



### Vision of the Department

To be a globally recognized centre of excellence in the field of biomedical engineering where learners are nurtured in a scholarly environment to evolve into competent professionals to benefit society

### Mission of the Department

- Evolve a curriculum which emphasizes on strong engineering fundamentals with the flexibility to choose advanced courses of interest and gain exposure to tools and techniques in Biomedical Engineering.
- Encourage a teaching-learning process in which highly competent faculty share a symbiotic association with the institutes of repute.
- Facilitate creation and dissemination of biomedical engineering knowledge through a digitally-enabled learning environment.
- Develop academic and infrastructural facilities with modern equipment and other learning resources and encourage reciprocal sharing with other institutes through networking.
- Establish a centre of excellence to enhance academia – biomedical industry partnership and work on collaborative projects.

### Programme Educational Objectives (PEO)

- To enable the pursuit of knowledge in the field of Biomedical Engineering and contribute to the profession and employability of the students.
- To engage in research, generate the employment through entrepreneurship and work effectively in multidisciplinary environment.
- To understand the human, social, ethical and environmental context of their profession and contribute positively to the needs of individuals and society.

## WHAT'S INSIDE

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- Prof. Neelam Punjabi
- Prof. Arunkumar Ram

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- Mr. Vishwas Jindal

### Impulse-2022

## PROF. DR. JITENDRA TORAVI

HEAD OF DEPARTMENT, BIOMEDICAL ENGINEERING

Hello Everyone,

I am happy to announce that in the month of March Expert Committee from UGC visited our Campus and after thorough examination has granted Autonomy Status to the Institute for the next 10 Years.

We have started our academics partially in offline mode following all safety guidelines. As per the guidelines received from Mumbai University, June-2022 examinations will be conducted in Offline Mode.

I would also like to inform all our stake holders that Biomedical Department has successfully submitted the application to National Board of Accreditation (NBA) for third cycle of accreditation.

After University Examination I encourage all my students to take up Internships at various organization.

Stay Safe Stay Healthy



“ All of us do not have equal talent. But, all of us have an equal opportunity to develop our talents. ”  
 -Dr. A.P.J. Abdul Kalam

## Impulse-2022

Biomedical Engineering Department conducted its Annual Technical Festival-Impulse 2022 . Due to COVID Pandemic the entire festival had to be conducted in Online Mode. The festival included Informative Sessions, Hands on Workshop and fun events.. The event was jointly organized by BMES-VIT Chapter and BMSA Student Chapter. Prof. Geetha Narayanan and Prof. Neelam Punjabi Coordinated the event with their core student Team members.

The first event of Impulse-2022 was a webinar on “Robotic Process Automation”. The webinar was delivered by Mr. Parth Doshi, Consultant at WanderBotz, and Creator of The RPA Rookies. The session was conducted on 10<sup>th</sup> February 2022. Mr. Parth Doshi started the webinar with an introduction about RPA and the nature of his work. The other main topic covered was the Utilization of RPA in Healthcare, which is of utmost importance when it comes to Medical Device Manufacturing.

The second event was a webinar on “Continuous Renal Replacement Therapy (CRRT)” given by Mr. Uday Ningawale, an expert in designing and planning dialysis units and is currently operating at Education Services & Clinical Management at Renal Consulting Services Pvt. Ltd. Mr. Ningawale focussed on the current technology and clinical applications of CRRT Technique. The session was conducted on 12<sup>th</sup> February 2022.

The third event was a webinar on “Introduction to Robotics with ROS” delivered by Mr. Abhinav Anantharaman on 19<sup>th</sup> February 2022. Mr. Anantharaman happens to be our Alumni of 2018 Batch and currently a Firmware Engineer for Robotics at Aeolus Robotics, Inc.

**ROBOTIC PROCESS AUTOMATION [RPA]**

5:30PM  
 10.02.2022  
 MS TEAMS

SCAN TO REGISTER

**PARTH DOSHI**  
 Consultant @WanderBotz  
 The RPA Rookies, Creator

**INTRODUCTION TO ROBOTICS WITH ROS (ROBOT OPERATING SYSTEM)**

19th February, 2022  
 10a.m. to 12p.m.  
 MS-Teams

SCAN TO REGISTER

**Mr. Abhinav Anantharaman**  
 Robotics Developer

Glimpses of the Impulse-2022: Biomedical Annual Technical Festival

## Department Staff

**PROF. NEELAM PUNJABI**  
 ASSISTANT PROFESSOR



**EDUCATION QUALIFICATION:**  
 M.E. INSTRUMENTATION ENGINEERING

**TEACHING EXPERIENCE:**  
 12 YEARS

**AREA OF SPECIALIZATION:**  
 CONTROL SYTEMS  
 HOSPITAL MANAGEMENT  
 INSTRUMENTATION  
 MEDICAL IMAGING

**PROF. ARUNKUMAR RAM**  
 ASSISTANT PROFESSOR



**EDUCATION QUALIFICATION:**  
 ME-BIOMEDICAL ENGINEERING

**TEACHING EXPERIENCE:**  
 11 YEARS

**AREA OF SPECIALIZATION:**  
 MEDICAL IMAGING  
 BIOMEDICAL INSTRUMENTATION  
 BIOMATERIALS  
 MEDICAL SENSORS

## Impulse-2022 continued...

The fourth session was a motivational talk on Redefine the Possibilities conducted on 21<sup>st</sup> February 2022. The speaker for the session was Mr. Danesh Kanagaraj, Founding Director at Aclude Foundation and 5x TEDx speaker. Mr. Kanagaraj's talk was focused on challenges that youngsters face these days, including overthinking, self doubt, comparison, negativity fear of judgement etc, and how these challenges always bring about opportunities, and how it can make life more interesting.

A hands-on workshop on Data Exploration with Orange was conducted on 22<sup>nd</sup> and 23<sup>rd</sup> February 2022. The speaker for the workshop was Mr. Khan Muhammad Saqiful Alam who is Program Manager for South Asian Region at TikTok. Mr. Khan gave students and hands-on training on Orange Software. Orange is an open-source data visualization, machine learning, and data mining toolkit. It includes a wide range of data visualization, exploration, preprocessing, and modeling techniques.

The last webinar of the Impulse-2022 was on the topic Overview of Robotics In Surgery. This was delivered by Mr. Satish Kulkarni, Clinical Head at CMR Surgical and Mr. Durgesh Todankar, Clinical Support at CMR Surgical. Both the speakers focussed on use of modern surgical robots on Healthcare.

## Know an Alumnus

Mr. Vishwas Jindal (2016 Batch)

**Vishwas Jindal is an alumnus of VIT , passed out in the year 2016 from the Biomedical Engineering Department.**

I am currently a PhD Candidate at University of Florida. I am working on a research project which aims to determine the neural and behavioral mechanisms underlying motor skill learning and optogenetic stimulation in intact and stroke mice.

Without the support of faculties here at VIT, and the amount of exposure I got with the help of field visits, seminars and the paper presentation for each subject, the transition to another country wouldn't have been smooth. Furthermore, the coursework and the projects helped in gaining practical experience. VIT helped not only building strong foundation but also helped in overall grooming of my personality.

For a piece of advice to all you amazing future engineers, firstly I will say you have chosen an amazing field which is booming. If you are planning to pursue Masters from abroad, try to take some industry experience before going as it will help you in learning fast and finding a job later. And secondly, never stop exploring and always keep yourself updated with the current trends in our field.

Keep learning and keep growing



## STUDENT ARTICLE

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## Tissue Engineering "Got an issue? Get a Tissue!" (Rutuja Jangam-T.E. STUDENT)



Tissue Engineering a Medical Engineering discipline that utilizes a blend of cells, designing, materials strategies, and proper natural science and synthetic science variables to keep up with, improve, or supplant varying sorts of organic tissues.

Tissue Engineering ordinarily includes the work of cells set on tissue platforms at spans the arrangement of most recent suitable tissue for a clinical reason anyway isn't confined to applications including cells and tissue frameworks. While it had been once categorized as a subfield of biomaterials, having completely filled in degree and significance. It is considered as a field in its own.

Discussion of advancement is focused on three specific clinical applications of tissue engineering: Cardiac tissue remodelling for the treatment of heart failure; Nerve regeneration for the treatment of cerebrovascular accident(stroke); and Lung reconstruction for the treatment of chronic obstructive pulmonary disease. In addition, the stem cell field is a rapidly advancing part of regenerative medicine, and new discoveries in this field create new options for this type of therapy. Advancement in the research of artificial organs and artificial skin has resulted as boon for the living creatures. Even the special laboratory is setup in other countries by scientist for the research of never dying cells and tissues.

Finally, to increase the economic scalability of the models and permit high throughput applications, recent developments in cell biology, Tissue engineering, microfluidics and biomaterials are now being integrated in microfluidically perfused organ on chip models.

The future of regenerative medicine and TE relies on the power of scientists and clinicians to “mimic nature” in arising with innovative biomaterials and technologies such as nanotechnology to advance this field.

Recent progress suggests that engineered tissues may have an expanded clinical applicability in the future and may represent a viable therapeutic option for those who would benefit from the life-extending benefits of tissue replacement or repair.

### THE EDITORIAL TEAM

PROF. ARUNKUMAR RAM

Chief Editor