SUMMER INTERNSHIP

(1ST June to 20th June 2026)

Three Weeks Summer Internship Program

on

FABRICATION OF FULLERENE AND METAL NANOPARTICLE BASED SENSITIVE VOLTAMMETRIC SENSOR

(both online and in-person modes available)

Daily Schedule: 2 hours/day

ORGANIZED BY:

Department of Physics

Malaviya National Institute of Technology,

Jaipur- 302017

Rajasthan, India

About MNIT Jaipur

Malaviya National Institute of Technology (MNIT) Jaipur is one of the NITs established by Ministry of Human Resource Development, Government of India. The Institute, earlier known as MREC, was established in 1963 as a joint venture of the state and central Governments. Later in 2002, the college was given the status of National Institute of Technology and on August 15, 2007, proclaimed Institute of National Importance through Act of Parliament. MNIT campus spreads over 325 acres of lush green area in the prime location of Jaipur city. At present, in addition to research consultancy and developmental activities, the Institute offers UG and PG (M. Tech./M.Sc. & Ph.D.) level courses to about 5000 students in almost all leading fields of engineering, technology, management and sciences.

About Department of Physics

New developments in physics have led to paradigm-shifting transformations in engineering & technology. It is thus critical that physics be an integral part of engineering education. The Department of Physics has been dedicated to imparting quality physics education since the inception of MNIT Jaipur. The department is currently DST-FIST (level sponsored). The department also offers a vibrant research program with 14 full-time faculty and spans condensed matter physics, cosmology, energy systems, high energy physics, nuclear and particle physics, and materials research.

About Summer Internship

Summer internship at the OML Lab within MNIT Jaipur Department of Physics provided a profound opportunity to bridge the gap between theoretical physics principles and practical nanotechnology. Beyond gaining hands-on mastery over sophisticated techniques like fabricating Metal Fullerene based electrodes and analyzing real-world drug interactions using electrochemical sensing, the experience instilled critical professional research skills.

Patron

Prof. N. P. Padhy

Director, MNIT Jaipur

Convener

Dr. Rahul Singhal

Associate Professor,

Department of Physics, MNIT Jaipur

Coordinators

Dr. Sunita Bishnoi

Ms. Anuradha

Ms. Jyoti Pal

Ms. Ankita Sharma

Important Dates

Last date of Registration	Limited seats are available, which will be filled on a first-come, first-served basis. Registration will close once all seats are filled.
Internship dates	1st June to 20th June 2026

General Course Contents

Lectures on vacuum techniques, thin film by thermal evaporation, RF sputtering, Electrochemical Workstation techniques, characterization techniques such as UV-Visible Spectroscopy, I–V measurements, SEM, TEM, and XRD etc.

- Synthesis of Graphene Oxide (GO) by modified Hummers method
- Synthesis of Gold-decorated Reduced Graphene Oxide (Au-rGO) by one-pot method
- Fabrication of thin films of Au-rGO by spin coating
- Fabrication of metal–fullerene thin films by thermal co-deposition technique
- Characterization of Au-rGO using UV-Visible Spectrophotometer, I–V analysis, FESEM, TEM, and XRD
- Electrochemical techniques - Cyclic Voltammetry (CV), Square Wave Voltammetry (SWV), Differential Pulse Voltammetry (DPV), and Electrochemical Impedance Spectroscopy (EIS)
- Fabrication of glassy carbon-based nanomaterials modified electrochemical sensors and electrochemical sensing through thin-film-based metal-carbon nanomaterials systems
- Electrochemical (Voltammetric) sensing of different drugs and steroids for health monitoring
- Data analysis using scientific software tools
- Report writing

**The actual course contents may vary as per the type of student (UG/PG/PhD)*

About OML Lab

The Optical Materials Laboratory (OML) is a well-equipped facility for materials synthesis, thin-film fabrication, and device development, featuring instruments such as thermal deposition, RF sputtering, high-temperature furnace, UV-Visible spectrophotometer, electrochemical workstation, pelletizer, dip coater, spin coater, and oven. The lab focuses on the fabrication and characterization of advanced materials for applications in solar cells and electrochemical sensors, utilizing various deposition and coating techniques. It also supports comprehensive material analysis and data interpretation, making it a key center for research in energy and sensing technologies.

Eligibility

- UG students (pursuing B.Tech. in Chemical Engineering, Metallurgy and Materials Engineering, Electrical and Electronics Engineering, Engineering Physics or in a relevant discipline OR pursuing BSc with Physics or Chemistry or a relevant discipline)
- PG Students (pursuing M.Sc. in Physics or Chemistry OR M.Tech. in Chemical Engineering, Metallurgy and Materials Engineering, Electrical and Electronics Engineering, Engineering Physics or Relevant discipline)
- PhD Students (pursuing PhD in Physics, Chemistry, Materials Science, Materials Engineering, Chemical Engineering, Chemical Engineering, Metallurgy and Materials Engineering, Electrical and Electronics Engineering, Engineering Physics or in relevant discipline)

Internship Fee

CATEGORY	OFFLINE	ONLINE
UG Students	5,000/-	2,500/-
PG Students	6,000/-	3,000/-
PhD students	8,000/-	4,000/-

** Internship Fee is non-refundable.*

Payment Mode

Payment for the internship fee can be done using the QR Code or by online payment in the following bank account:

A/c No.: 676801700388
Account Name: Registrar, Sponsored Research, MNIT Jaipur
IFSC Code: ICIC0006768
Bank: ICICI Bank
Branch: MNIT Jaipur

After making the payment, please attach the receipt of the payment to the Google Form given below.

Registration Form Details

The applicants must register themselves by submitting details on

https://forms.gle/xbhVXJT4BNzpdnCu7

Please attach the receipt of payment in this google form.

General Information

- **Accommodation and traveling expenses are to be borne by the participants.**
- **Limited accommodation on actual charges may be available at MNIT Hostels.**
- **Accommodation will be provided on request and as per availability.**

Contact us

Dr. Rahul Singhal
Department of Physics,
MNIT Jaipur, JLN Marg, Malviya Nagar,
Jaipur- 302017 (Rajasthan)
Email: laboml.phy@mnit.ac.in