



DST funded Five-day online workshop on

Advances in Mechanical Engineering for Biomedical Applications

July 11 - 15, 2022

Organized By

Department of Mechanical Engineering
National Institute of Technology Karnataka (NITK), Surathkal

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About The Workshop

Biofluid dynamics and Bio3D printing have emerged as a research area in mechanical engineering for developing improved therapies for human body-related diseases and disorders and developing optimized devices for various biomedical applications like drug delivery, sperm sorting and separation, DNA synthesis, cancer treatment etc. These integrated studies bring together basic and applied scientists (including computational scientists), device developers, and physicians to study problems of high clinical importance. The challenge is to link fundamental bio-transport processes and application-based medical technology to biomedical engineering tools integrated into clinical practice with the help of analytical, numerical, and experimental studies. The proper matching of experimental and computational techniques with actual patient diagnosis, *in vitro* and *in vivo* experimental study, and device performance to predict and treat pathophysiologic conditions, defects, and diseases is of prime interest in biofluid dynamics study. With this perspective, the main focus of this workshop is to encourage young researchers to explore various experimental and computational techniques in the field of biofluid dynamics and Bio3D printing in developing efficient devices for biomedical applications.

About NITK

Since its inception in 1960, the National Institute of Technology Karnataka (NITK), Surathkal, has established itself as a premier institution imparting high-quality technical education. NITK has been 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 India's top ten technical institutions. Presently, NITK offers nine bachelor's, 28 Master's and Doctoral Degree programs. The institute is 22 km north of Mangalore City along the Kanyakumari - Mumbai National Highway-66, amid 300 acres of sylvan surrounding the picturesque Western Ghats on the east and sun-kissed sands of the Arabian Sea to the west.

DST Scientific Social Responsibility initiative

DST-SERB - Scientific Social Responsibility initiative can boost mentoring in science. The Department of Science and Technology (DST), along with Science and Engineering Research Board (SERB), has developed a Scientific Social Responsibility (SSR) initiative, which aims to spread the benefits of research beyond the borders of the direct beneficiaries, especially to schools and colleges, universities and institutions in and around the location of the research. The initiative intends to effectively utilize the R&D infrastructure and expertise of

researchers to benefit other S&T stakeholders and the society and embed a participatory, inclusive, and sustainable culture of social responsibility among research grantees

Registration

There is no registration fee. Faculty, research scholars and students of engineering colleges, national laboratories, and industry personnel can register for the workshop by filling the details in the registration link below.

Registration Link: <https://forms.gle/ZPijsGUKH6kHMFwD7>



Important Dates

Registration Open: 10 AM, June 11, 2022

Registration Close: 5 PM, July 4, 2022

The seats are limited, and the registration will be first-come-first. The workshop will be conducted online mode. The link will be shared with the participants through the registered email id.

Resource persons and topic

Eminent professors from IIT, NIT, foreign universities and physicians from well-known hospitals will be delivering the lectures. The sessions will be focused on the following topics.

- CFD Simulations of the human circulatory system
- Additive manufacturing and bioprinting for biomedical applications
- Biomaterials and 3D printing
- Immersed boundary method based simulations for biomedical flows
- Lattice Boltzmann method simulations in biofluid dynamics
- Opportunities and challenges in biofabrication of tissues by 3D bioprinting
- Modeling and simulation of carotid artery
- Modeling of multiphase flows in the biomedical field

Contact Us

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