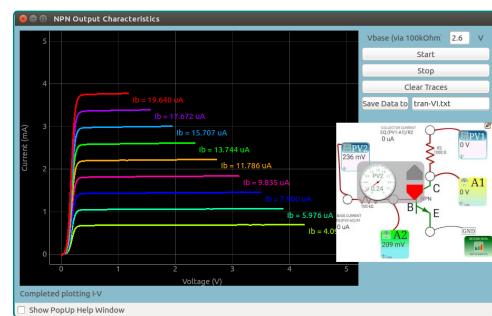
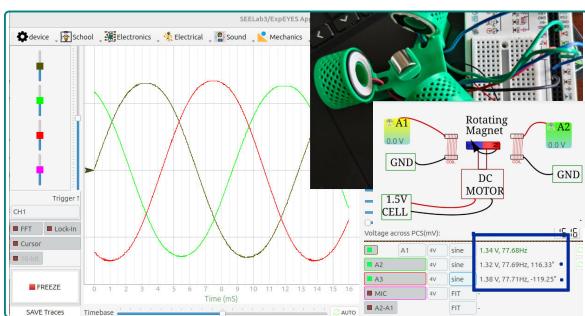
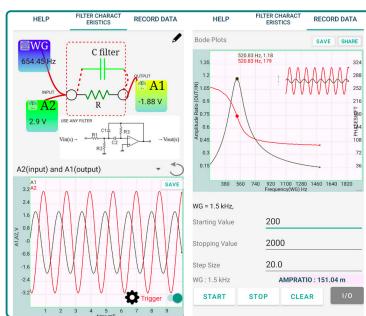




Department of Physics, University of Jammu
PRESENTS
Computer-Interfaced Physics Experiments (CIPEx)
A One-Week Faculty Development Programme
16TH - 20TH FEBRUARY 2026
IN COLLABORATION WITH
 Malaviya Mission Teacher Training Centre, University of Jammu



The aim of this one-week Faculty Development Programme (FDP) is to bring about a paradigm shift in the way physics and electronics laboratory work is designed, conducted, and assessed, in alignment with the vision of the National Education Policy (NEP) 2020. The programme seeks to promote experiential and technology-enabled laboratory education at undergraduate and postgraduate level.

CIPEx is Designed to equip Physics and Electronics faculty members with the pedagogical and technical skills required to foster discovery, inquiry, and experimental thinking in undergraduate and postgraduate laboratories. The focus will be on key learning outcomes such as data acquisition, analysis, and experimental design, with graphical interpretation of physical phenomena, moving beyond traditional experiments.

Leveraging the computational power of modern mobile devices along with affordable, multi-functional instruments for signal generation & measurement, the programme demonstrates how low-cost, computer-interfaced tools can transform laboratory practices. Through intensive hands-on sessions, participants will redesign and perform UG/PG-level physics and electronics experiments, enabling the adoption of NEP 2020-compliant, innovation-oriented labs.

TARGET PARTICIPANTS (25)

College or University teachers teaching undergraduate and postgraduate Physics/ Electronics courses, particularly those involved in laboratory and experimental teaching.

REGISTER BY: 10/02/2026

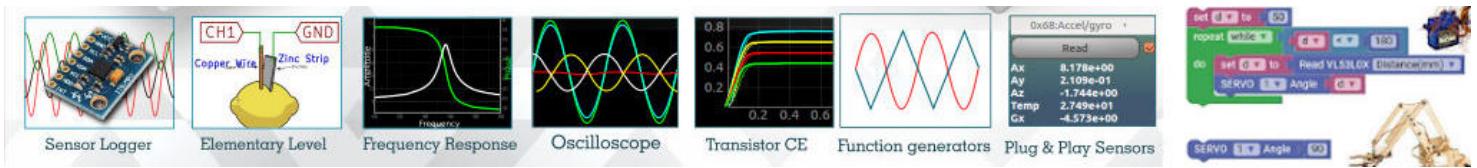
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For any Queries, contact:

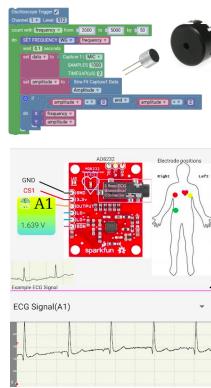
Prof. Ramni Gupta **+91 94191 91509**

VENUE

Dept of Physics, University of Jammu
 Baba Saheb Ambedkar Rd, Jammu Tawi, J&K



Familiarisation with test and measurement tools and software



ELECTRONICS

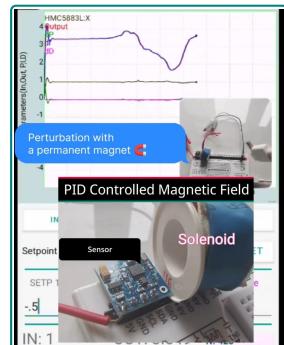
Basic Circuits
Data acquisition
Analysis / Fits
Phase shifts
I-V Tracing
Analog Sensors
Data logging

- Introduction to test and measurement, signal processing.
- Using phone's sensors for science experiments
- Curve fitting data for parameter extraction
- Hands-on with computer interfaced meters, data loggers, oscilloscope, and real-time data analysis with Python
- Measurement of basic electronic properties
- Advanced electronic characterisation and plotting
- R-R, R-C, L-C, R-L-C circuit Steady State Response and verification of Reactance equations.
- I-V, C-E curves for diodes, zeners, transistors, FETs.

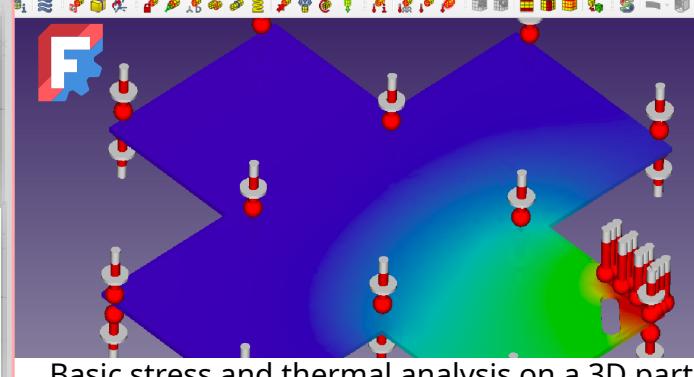
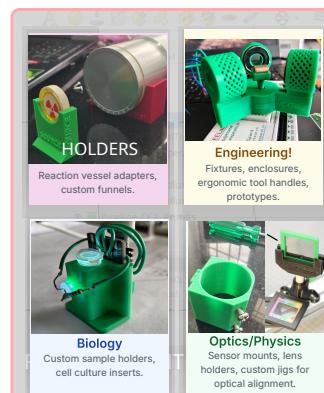
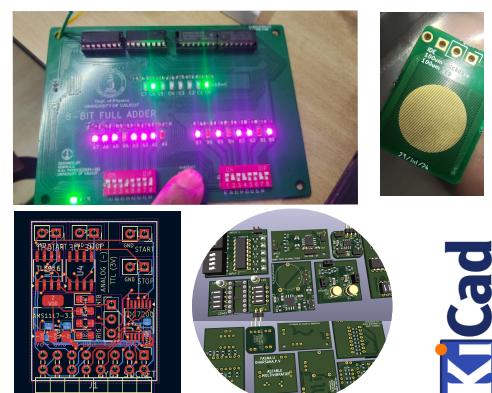
- **Measure Gravity** from time of flight (precision timing)
- **Flywheel experiment** modification : Plot S,V,A !
- **Programming** : Introduction to Python & Visual coding
- **Opamps**: Amplifiers , Filter circuits
- **Acoustics** : velocity & interference of sound. FFT
- **EMF**: Studying Electromagnetic Induction,Faraday's Law
- **Low Cost sensors** : MPU6050, BMP280, HMC5883L etc

Physics & Advanced Electronics

Acoustics & Fouriers
Mechanics & Resonance
Data logging sensors
Thermal Physics



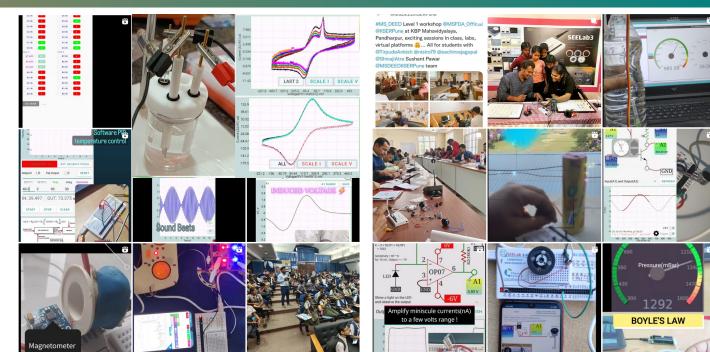
CAD, FEM, & Circuit Design with FreeCAD & KiCAD



Basic stress and thermal analysis on a 3D part.

Mini-Project: Participants work in groups to design "New Experiments" by combining low cost data acquisition tools

Certificates will be issued on the last day after completing all sessions



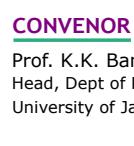
PATRON

Prof. Umesh Rai
Hon'ble Vice Chancellor
University of Jammu



DIRECTOR

Prof. Sandeep K Pandita
Director, MMTTC
University of Jammu



CONVENOR

Prof. K.K. Bamzai
Head, Dept of Physics
University of Jammu



SPEAKER

Prof. Vivek K Gupta
Dept of Physics
University of Jammu



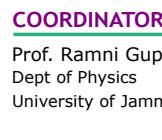
SPEAKER

Prof O.S.K.S. Sastri
Dept of Physics
Central University of
Himachal Pradesh



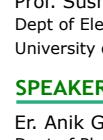
INDUSTRY EXPERT

Dr. Jithin Bhagavathi
PDF, University of Calicut
Director, CSpark Research



COORDINATOR

Prof. Ramni Gupta
Dept of Physics
University of Jammu



SPEAKER

Prof. Susheel Sharma
Dept of Electronics
University of Jammu

SPEAKER

Er. Anik Gupta
Dept of Physics
University of Jammu

SPEAKER

Dr. Rockey Gupta
Dept of Electronics
University of Jammu



SPEAKER

Er. V V V Satyanarayana
Senior Engineer
IUAC , New Delhi

CO-COORDINATOR

Dr. Narinder Kumar
Senior Scientist (Tech.)
Dept of Physics