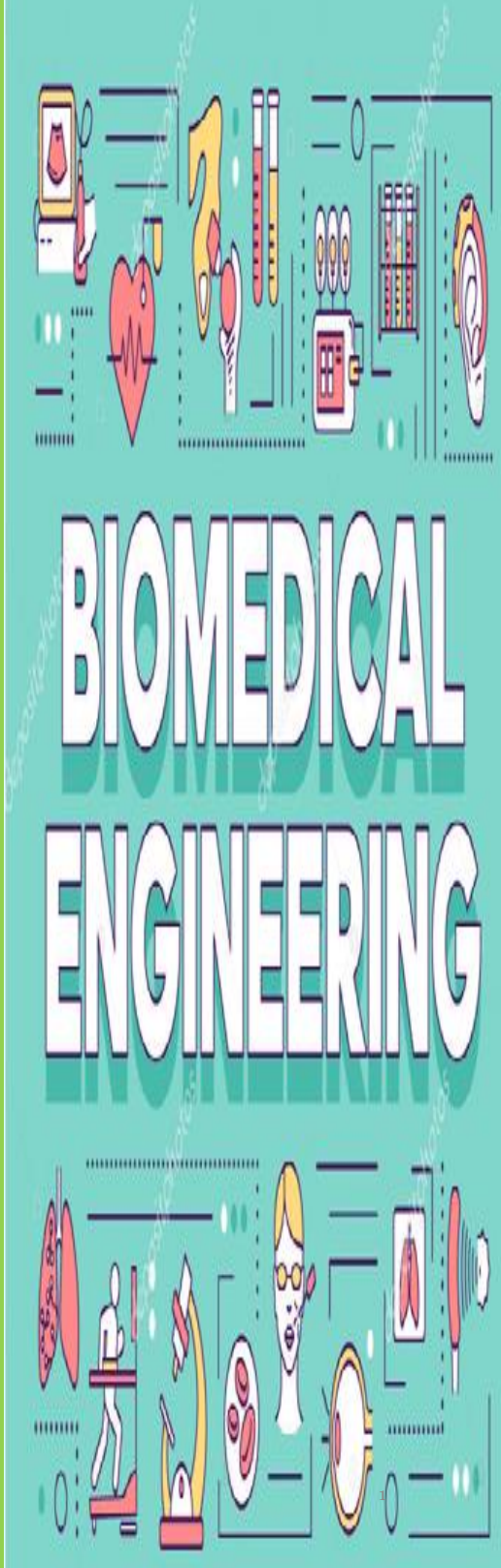
Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

Department of Biomedical Engineering



Annual Report 2021 -22

School of Electrical & Communication

Founders
Vel Tech Group of Institutions

Col. Prof. Dr. Vel. R. Rangarajan B.E.(Elec.), B.E.(Mech.), M.S.(Auto.), D.Sc.

Founder & Chairman

Dr. Sagunthala Rangarajan M.B.B.S
Foundress & Vice Chairman

Foreword

On behalf of Vel Tech, I am pleased to introduce this Annual report of the department of Biomedical Engineering for the year 2021-22 Biomedical Engineering is a multidisciplinary field that blends biology and engineering. Biomedical engineering applies the principles and theories of engineering to solve problems in the wide-ranging field of medicine.

Since its inception in 2017 at Vel Tech, the Department of Biomedical Engineering provides a forward-looking curriculum that is most suited for people wanting to learn and apply engineering skills and successfully translate research discoveries to real world applications by bridging the traditional disciplines of biology, medicine and engineering to drive healthcare forward. It is notable that they are keen to provide rich practical experience by taking students directly to hospitals to get real-life exposure.

Students have excelled both in co-curricular and academic activities i.e., from participating in smart India hackathon competitions to presenting papers in various conferences. These things would not have been possible without the encouragement of highly qualified and skilled faculty. We appreciate the entire department, faculty members, staff, and students who have sweated hard to bring success to the department and the institution. We believe this annual report will unfurl the entire events, achievements, and accolades of the department, institution, staff, and students.

Mrs. Rangarajan Mahalakshmi Kishore
Chairperson & Managing Trustee

Foreword

I am delighted to introduce the Annual report of Biomedical Engineering for the academic year 2020-21. It cabinets the commitment of faculty on various activities which supports the progression to achieve mission and vision of the department as well as Institute. This annual report demonstrates the enormous efforts taken by all the faculty members of the Biomedical Engineering department to make learning a joyful one through teaching pedagogies using ICT tools and to strive the students towards innovation. I congratulate the department faculty members and students for the sustainable development to reach heights every year.

Biomedical Engineering is one of the recently emerging fields which is multidisciplinary providing more values to mankind. I appreciate all the faculty members who formed various research groups such as Artificial Intelligence, Signal Processing for Brain Computer Interface, Medical Image Processing, Nano Biosensors & Nanomaterials to carry out extensive research works related to biomedical discipline.

My hearty wishes for all the faculty members and students for their achievements in this academic year. I really congratulate the department for producing quality, self-motivated and creative engineers needed by the society to face unprecedented challenges such as Covid-19. I am most grateful to everyone who has helped to make this year a success.

Prof.Dr.S.Salivahanan B.E., M.E.,Ph.D
Vice Chancellor

Foreword

I am pleased to express my thoughts on the annual bulletin for the Department of Biomedical Engineering for the academic year 2021-2022. Apart from traditional courses, the inclusion of latest technologies in the form of specializations like Artificial Intelligence in Healthcare, and Precision healthcare, in the Department of Biomedical Engineering can bring a paradigm shift in the academics and might further increase the work opportunities for students globally as well as in the research and development field.

I appreciate the faculties for their contributions in both academics and research. I am really happy to observe that our students are not only persistent, committed, and focused in their academic and project work but also creative in their thought processes. I am proud to note that most of the final year students in batch 2018-2022 got placements in different companies including software and biomedical core companies.

I am extremely happy that the remaining students have opted for higher education in national and international environments. I am grateful to express my gratitude to the Head of Department and the Biomedical Engineering Faculties for their continued guidance and support for the development of the students. This annual report brings a detailed summary of the countless activities and outstanding accomplishments of the students and faculties. Keep up the work and best wishes.

Prof Dr. V. Jayasankar, B.E.,M.E.,Ph.D.
Dean School of Electrical and Communications

Foreword

It is with great pride that I present to you the Annual report of the department of Biomedical Engineering for 2021-2022. As we know that this past year will be remembered as one of the most unique and challenging periods of time in our history since we resumed offline classes once again. The department of Biomedical Engineering continued to create new ways of teaching, learning, researching, collaborating and growing. Also, the tools, knowledge, motivation and mentoring were given to students to develop and manage a successful professional career.

Throughout the past year, we were proud to see numerous biomedical Undergraduate students become graduates of our university. Furthermore, I am very happy to observe that our students are actively participated and won prizes in inter college events such as paper presentation, project work etc. While we celebrate the successes of the academic year 2021-2022, we also look to the future. From my perspective, the innovation in teaching is about examining what we need to be offering our students in a globally connected and technology centric world.

The department of Biomedical Engineering has introduced the latest technologies in the form of specializations like AI in Healthcare, and Precision Medicine that keeps the university competitive, innovative and transformative. In this annual report you will read about the biomedical department commitment to students through career training, industry-institute engagement, employer relations and diversity & inclusion. I look forward to sharing the plan in future reports.

Table of Contents

Department at a Glance

The department of Biomedical Engineering was established in the year 2017 under the school of Electrical and Communication of Engineering with an aim to connect engineering and biology. True to its mission of merging engineering with science and medicine the department is propelling itself to become the major educator in Biomedical Instrumentation and allied engineering by employing a diverse workforce. Over the period of three years, the department has raised to the standards of world class laboratories by setting up Brain Computer Interface(BCI) from open BCI. The department introduced a major pedagogical shift by incorporating integrated lab courses in the curriculum with the motive of giving learn by doing experience to the students.

Programmes Offered

- B.Tech -Biomedical Engineering
- B.Tech Biomedical Engineering Specialization in AI in healthcare*
- B.Tech Biomedical Engineering honors in Precision healthcare technology
- Ph.D in Biomedical Engineering (Full time and part time)

Sanctioned Intake

UG
60

Ph.D.
3

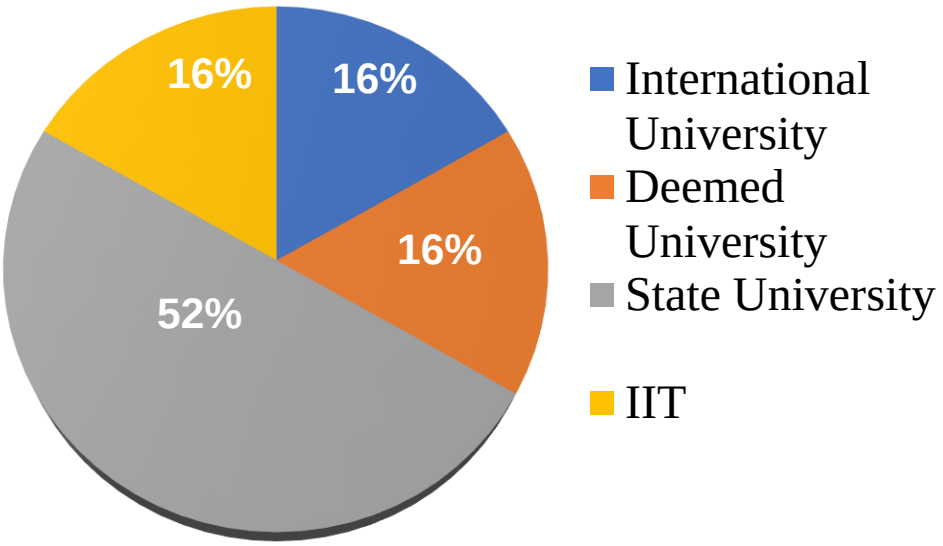
Recognitions & Accreditation

- Institute ranked 95 2020 and 89 - 2019 under Engineering Category
- Institute ranked in the band of 201- 300 for SDG9 as per THE Impact Rankings 2021
- Institute Categorized as 'Band A' rank between 6-25 by Atal Ranking of Institutions on Innovation Achievements 2020
- Institute recognized by UGC Higher Quality Education for all programmes
- Institute Accredited with 'A' Grade by National Assessment and Accreditation Council
- Institute recognized by All India Council for Technical Education

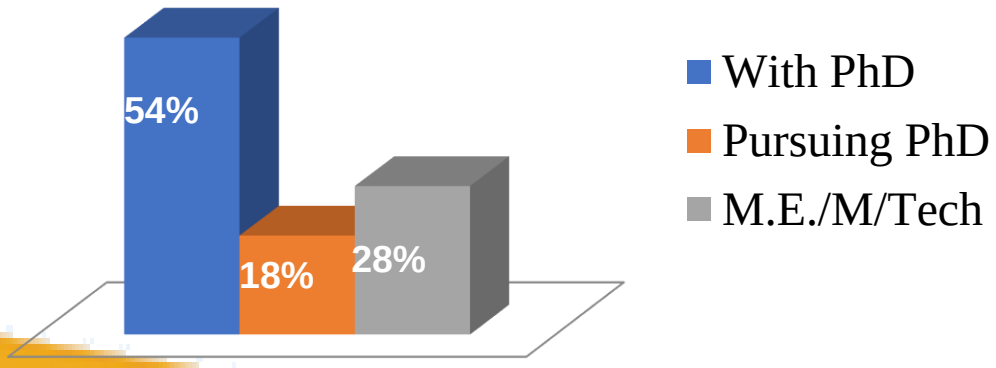
Our Faculty

The department of Biomedical Engineering is equipped with an enthusiastic, creative, young and qualified Faculty team lead by Dr.N.M.Masoodhu Banu, Head of Department, Biomedical Engineering. Faculty members are specialized in different domains such as Artificial Intelligence (AI), Signal Processing, Image Processing, Brain Computer Interface(BCI), Nano Materials, Nano Biosensors.

Snap shot of Faculty



Faculty Qualification



Diverse Faculty

Just as our faculty members bring professional experience to the classroom, they also bring ethnic diversity and gender equality.

In Numbers

11
Total Faculty

9%
Professors

18%
Associate Professors

73%
Assistant Professors

54%
Faculty with Ph.D.,

6 years
Average Teaching Professional Experience

1:15
Faculty - Student Ratio

About the Programme

Biomedical Engineering is a niche engineering branch which deals with the study of engineering principles applied in the medical field. This field tries to close the gap between engineering & medicine. The growth of Biomedical Engineering with computer science is inevitable and it led to incredible changes in healthcare industry. It is also an interdisciplinary field that it combines the aspect of mechanical engineering in designing the prosthetics movements, electrical engineering in designing motors for the movements and computer science engineering, signal processing in designing diagnostic system like cancer detection and COVID 19 using MRI images and chemical engineering in identifying protein within cells.

The health care outflow is likely to witness an increase due to the rise of awareness and population growth. There is an increase in the number of people seeking biomedical solutions for their heath issue, which we witness currently with usage of pulse oximeter due to covid. This will eventually witness a rise in the employment graph of biomedical engineers. Both Forbes and CNN Money have labeled biomedical engineering as the best health care career out there. These facts are enough to prove that the career growth of biomedical engineers is likely to be much faster than the average pace of all other occupations.

Department Vision and Mission

Vision

Biomedical Engineering Department aims

To be recognized by the society at large as an excellent department, offering quality higher education in Biomedical Engineering and thereby enable the graduates to serve and strengthen the Indian healthcare sector and excel at an international level

Mission

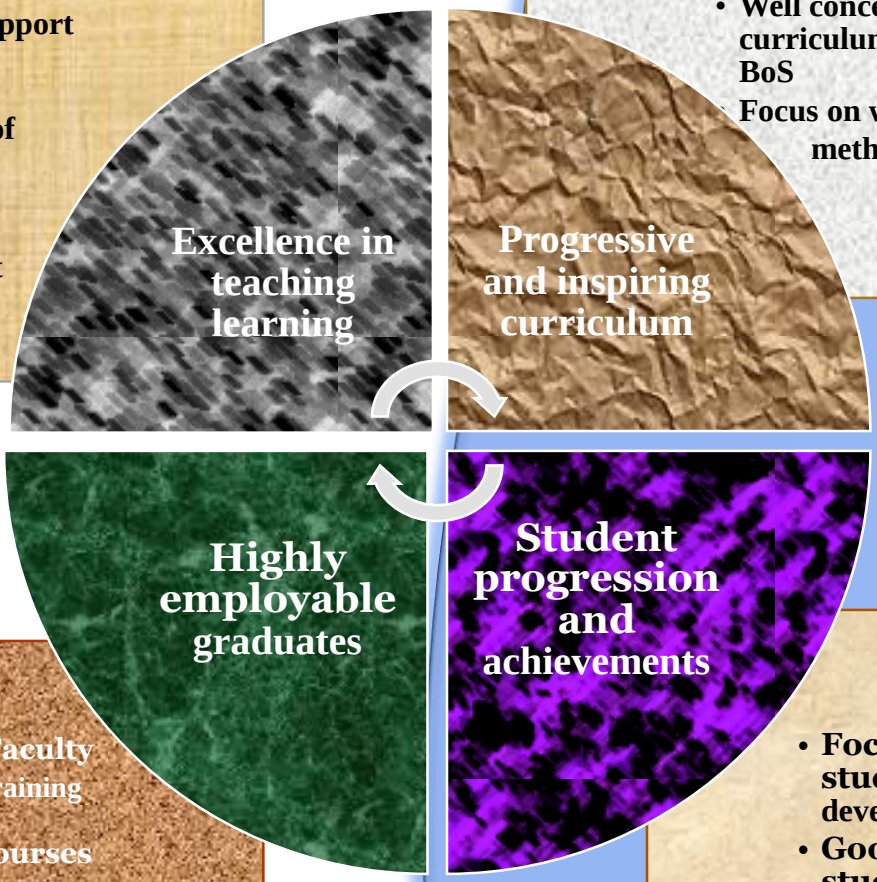
- Infuse critical thinking skills by providing strong foundation which enables them for continuing education
- Educate the students with state of the art cutting edge technology to compete in global arena
- Create research environment in the state-of-the-art biomedical engineering with the support of well experienced and respected faculty

Academic Strategies

Department of Biomedical Engineering strives hard to accomplish vision of becoming excellent department by following pre-defined strategies listed below

- Assess to highly competent Instructors
- Academic support system
- Emphasis on scholarship of teaching
- Emphasis on student engagaement

- Stake holders
- Academic Freedom
- Well conceived curriculum through BoS
- Focus on wider learning methods.



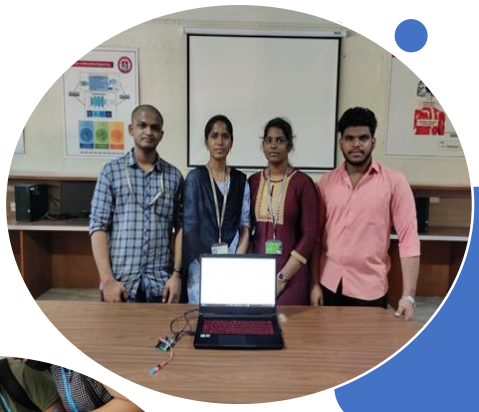
- Competent Faculty
- Placement Training
- Job oriented Integrated courses

- Focus on student development
- Good faculty student ratio
- Outcome based education

STUDENT EXPERIENCE

Surreal exposures were provided for students in order to enrich their learning experience. Revised curriculum and laboratories were provided with hospital trainings and internships to explore the subjects.

Students were helped in achieving their goals by were provided interesting educative tools, tutoring, and giving them academic counseling from time to time, to streamline their interests in the field of Healthcare.



Apply – students apply the knowledge gained to solve healthcare problems

Experience and time Analyse – labs and hospital visits help students practice their acquired knowledge

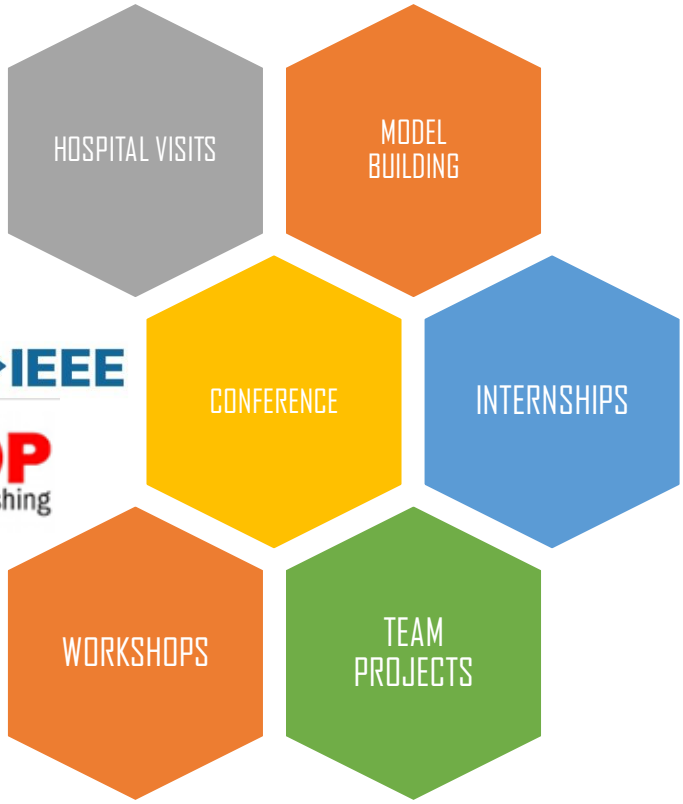
Visualise and Understand –course contents are designed with quality and verified by industry and teaching professionals

STUDENT CENTRIC METHODS

EXPERIENCIAL LEARNING

Real life experiences and understand critical conditions in healthcare is crucial to be a Biomedical Engineer.

In order to give the real time experience, the curriculum courses, hospital visits and internships were provided for real life experience. Students have arranged and volunteered in eye camp to gain ethical exposures.



MEDCUORE
TECHNOLOGY THAT REJUVENATES

IEEE

IOP Publishing

Dr. Agarwal's Eye Hospital
For eyes like new

3DVERSE
INNOVATIVE TECHNOLOGIES

AKAS TECHNOLOGIES

SIH
SMART INDIA HACKATHON 2022

Fortis MALAR HOSPITAL

rela Hospital

VISAI 2022

Team Projects are done by students as a knowledge exhibit and many students presented their works in IEEE and IOP Conferences. Hospital visits are regularly arranged for surreal experience, during internships and workshops along with model building enriched student knowledge.

NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

Building confidence and competence

Presentations
Seminars
Workshops
Think pair share
Mindmap
Group discussions
Field projects
Models

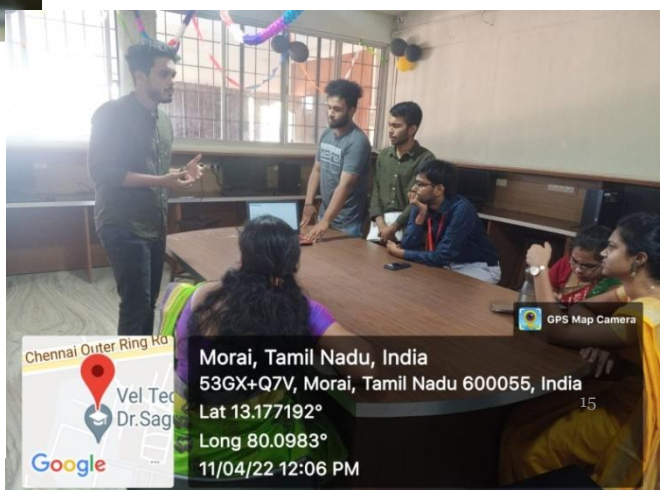
PARTICIPATIVE LEARNING

To ensure maximum activity and better outputs the courses were delivered using active learning methods The course contents are modified to ensure student participation and thereby build their creativity and communication skills. This in-turn would build their confidence and make them more competitive

FLIPPED CLASSROOM

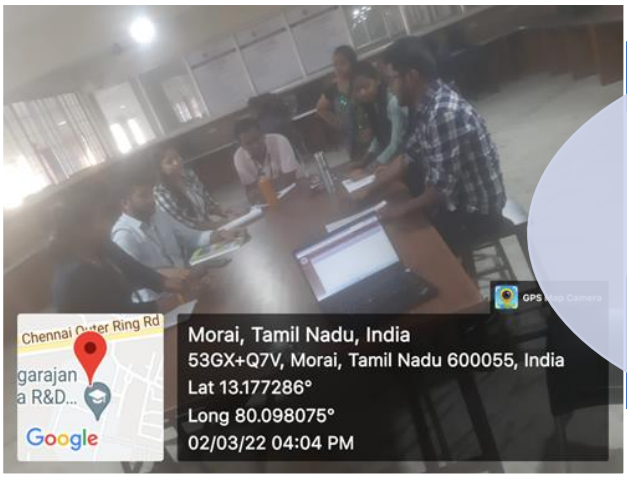
Through this approach students are helped to visualize what they hear, through videos, models and animations. This reduces the in class time and encourage the students to do self learning and explore beyond the classrooms

The **THINK PAIR SHARE** approach helps students to share their thoughts and thereby improve their communications skills besides their academic improvements



PROJECTS AND PRESENTATIONS makes the students more confident on their communication part is explaining the concept and also improves their involvement as a team.

MIND MAPPING enables seeing the whole picture after knowing the concepts is key to understanding the course content.



GROUP DISCUSSIONS, encourages participation improves their communication skills, and allows the students to understand other's views.

Student Learning Outcome Assessment & Improvement

Quick Assessments

Internal Exams, Assignments, Quiz Sessions and/or Group Discussions have been organized to achieve the course outcomes of each course offered.

Improvement Methodologies

Practices for Advanced Learners in AY 2021-22

Smart India Hackathon Projects
8 Batches

Higher Studies
10

Placement Offers
19

Conferences Presentation
6

VISAI Projects
4 Batches

Research Papers
4

Activities / Programs for Slow Learners in AY 2021-22

- Mentoring
- Remedial Classes
- Tutorial Classes
- Unit-Wise Monitor

Summer 2021-22
38 Courses

Winter 2021-22
32 Courses

Assessing Student Outcomes / Program Outcomes

Our courses include rigorous assessments/tests that help us to determine the level of learning capacity of each student. The student's competence and skills are constantly improved through the use of these tests apart from active learning processes. Additionally, they help us identify the level of expertise of each student clearly. The assessments are based on both programme and course outcomes.

Attainment of Program Outcomes - AY: 2021-22

Engineering Knowledge	2.6/3
Problem Analysis	2.6/3
Design/development of solutions	2.5/3
Conduct investigations of complex problems	2.6/3
Modern tool usage	2.7/3
The engineer and society	2.4/3
Environment and Sustainability	2.8/3
Ethics	2.8/3
Individual and Teamwork	2.8/3
Communication	2.9/3
Project management and finance	1.5/3
Life-long learning	2.6/3

Curriculum Enrichment

In the Academic year 21-22, the Department of Biomedical Engineering has introduced precision healthcare technology as an elective course in VTUR15 regulation and also introduce two new program core courses control system and biomaterials considering the feedback from the stakeholders and the students in the 'VTU UGE 2021'. To bring in the above-mentioned course in the program core, we have combine signals and system with digital signal processing, analog and electronic integrated circuits with digital electronics, and microcontroller and processor with digital signal processor.

Curriculum highlight-key parameters

Choice Based Learning	•Student has full freedom to choose their courses based on their interested field of studies whether it can be a program core or specialization or honours from the department or any minor degree from the other department in the 'VTU UGE 2021'
Outcome Based Learning	•Module coordinators will identify the course outcome/ goals and tuned the teaching learning and assessment process according to the previous performance of the student by including active learning methods.
Multidisciplinary Initiative	•Students are motivated to explore in other field of studies where they can analyse, understand, and apply the concept while designing the solution for the societal problem and contribute for the betterment of the society with the knowledge gained from the curriculum
Student Centric Learning	• Faculties encourage the student and help them to gain more knowledge in the core domain and to improve their academic skills by encouraging them to do presentations and develop a prototype.
Student Learning Experience	•Through our active learning teaching methodology students are guided towards engagement in content and thereby learning new skill
Step Towards Higher Education & Research	•Our curriculum is designed to prepare graduates to fit in healthcare industries, hospitals, higher studies and research and development. Moreover, the students are motivated to present their innovative ideas for the start-ups.
Connection to the Society	•Health is the most important part of our life. Our curriculum fully deals with improving the healthcare facilities for our society by filling the gap with creative ideas by arranging hospital visits and interacting with healthcare personnels

Curriculum Design from 2021-2022

Biomedical Engineering is a multidisciplinary branch of engineering where both the medical and engineering knowledge are required. The main focus of this branch is to provide a better healthcare system by identifying the real world problem and analysing the possible solution that can improve the wellbeing of a person. Students will be enlightened with the fundamentals of human body, basic electronics, programming that are applicable to solve any real world problems.

Pogramme Offered

B.Tech (BME)

- This programme will provide the students the basic courses required to be studied in biomedical engineering. In this category the student has to study only the program core and program elective courses.
- The overall credits required to complete the programme is 164 credits

B.Tech (BME) with Honors

- In this programme the student will be provided with the additional scope along with the deeper knowledge in the field of Biomedical Engineering
- In this programme, the student has to earn 18 more credits in addition to B.Tech (BME) programme.

B.Tech (BME) with specialization (AI in Healthcare)

- This programme is mainly designed for the student who wants to have more depth of knowledge in specific field.
- In this programme, the student has to earn 18 credits by enrolling specialized elective instead of program electives

B.Tech (BME) with Minors

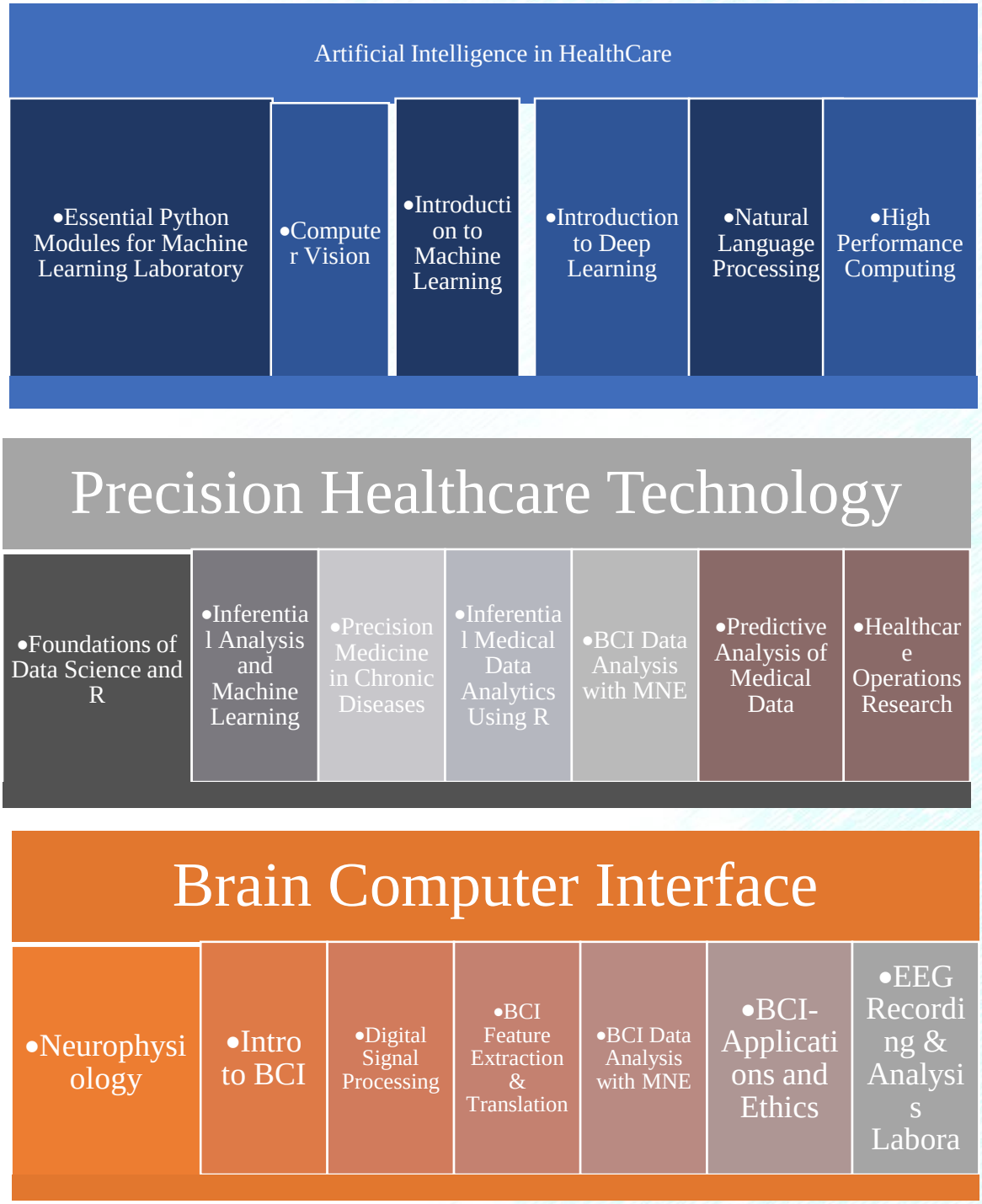
- This programme is mainly designed for the other programme student who wants to learn about the biomedical engineering and apply their knowledge for the biomedical research problems
- The students need to earn extra 18 credits other than the major programme credits

Specialization/Honors/Minor

- AI in Healthcare (Specialization)
- Brain Computer Interface (Minor)
- Precision healthcare (Honors)

12

Major Courses offered under Specialization



B.Tech (Artificial Intelligence in Healthcare) (with Specialization)

About us

This programme is mainly designed for student who wants to explore artificial intelligence used in healthcare technology. In this programme, the student has to earn 18 credits by enrolling the specialized elective instead of program electives. The overall credits required to complete this programme is 164 credits.

Outcome

- Relate AI with Business of Medicine
- Acquire knowledge in AI tools and techniques used in medicine for detection and diagnosis of diseases.
- Design and development of medical applications using Machine learning and Deep Learning techniques

B.Tech (Precision Healthcare Technology) (Honors)

About us

In this programme, the student will be provided with the additional scope along with the deeper knowledge in the field of Biomedical Engineering. In this programme, the student has to earn extra 18 more credits in addition to B.Tech (BME) programme. The overall credits required to complete this programme is 182 credits.

Outcome

- Explore the data science, tools for data science and R language
- Analyze Medical datas using Different tools
- Adapt themselves to the growing fields of data science research
- Demonstrate proficiency in data science to design precision healthcare system
- Explore critical thinking, teamwork, professional and ethical issues to excel high

B.Tech (Brain Computer Interface) (with minor)

About us

In this programme, the student will be provided with the additional scope along with the deeper knowledge in the field of Biomedical Engineering. In this programme, the student has to earn 18 more credits in addition to B.Tech (BME) programme. The overall credits required to complete this programme is 182 credits.

Outcome

- Explore the neurophysiology of human brain
- Analyze different signal processing approaches used for BCI applications
- Formulate and solve the real word problem using edge cutting technologies
- Adapt themselves to the growing fields of BCI research
- Explore critical thinking, teamwork, professional and ethical issues to excel high

Employability Focus

TrAck 1

Problem solving courses

These courses will help the student in finding solution for complex problems. The courses are offered to 2nd and 3rd year students.

TrAck 2

Emerging Areas

- Healthcare is the recent field of research where many people are focussing. To enlightened our students with the recent trends in healthcare sector we have incorporated courses like BCI, DICOM, COMSOL, Nanotechnology, Robotics in medicine, biomedical informatics, Rehabilitation Engineering in our curriculum

TrAck 3

Prototype development

- With the theoretical knowledge gained, we encouraged our students to develop a working prototype for courses like biomedical instrumentation, rehabilitation engineering and anatomy and physiology.

TrAck 4

Academics Projects and seminar

- Students are motivated to implement their ideas into real-time products with the help of faculties and present the same in conferences. Mentors are assigned based on their area of expertisation. This helps the student to use their skills and improve their practical knowledge by troubleshooting the problem faced. The seminar helps the student to improve their communication skill and introduce an environment to work as a team and perform brainstorming.

TrAck 5

Coding Practice

- The training for coding has been given by both the placement department and BME department to ensure the student become experts in C, MATLAB, and python language programming and prepare them for industry.

TrAck 6

National qualifying exams

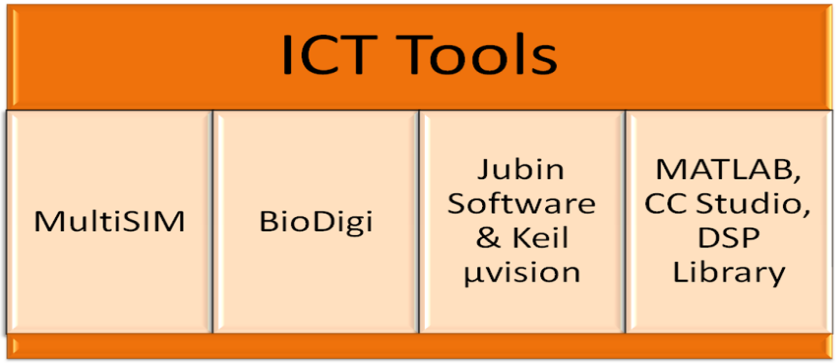
- The partnership between Indian Biomedical Skill Council (IBSC) and our department facilitates training to the student and certifies them to apply for biomedical job across India.

Teaching and Learning

In response to post COVID-19 pandemic, the regular classes were resumed offline once again. Our faculties put more efforts to brought active involvement of students in the learning process. Also, we mentored and motivated the students periodically to make teaching-learning process more effective.

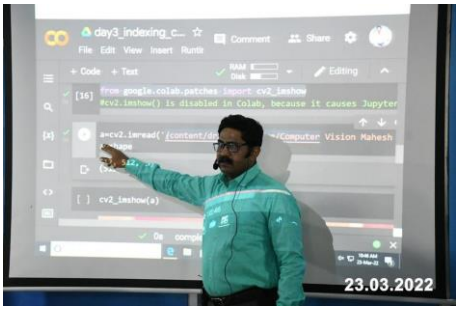
ICT Tools Usage:

Our faculty members of the biomedical department utilized various ICT resources for theory, practical and laboratory dominated theory classes to bring interactive and effective teaching learning methods. Also, the recorded lecture videos were shared to students for future reference.



The Blending of Industry & Academia:

The students with more hands-on education and industry exposure bridge the gap between industry and academia. Our biomedical department organized programs for students such as webinars, workshops etc. on various topics to explore the competencies and skills required by industry so that more and more students are getting inspiration to get into industries.



Cutting Edge Technologies Offered

In this academic year 2021-22, the Department of Biomedical Engineering has introduced various courses related to cutting edge technologies for the students to pursue and possess right set skills to acquire knowledge and success in future.

Artificial Intelligence in Healthcare

- Introduction to Machine Learning
- Introduction to Deep Learning
- Natural Language Processing
- Essential Python Modules for Machine Learning
- Computer Vision

Precision Healthcare Technology

- Foundations of Data Science and R
- Inferential Analysis and Machine Learning
- Precision Medicine in Chronic Diseases
- Inferential Medical Data Analytics using R
- Predictive Analysis of Medical Data
- Healthcare Operations Research

- Drone in Healthcare

Elective Courses Offered

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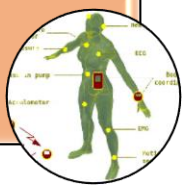
PROGRAM ELECTIVE

•05

ALLIED ELECTIVE



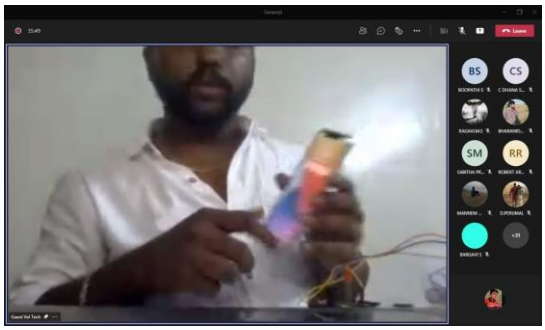
•04

INSTITUTE ELECTIVE

Industry/Higher Learning Institute Courses

Our Bio Medical Engineering Department organized Industry/Higher Learning courses by professors from eminent foreign institutions and experts from industries they are offered every semester for the betterment of students which helps the students to do innovative projects/Internships and to pursue Higher studies in foreign universities. In the academic year 2021-22, totally three courses were offered which were delivered by eminent industry experts.

Industry/Higher Learning



IOT using Healthcare

Nanda Infotech Pvt. Ltd

Research and Development

- Publications in SCI/Journals - 02
- Industry Consultancy Projects - 01
- Journal Reviewer - 04
- Publications in Conferences - 13
- Published Book/Book Chapters - 01

Our Bio Medical Engineering Faculties published their research works in the peer reviewed journals such as Materials Today: Proceedings, Journal of Green Engineering, Biomedical and Pharmacology Journal and more. Also, the faculties presented and published their research findings in International Conferences.

2.097 & 10

H-index & Citations

Research Groups

Artificial Intelligence	*This research faculty group involves research in Artificial Intelligence for automated disease diagnosis.*
Medical Image Processing	*The group focuses on medical image analysis techniques such as quantification, Computer Aided Diagnosis and Evaluation & Validation.*
Signal Processing for BCI	*This group focuses on Signal Processing applications in the medical field, for example Brain Computer Interface.*
Nanomaterials	*This research area focuses on the synthesis and development of the Nano materials for biomedical applications.*

PUBLICATIONS IN JOURNALS

Dr.N.M. Masoodhu Banu

- Gaming Pedagogy for Effective Learning in Engineering College.
- Internet of Things based Fall Predication and Alerting Device.
- Swift and Secure Medical Data Transaction.

Dr. Thiyam Deepa Beeta

- Signal Processing for hybrid BCI.
- Automatic Control of Blood Pressure for Rectifying Hyper and Hypotension Using Music Therapy.
- Natural Language Processing based Human Assistive Health Conversational Agent for **Multi-Users.**
- Comparison and Analysis of Performance Using Different Classifiers for Classification of Motor Imagery EEG Signals.

Dr. G. Saranya

- Complex Contourlet Transform Domain Based Image Compression.

Dr. K. Ganesh Lenin

- Rod-shaped ZnO nanoparticles: synthesis, comparison and in vitro evaluation of their apoptotic activity in lung cancer cells.

Dr. A. Paramasivam

- Internet of Things based Fall Predication and Alerting Device.
- Analysis of Deep Learning Algorithms for Intelligent Plant Disease Identification.

S. Vennila Preethi

- Design of Smart Therapeutic Device for Insomnia.

J. Dhana Sony

- IOT based Infant Healthcare Monitoring System.

R. Shelishiyah

- Signal Processing for hybrid BCI.

Research Project Sanctioned

Internal Funding (On-Going)

Multiclass motor imagery EEG signals classification for Brain Computer interfacing systems
By
Dr. Thiyam Deepa Beeta

Rs. 3,50,000/-

Compressed sensing using optimization techniques
by
Dr. G. Saranya

Projects (On-Going)

Consultancy Project

Microcontroller based process recorder
by
Dr. A. Paramasivam

Rs. 25,000/-

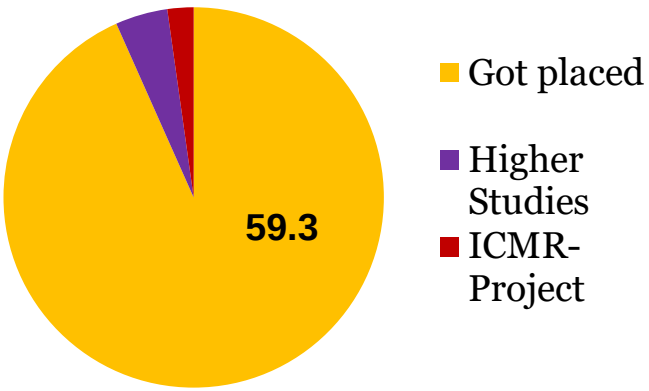
Foreign Collaboration Project

Target Recognition using UWA in Under water environment.
by
Dr. A. Paramasivam

5,000 USD (7,000,000 KRW)

Graduate Outcomes Employment offers

The Department of Biomedical Engineering had a fruitful year in the academic year 2021-2022 which saw various companies approach us in their hunt for fresh talent for their organizations. Among the total eligible students, 59.3% of students got placed, 2 student got higher education, and 1 student got ICMR project technician – I.



accenture

Subhiksha Masilamani
Priyadharshini R
CTC: 4,40,500/-

icmr RMRCPB
INDIAN COUNCIL OF MEDICAL RESEARCH | REGIONAL MEDICAL RESEARCH CENTRE, PORT BLAIR

Praveen Kumar
Robert Aravind
ICMR – Project
CTC: 4,34,560/-

Cognizant

KEYENCE

Higher Education

Higher education makes the person more professional and they will also gain many work-related skills. In the academic year 2021-2022, 2 students progressed to higher education in reputed universities with good QS Ranking University authorization.

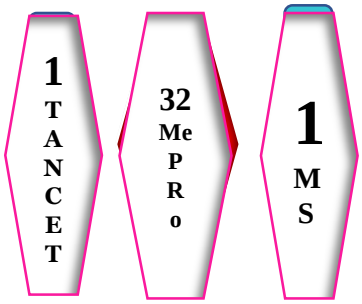
SWETA JHA

SHRINIDHI

National/International Level Examinations:

IELTS/GRE/BEC/MePro/TANCET

In order to pursue higher studies in reputed universities abroad, students are required to go through examinations like IELTS, MePro, or GRE and at thee state level they should clear TANCET which our students have cleared. 100% of the students in the academic year 2021-22 have cleared BEC.



MS PROGRAMME

SWETA JHA
VTU 13630

CLEARED TANCET

SHRINIDHI
VTU 11687

Student Satisfaction

Student's feedback on curriculum, programmes and courses, provide an important input about the way we teach and learn at BME. We have always encouraged our department to reflect on the student feedback collected and channel it back into improving the delivery of the courses in subsequent semesters.

Student Feedback on Curriculum

1-5 scale, 5 = Excellent

- Technological Advancements
- Related to the needs of industry/society
- Relevance of Courses providing Employability
- Intellectually Motivates
- Fulfilling your expectations
- Job related Knowledge and Skills
- Interest to pursue Post-graduation/Research
- Materials and references easily found
- Objectives stated for each of the courses
- Competencies expected out of the courses

Student Feedback on Course Delivery

1. **Heard words and phrases of Teacher**

   1-5 scale, 5 = Strongly Agree
   4.5 /5

2. **Teacher explained important concepts / ideas**

   1-5 scale, 5 = Strongly Agree
   4.4 /5

3. **Students were encouraged to ask questions**

   1-5 scale, 5 = Strongly Agree
   4.4 /5

4. **Teacher took extra care for slow learners.**

   1-5 scale, 5 = Strongly Agree
   4.3 /5

5. **Teacher used appropriate teaching techniques** 1-5 scale, 5 = Strongly Agree
   4.4 /5

6. **Could access required materials easily**

   1-5 scale, 5 = Strongly Agree
   4.4 /5

7. **Learned and understood the subject materials** 1-5 scale, 5 = Strongly Agree
   4.4 /5

8. **Teacher discussed all the course outcomes**

   1-5 scale, 5 = Strongly Agree
   4.4 /5

9. **Teacher completed syllabus portion in-time**

   1-5 scale, 5 = Strongly Agree
   4.5 /5

10. **Teacher assessed and evaluated students fairly**

    1-5 scale, 5 = Strongly Agree
    4.5 /5

11. **Teacher showed evaluated answer scripts**

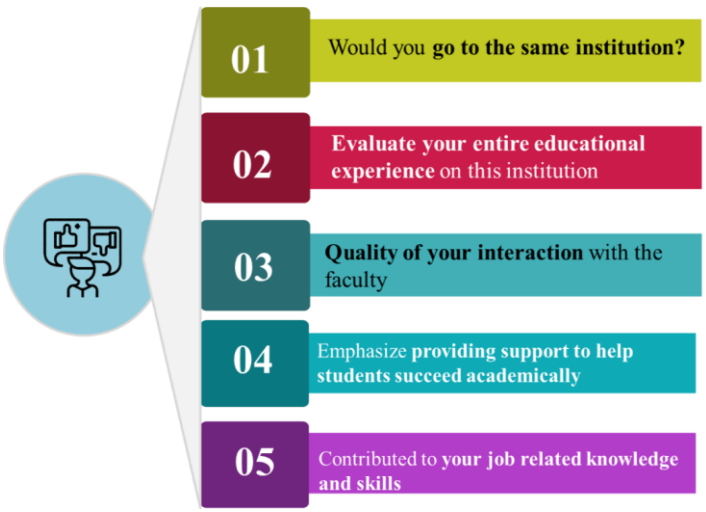
    1-5 scale, 5 = Strongly Agree
    4.5 /5

12. **Teacher was dynamic and energetic**

    1-5 scale, 5 = Strongly Agree
    4.4 /5

Programme End Feedback

Programme End Feedback have been collected from graduated students. Overall, students have given good response for all the parameters.



Overall Satisfaction:

87%

Programme End Feedback Statistics for each parameter

If you could start again, would you go to the same institution?

How could you evaluate your entire educational experience on this institution?

Indicate the quality of your interaction with the faculty at this institution

How much does your institution emphasize providing support to help students succeed academically?

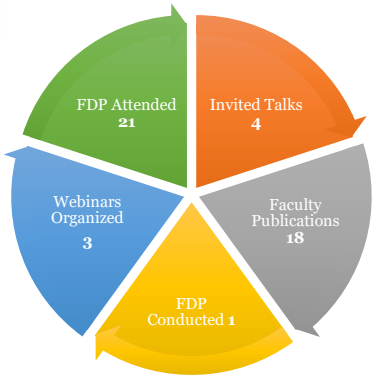
How much has your experience at this institution contributed to your job-related knowledge and skills?

To what extend have your courses challenged you to do your best work?

Students were satisfied with the program.

Faculty Professional Development

Our department is equipped with Enthusiastic, Creative, young and qualified faculty team lead by Dr. N. Masoodhu Banu. Our Faculty are specialized in diverse domains such as Artificial Intelligence(AI), Signal & Image Processing, Brain Computer Interface(BCI), Nano Materials and Nano Biosensors.



Faculty are encouraged and provided with resources and support. It helps team to be a successful teacher & researcher which ultimately helps our students.

Our faculty members are provided with professional development learning experiences including,

- ✓ Workshops and training events
- ✓ Sharing their experiences with peers
- ✓ Mentoring

Research Motivation

The department is strongly focused on research. Young faculty are motivated to do research by providing seed funding from the Institute. In addition, after thorough scrutinizing by external experts from IITs and NITs, some projects are approved to go for DST and other government funding agencies

Student Enrichment

Our students are recognized for their achievement throughout the year in both inter and intra college competitions.

01

selected for the project “Cognitive load and upper limb prosthesis use” under the guidance of Prof.Usha Kuruganti the field of kinesiology in University of New brunswic, Canada.

Ms. Shrinidhi Ganesh

02

Got remote internship in North Carolina state University under Dr. Arvind for Lung on Chip design and Masters program in Taiwan Yuan Ze University

Ms. Swetha Jha

03

Got remote internship in North Carolina state University under Dr. Arvind for Lung on Chip design

Msr. Perumal

Students are encouraged to do workshops and courses outside of the organization in order to build networking among students as well as to improve their knowledge

Participated in **7** Extra Curricular Activities

36% of the students Done Industrial Projects

Participated in **52** Technical Events

22% of the students placed in Core Companies