



UGC-Malaviya Mission Teacher Training Centre
University of Hyderabad



and

Tata Institute of Fundamental Research
(TIFR-H)

jointly organizing

SHAPE

Simplified Hardware for Affordable
Physics and Electronics
Two -day hands-on Workshop with
ExpEYES

Scheduled Dates

14th & 15th Feb 2025

Who can Apply:

Physics and electronics teachers from Degree college or a B.Tech college.
Teachers from any branch of B.Tech college / Higher learning institutes like
Universities, IITs etc.
Ph. D students

Organizing Team



Prof. P. Prakash Babu
Director
MMTTC



Prof. G. Manoj Kumar
Coordinator
School of Physics, UoH



Dr. Chaitanya Kumar S
Co-Coordinator
TIFR, Hyderabad

Venue:

MMTTC, University of Hyderabad, Gachibowli, Hyderabad

Registrations Limited to 40 PARTICIPANTS

Last Date to apply - 7th Feb 2025



SHAPE

Simplified Hardware for Affordable Physics and Electronics

Two -day hands-on Workshop with ExpEYES

About the Programme:

What If...

- You could set up an undergraduate electronics lab for just ₹50,000?
- You could use the same setup to explore a variety of physics experiments?

Welcome to ExpEYES!

(A product of the PHOENIX Project by IUAC, New Delhi)

Transform Learning with Affordable, Versatile, and Open-Source Technology!

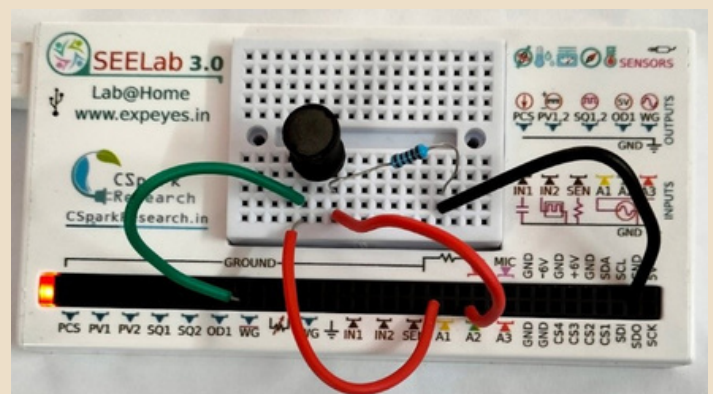
Details of the Programme:

What is ExpEYES? www.expeyes.in

ExpEYES (Experiments for Young Engineers and Scientists) is an open-source hardware and software platform developed by the Inter-University Accelerator Centre (IUAC), New Delhi integrates the real-time control and measurement capabilities of micro-controllers with the flexibility of Python programming for data analysis and visualization. Visit <https://expeyes.in/> for full details.

ExpEYES features include:

- DC Power Source
- Function Generator
- Current Source
- Multimeter
- Oscilloscope
- Data Logger



Expeyes device

With its Graphical User Interface (GUI), students can perform experiments easily, while advanced users can program in Python for enhanced functionality.

Why Choose ExpEYES?

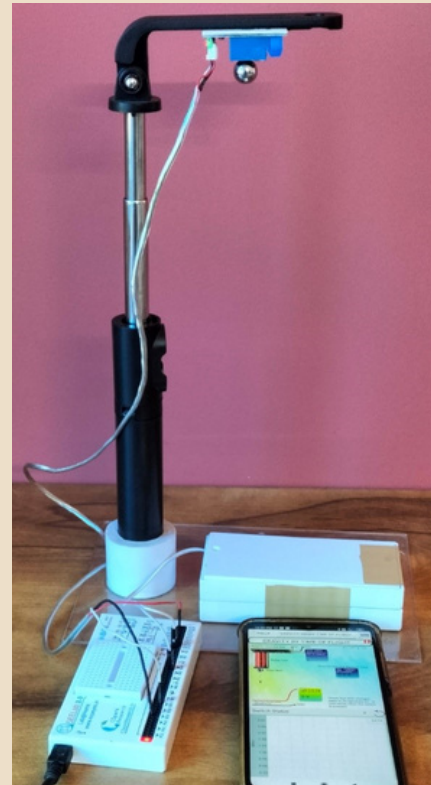
1. Cost-Efficient: A complete lab setup for electronics and physics at a fraction of the cost.
2. Space-Saving: Compact design eliminates the need for bulky equipment.
3. Wide Application: Conduct electronics and physics experiments /projects effortlessly.
4. Open-Source: Customizable and perfect for Python enthusiasts.
5. User-Friendly: Simplified interface for beginners and programmable flexibility for advanced learners.

Physics Experiments

Combine ExpEYES with sensors to perform experiments in:

- Mechanics
- Sound
- Simple Harmonic Motion Analysis
- Electromagnetic Induction Measurements

The possibilities are endless, encouraging innovation and exploration.

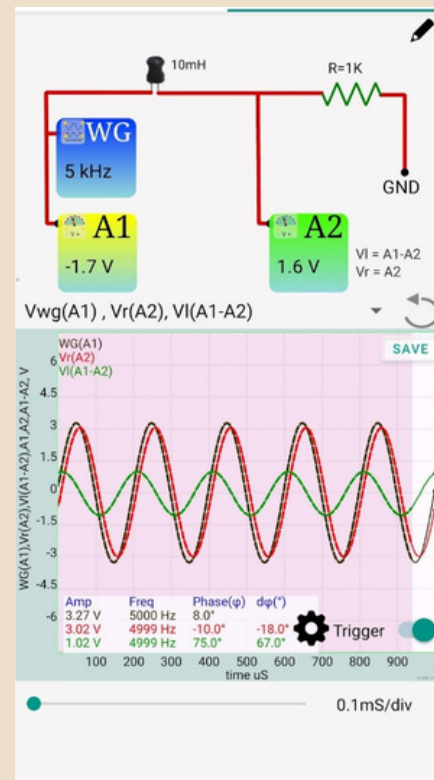


Electronics Experiments

Students can explore: Any electronics experiment performed from school right upto under graduate, like

- Diode Characteristics
- RC Circuits
- Transistor Amplification
- Operational Amplifier Applications

With in-built measurement tools and real-time visualization, concepts come to life.



Expeyes on a smart phone

Who Can Benefit from ExpEYES?

- Teachers: Simplify lab setups and enhance student engagement.
- Students: Learn hands-on skills in electronics, physics, and Python programming.
- Institutions: Offer high-quality experiments within a limited budget.

Join the Revolution in Education!

- Affordable: Perfect for resource-constrained institutions.
- Versatile: A single setup for a variety of experiments.
- Accessible: Open-source for endless customization and learning.

About the speakers:

Shri.V.V.V. Satyanarayana is an engineer with a B.Tech (Gold medalist) in Electronics & Communication Engineering. He began his illustrious career at the Inter-University Accelerator Centre (IUAC) in year 2000, where he played a pivotal role in shaping the institution's electronic and experimental facilities. Over the years, he has contributed significantly to the establishment of advanced electronics setups and the open rationalization of several key programs at IUAC.

“Lead instructor”



**Electronics & Communication Engineer,
IUAC, New Delhi**

Currently serving as an Engineer at IUAC, Shri. Satyanarayana has been instrumental in fostering technological innovation and experimental capabilities. His work spans various domains, emphasizing precision electronics and experimental methodologies that have elevated research and training opportunities for students and professionals alike.

One of his notable achievements includes his close association with the development of ExpEYES (Experiments for Young Engineers and Scientists) under PHOENIX (Physics with Homemade Equipment and Innovative Experiments) project of IUAC. This revolutionary educational tool has bridged the gap between theoretical knowledge and hands-on experimentation, providing an accessible platform for learning physics and electronics.

Shri. Satyanarayana's expertise and commitment to advancing electronics education continue to inspire and empower the science community. His workshops and training programs reflect his passion for nurturing talent and fostering curiosity in science and technology.

Prof. Nageswara Rao is a senior faculty member at the Centre for Advanced Studies in Electronics Science and Technology (CASEST), School of Physics and Professor in-charge, Centre for Nanotechnology, University of Hyderabad, where he conducted pioneering research on the effects of accelerated particles on various materials. During his doctoral studies, he collaborated extensively with the Inter-University Accelerator Centre (IUAC), New Delhi, furthering his expertise in advanced particle-material interaction studies.



Prof. Rao's academic journey is marked by a deep commitment to exploring fundamental and applied aspects of material physics. His research has led to significant contributions in understanding the behavior of materials under extreme conditions, a subject of critical importance in both academia and industry.

With a wealth of postdoctoral experience, including stints at leading research institutions, Prof. Rao has developed a versatile and dynamic approach to experimental physics. Before returning to the University of Hyderabad, he spent several years at premier institutions in Mumbai, honing his expertise in cutting-edge experimental techniques.

A passionate educator and mentor, Prof. Rao continues to inspire the next generation of physicists through his teaching and research, contributing to the advancement of scientific knowledge and the development of state-of-the-art technologies.

Prof. Manoj Kumar is a trained experimental physicist with extensive expertise in laser-matter interaction studies, a field he has been passionate about since his PhD days. In 2007, he joined the University of Hyderabad as an Assistant Professor and has since been instrumental in advancing laser research at the institution. He played a pivotal role in establishing state-of-the-art laser laboratories at the DRDO Center for Advanced Research and High-Intensity Lasers (ACRHL) in collaboration with the University of Hyderabad.

With a remarkable track record, Dr. Kumar has mentored around 10 PhD students and authored approximately 100 research articles in renowned journals, contributing significantly to the scientific community.

Beyond research, Dr. Kumar is deeply passionate about teaching. He is known for his innovative teaching style, which emphasizes hands-on working models and visual tools to simplify complex concepts. His ability to make learning engaging and accessible has made him a favorite among students.

One of Dr. Kumar's active areas of interest is the development of low-cost physics equipment using sensors, enabling affordable and effective experimental learning. His dedication to research and teaching continues to inspire students and promote a deeper understanding of physics.

Dr. Chaitanya Kumar Suddapalli is a Reader and Principal Investigator at the Tata Institute of Fundamental Research Hyderabad, India. He has over 15 years of academic as well as industrial experience working at world leading institutes such as ICFO-The Institute of Photonic Sciences, Spain and the National Institute of Standards and Technology, USA.

His research interests include high power optical frequency conversion sources from the ultraviolet to mid-infrared. He published over 95 peer-reviewed and invited papers in leading international journals in Photonics. He serves on the technical program committees of several national and international conferences such as OPTICA-Mid-Infrared Coherent Source, EPS- EuroPhotonics and SPIE Photonics West. He is the recipient of many awards including the Optica Ivan P. Kaminow Outstanding Early Career Professional Prize in 2020.

Since the early stage of his career, Dr. Chaitanya is actively involved in creating and organizing scientific outreach activities for various target groups including students, teachers, politicians and general public. During his doctoral research period, he served as the outreach coordinator and played a key role in the development of "The Day of Light"-optics demonstration for high school students. An advanced version of this program is now organized in three different languages at ICFO. He co-organized a funded, summer school: "Lasers: Amazing science and technology!". His passion for outreach was later recognized by a part-time invited position to serve as an outreach project manager, where he was responsible for preparing a European-level outreach project, "GoPhoton!" involving 8 international partners aimed at making photonics as the house-hold word. This successful EU funded project was implemented across Europe, throughout the international year of light-2015. He is responsible for the creation of TIFR Network of Students (NeSt), through which he continues to conduct such activities. Throughout his career he mentored more than 8 doctoral students and several bachelor and master students, many of them are now pursuing a career in photonics.

Registration Link

[Click here to register](#)

Payment Details

Teachers/Faculty - Rs. 1000/- + 18% GST

PhD Students - Rs. 500/- + 18% GST

Payment Page

[Click here to pay](#)

Payment Process

Kindly click on the payment page link and accept the policy box and proceed, select event registration fees and select ExpEYES workshop and pay the amount. The paid receipt should be uploaded in the Registration form to be considered for the programme.

Last Date to apply- 7th Feb 2025.

For any Queries

Phone- 040 23132711 , Email- mmttcuoh@uohyd.ac.in

Timings: 10.00 AM to 5.00 PM (Monday to Friday)

Fees paid once will not be refunded

**Recommendation cum No Objection
Certificate/ Permission form (For Teachers
applying for ExpEYES workshop)**

To Whomsoever It May Concern

This is to certify that the applicant (*Name*) (*Present designation*) is a Permanent/Full Time Contractual/Full Time Ad-hoc/SACT/Part Time# teacher/ Research Scholar in this institution and her/his date of joining was I do hereby recommend/permit her/his application for (*Name of Course*) ExpEYES workshop during 14th & 15th Feb 2025 If selected, she/he will be released/permitted on time to participate in the above mentioned course at UGC–MMTTC, University of Hyderabad, Hyderabad.

I also endorse the following information regarding the applicant and my institution:

1. Educational Qualifications;
2. Institution Details;

Date :

Place :

Signature and Seal of the
Principal/Officer-in-Charge /
Registrar/ Supervisor