industry (CABE-2025)” inaugurated on April 16, 2025. This event is organized by Instrumentation and Control Engineering Department. Dr. Richa Sharma initiated the STC program by welcoming the guests and participants, and introduced Chief Patron, Patron, Co-Patron, General Chair, Organizing Chair, Conveners and Coordinators.

Hon'ble Worthy Director Prof. Binod Kumar Kanaujia, NIT Jalandhar blessed the online STC course.

Prof. (Dr.) K S Nagla, Head, Department of Instrumentation and Control Engineering highlighted the achievements of Department and welcomed the audience.

The course was coordinated by Dr. Deblina Biswas, Dr. Richa Sharma, Dr. Anil Kumar Yadav, and Dr. Mahendra Kumar.

Dr. Deblina Biswas highlighted the course objective and importance to the audience.

Total number of Participants: 63 from different-2 background such as, UG, PG, PhD, Faculty members at various level, and Industry persons.

The experts from various reputed national and international Institutions, Prof. Pradip Paik, IIT BHU; Dr. Arindam Bit, NIT Raipur; Dr. Indranil Banerjee, IIT Jodhpur; Dr. Jyoti Yadav, NSUT; Prof. Kunal Pal, NIT Rourkela; Dr. Madan Perumal, CFTRI Mysuru; Dr. Shreya Das, System Integrator, Image Guided Therapy - System (IGT-S), Philips, The Netherlands; Dr. Sreerup Banerjee, Director & CEO, Steroviz Pixels Pvt. Ltd; Dr. Anupam, Hampton University, USA; Dr. Saugat Bhattacharya, Ulster University, UK, delivered the experts talks on different-2 aspects of “Cutting edge Advancements in Biomedical Engineering”, during April 16th - April 20th, 2025.

At the last day, during the valedictory program, Participants given suggestions and feedback about the program and they are much interested in upcoming version of this event. Finally, the vote of the thanks was delivered by Dr. Mahendra Kumar and Dr. Anil Kumar Yadav.

Dr. Pradip Pal (Presenting)

Sustained NO production by macrophages

This bar chart shows the sustained NO production by macrophages. The y-axis represents NO production (µM) and the x-axis represents time (hours). The data shows a significant increase in NO production after 24, 48, and 72 hours of treatment, reaching a plateau around 100 µM.

11:25 AM | ppt-bndu-inv

Indrani Banerjee (Presenting)

Phototherapy encompasses a range of treatments that use light to manage various medical conditions

Types of Phototherapy

- Red Light Therapy (Low Level Laser Therapy/LLLT)
- Blue Light Therapy
- Photodynamic Therapy (PDT)

10:14 AM | ppt-bndu-inv

Jyoti Yadav (Presenting)

Some Commonly Used Biomedical Signals

Fig. 1. Illustration of commonly used biomedical signals.

2:39 PM | ppt-bndu-inv

Kunal Pal (Presenting)

Spectroscopic Techniques

- UV-Vis spectroscopy:** Operated in the range of 190-900nm. Used for analyzing the absorbance spectra of food samples.
- Near-infrared spectroscopy (NIRS):** Operated in the range of 700-2500nm. Used for effectively measuring key components such as moisture, protein, fat, and carbohydrates in various food samples.
- Infrared spectroscopy:** Operated in the range of 2.5-50-5000cm⁻¹ (4000-200 cm⁻¹). Used for measuring the vibrations of molecular bonds such as C-H, O-H, N-H, and C=O.
- Raman spectroscopy:** Operated in the range of 2500-200,000cm⁻¹ (4000-50 cm⁻¹). Used for detecting changes in the molecular structure and composition of food products.

10:22 AM | ppt-bndu-inv

Dr. Perumal Malar Kumar (Presenting)

Obesity

Prevalence of Obesity

2:39 PM | ppt-bndu-inv

Shreya Das (Presenting)

Strain calculations (principal)

10:38 AM | ppt-bndu-inv

Sneha Banerjee (Presenting)

Customisation in healthcare

2:20 PM | ppt-bndu-inv

ANUP D (Presenting)

Surface-enhanced Raman scattering (SERS)

10:28 AM | ppt-bndu-inv

Saugat Bhattacharyya (Presenting)

cBCI works better

2:49 PM | ppt-bndu-inv

Dr. Mahendra Kumar

Dr. Anil Kumar Yadav

4:34 PM | ppt-bndu-inv