



# FRANCIS XAVIER<sup>™</sup> ENGINEERING COLLEGE AN AUTONOMOUS INSTITUTION

Accredited BY NBA | AICTE Sponsored Margdarshan Mentor Institution  
DST-FIST Supported Institution | ISO 9001:2015 Certified  
Recognized under Section 2(f) & 12(B) of the UGC Act, 1950



## DEPARTMENT OF MECHANICAL ENGINEERING MONTHLY NEWS – FEBRUARY 2023

### About Department of Mechanical Engineering

The department offers UG program in B.E Mechanical engineering from the year 2005. The department started a PG program M.E Industrial Safety Engineering from this academic year 2018-2019. This course has wide range of job opportunity in the Industrial and Academic sector of India as well as abroad. The Department aims at providing the students with a perfect blend of intellectual and practical experiences with the support state-of-the-art laboratories and well-defined academic structure. The UG program is accredited by National Board of Accreditation (NBA). The special feature of the Department has established three applied laboratories, in addition to the regular labs to support students to master skills to make each one industry-ready, with a solid grounding in the principles and practice of Mechanical Engineering. We also have a strong academy for training students to appear for GATE exam.

### Vision of the Department

To produce competent Mechanical Engineers of excellent technical and managerial skills with profound morality for global, national and confront societal development.

### Mission of the Department

1. To provide quality education in Mechanical Engineering with an interdisciplinary approach, encouraging innovation, research, and Entrepreneurship through world-class infrastructure and proficient teachers.
2. To make the department self-reliant through multiple programs with excellent curricula, best practices, and industry exposure.
3. To inculcate technical, professional, and leadership skills, moral ethics, and lifelong learning.

## Programme Educational Outcomes

The Bachelor of Mechanical Engineering curriculum is designed to impart Knowledge, Skill, and Attitude to the graduates to

PEO 1: Have a successful professional career in Mechanical Engineering and allied industries, either by employment or through entrepreneurship.

PEO 2: Establish competency in Design, Thermal, Materials, and Manufacturing system with ethics and social responsibility.

PEO 3: Have a continual receptiveness for leadership and social challenges.

## Message from the Head of the Department

**Dear Colleagues,  
Greetings!**

I have great pleasure and pride to announce that the Department of Mechanical Engineering is publishing the newsletter for the month of February 2023. Amidst the Covid Pandemic situation, we strived hard to keep the students engaged, and utilize the time not only for quality education and for self-development. We are steadfast in our progress as it involved various activities that enabled the hidden talents of the department students and faculty members to be brought into light. Besides the lockdown, our faculty members are continuously attending various training programs, publishing research papers, book chapters and are also working on getting patents.

This newsletter is the reflection of department activities which showcases all the events held in the department, contribution of faculty members, students and the best practices adopted. I would like to congratulate all the members of the editorial board for their sincere effort to realize this venture.



**Dr. R. Samuel Hansen, M.E., Ph.D.**  
Professor & Head  
[samuel\\_hansen@rediffmail.com](mailto:samuel_hansen@rediffmail.com)

## EDITORIAL BOARD

Dr. Dr. R. Samuel Hansen, Professor & Head of Department, Editor – in – Chief.

Dr. S. Balakrishnan, Assistant Professor, Mechanical Department, Faculty In charge.

# WORKSHOP

A “Interaction with Product Innovators & Exposure visit to Incubation Centres” was organized by Entrepreneurship Development Cell & Institution’s Innovation Council in association with the Department of Mechanical Engineering on 10th February, 2023 at 09:00 am to 04.00 pm. The program was held via offline mode. Dr.R.K.A.Bhalaji, AP/Mech inaugurated the session with welcome address.

## Forenoon Session

First of all product developers shared the ideas about how to develop the new innovative products as per recent trends in world market. Next they showed the recently developed innovative products such as drum and cylinder lifting machine, plant digging machine, IOT based mopping system, Khasaya making machine, smart agri machine, IOT based smart safety helmet and economically based E-vehicle. In addition to this, students learnt about how to develop the above innovative products using IOT, scotch yoke mechanism, arduino boards and sensors etc. Especially, students understood about how to design and develop the economically based E-vehicle and benefits of e-vehicle such as seating capacity, running time and low budget.

## Afternoon Session

In the noon session, students practiced about how to design the innovative products using solid works software. As well as students have the knowledge about how to use some advanced tools in the respective software for the purpose of making innovative products.

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Vannarpettai, Tirunelveli

**FXEC**  
INSTITUTION'S INNOVATION COUNCIL

**TOPIC**  
INTERACTION WITH PRODUCT INNOVATORS AND  
EXPOSURE VISIT TO INCUBATION CENTRES

**Organised by**  
**ENTREPRENEURSHIP DEVELOPEMENT CELL(EDC)**  
In Association with  
**Department of Mechanical Engineering**

**DATE** 10TH FEB 2023 | **TIME** 9.00AM - 4.00PM

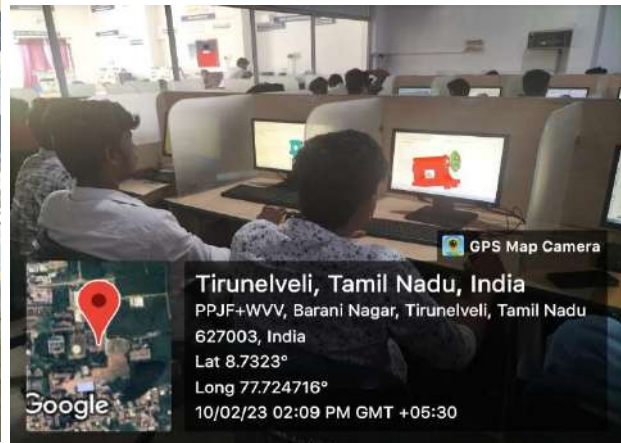
**Coordinator**  
Dr.R.K.A. Bhalaji  
AP/Mech

**Convener**  
Dr.R.Samuel Hansen  
HOD/Mech

**Dr. Lourdes Poobala Rayen**  
Director EDC & IIC President

**Dr. K. Jeyakumar**  
GM Development

**Dr. V. Velmurugan**  
Principal



## SEMINAR

A “Session on Innovative Thinking & Product Development” was organized by Entrepreneurship Development Cell & Institution’s Innovation Council in association with the Department of Mechanical Engineering on 24th February, 2023 at 01:30 pm to 04.30 pm. The program was held via offline mode. Dr.S.Balakrishnan, AP/Mech inaugurated the session with welcome address.

First of all resource person discussed about principles of innovation and also depicted about the difference between innovation & invention. He clearly said that not all innovations are inventions as well as shared about the real time examples for different types of innovation such as product (Electronic smart card), process, radical, incremental (microprocessors) and cosmetic. Regarding innovative thinking, he revealed some ideas about how to create the new innovative product as per recent trends and how to face the internal and external challenges for the new innovators. Additionally, he asked some questions to the students for instance, why the case for innovation is even stronger today? Why some innovations are popular/unpopular? He said that successful innovations are based on impact on customers, society & firm. With respect to product development, he showed the framework of New Product Development (NPD), approaches and its benefits. Resource person talked about elements of product development such as ideas generation, idea screening, concept



development, testing, business analysis, marketing strategy, test marketing and commercialization. He said that in practice NPD is not a linear process, some activities are performed simultaneously, and some radical innovations skipped some stages of the NPD process.

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INSTITUTION'S INNOVATION COUNCIL  
Ministry of Education, Government of India

FX EDC

TOPIC  
**Session on Innovative Thinking & Product Development**

**Dr. R.K.A. Bhalaji**  
Assistant Professor  
Department of Mechanical Engineering  
Francis Xavier Engineering College.  
RESOURCE PERSON

Organised by  
Entrepreneurship Development Cell &  
Institution's Innovation Council

Co-ordinator  
**Dr. S. Balakrishnan**  
Assistant Professor / MECH

Organised by  
Department of  
Mechanical Engineering

Convener  
**Dr. R. Samuel Hansen**  
HoD / MECH

**Dr. Lourdes Poopala Rayen**  
Director EDC & IIC President

**Dr. K. Jeyakumar**  
General Manager - Development

**Dr. V. Velmurugan**  
Principal

24<sup>th</sup>  
FEB, 2023  
12 PM - 4.30 PM

80%

GPS Map Camera

Tirunelveli, Tamil Nadu, India  
PPJF+WVV, Barani Nagar, Tirunelveli, Tamil Nadu  
627003, India  
Lat 8.732415°  
Long 77.724753°  
24/02/23 01:48 PM GMT +05:30

Google

## NATIONAL LEVEL ONE DAY WORKSHOP

The Department of Mechanical Engineering conducted the national level one day workshop with the entitled 'Emerging Trends in Fluid & Mechanical Simulations' on Feb 25, 2023 organized by Aeronautical Society of India, Kanniyakumari Branch in association with ISRO Propulsion Complex, Mahendragiri, Entuple Technologies Pvt Ltd, Bangalore and Francis Xavier Engineering College, Tirunelveli. Dr.T.Ramesh, Deputy Director, IPRC inaugurated the workshop with welcome address followed by Shri. J. Asir Packiaraj, Director, IPRC started his speech with inaugural address and discussed about the importance of fluid and mechanical simulations in aerospace industries. Felicitation address was given by Dr.K.Jeyakumar GM (D), SCAD group and Dr.V.Velmurugan Principal/FXEC. After that, Shri. C. Jebasiamony, Deputy Director, IPRC shared about the role of simulation tools in aerospace industries.

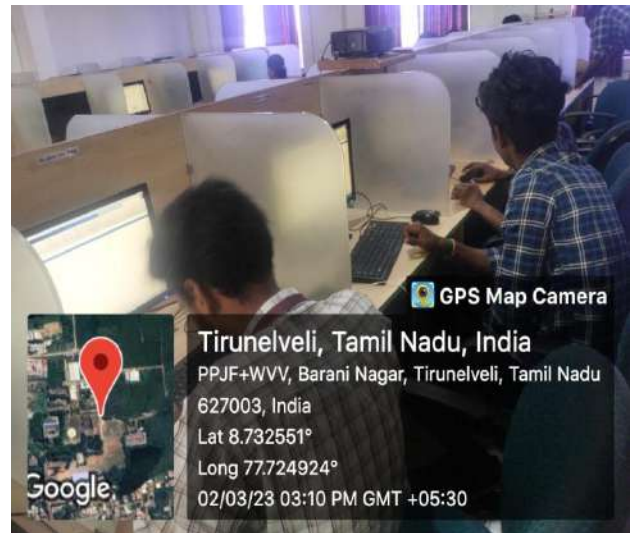
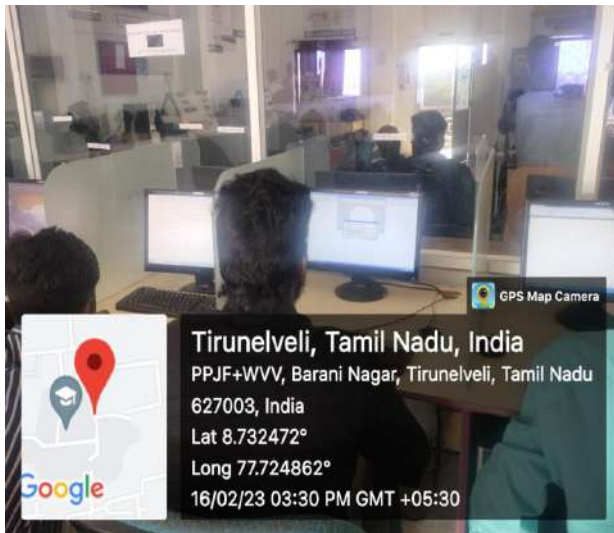
Shri. Amit Kumar, Country Manager, Aerospace and Defence Entuple Technologies Pvt Ltd talked about the capabilities of ANSYS for simulations. After that, students attended the hands

on training in Ansys (Mechanical, Fluent & HPS) with three sessions. After completing the hands on training, feedback & concluding session was handled by Dr.R.Kalimuthu, AeSI, KKB. Finally, Shri. V. Thanga Puthiavan, AeSI KKB delivered the vote of thanks.



## SPECIAL INITIATIVE SKILL TRAINING

Applied Lab Special Initiative Skill training has conducted for IInd and IIIRD Students in the topic of “Industrial Automation and Optimization using MATLAB”. During four days of training (13.02.2023 to 16.02.2023 IInd year and IIIRD 27.02.2023 to 02.03.2023) the students were learned about basic concept of MATLAB Software, simple numerical computations, graphs plotting, basic operations used in workflows of mechanical projects, Optimization techniques / algorithm development, Industrial piping connection/ trouble shooting and MATLAB – Simulink operations. At the end of each day training students were assessed by assignments and on the final day student submitted individual test projects. The training has conducted by Mr.S.Sheik Sulaiman, AP/Mech & Innovation and Product Development Applied Lab in-charge and Guided by Dr. K. Lakshmi Narayanan, Vertical Head/ Applied Labs.



## WORKSHOP

A “Workshop on Developing Innovative Products” was organized by Entrepreneurship Development Cell & Institution’s Innovation Council in association with the Department of Mechanical Engineering on 28th February 2023 at 09:00 am to 04.00 pm. The program was held via offline mode. Dr.R.K.A.Bhalaji, AP/Mech inaugurated the session with welcome address.

### **Forenoon Session**

First of all resource person discussed about how to design the new innovative products based on smooth and eco-friendly using FluidSIM software and also shared about what are the steps to be followed to design the innovative products. He told about what the new products are expected by the industries and modern society and how to make the products in an effective manner. Additionally, he showed more no of advanced tools in the FluidSIM for developing the new innovative products.

### **Afternoon Session**

In the noon session, students practiced designing some innovative products such as SCARA robots, pneumatic and hydraulic based robots. Above innovative products will surely be helpful to the industries and society based on their expectation. Also, innovative robots will be used in a smooth & eco-friendly way.



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**INSTITUTION'S  
INNOVATION  
COUNCIL**  
(Affiliated to Anna University)

**FX EDC**

**TOPIC**

**Workshop on  
Developing Innovative Products**

**Mr. Jeremy Jeba Samuel**  
Assistant Professor,  
Mechanical Engineering,  
Hackathon Applied Lab Incharge - FXEC

**RESOURCE  
PERSON**

**28<sup>th</sup>**  
FEB. 2023  
10:00 AM - 4:30 PM

**Organised by**  
Entrepreneurship Development Cell &  
Institution's Innovation Council

**Organised by**  
Department of  
Mechanical Engineering

**Co-ordinator**  
**Dr. R.K.A. Bhalaji**  
Assistant Professor / MECH

**Convener**  
**Dr. R. Samuel Hansen**  
HoD / MECH

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