RESEARCH FACILITIES

INEE comprises of four laboratories with-state-of-the-art scientific equipment and facilities to accommodate researchers involve in device design, fabrication, characterization and testing.

- Semicon Fab Lab
- Analysis & Properties Lab
- Biomolecular & Material Preparations Lab
- Testing & Demo Lab

Lab Facilities

- Chemical Room
- Fume Hood
- DNA Booth
- Electrical Properties Booth
- Surface Analysis Booth







For further information, kindly visit our website **https://inee.unimap.edu.my** for more lab equipment details.

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TEACHING, RESEARCH, SERVICES, CONSULTATION & SUPPORT



Besides research, INEE offers services and supports as follow :

- I. Research supervision through postgraduates' study
 - a. PhD
 - b. MSc
- II. Mask design and fabrication services
- a. High resolution transparency
- b. Chrome mask (material: soda lime glass (SL), synthetic quartz (QZ)
- III. Conference, workshop, training and short-courses in
 - a. International conference on nanoscience and nanoengineering (BOND21)
 - b. International Conference on Nanotechnology and Materials Research (ICONMAR)
 - c. Workshop on Designing and Fabrication of Nanobiosensing Prototype
 - d. Cleanroom design and technology
 - e. Semiconductor process technology
 - f. Microelectronic fabrication
 - g. Nanostructure formation
- IV. Fabrication process and device characterization services
 - a. MOSFET based technology fabrication
 - b. Nanostructure patterning (E-beam lithography)
 - c. Electrical analyses (Dielectric analyser)

V. Micro and nanoelectronics education development

- a. Syllabus and curriculum development
- b. Laboratory manual in microfabrication
- c. Cleanroom design and development for education
- d. Lab services

VI. In-job Training

- a. Internship program
- b. Postgraduate exchange student



2022 JCR Impact Factor

https://ijneam.unimap.edu.my/

The International Journal of Nanoelectronics and Material **(IJNeaM)** indexed by WOS & SCOPUS is a peer-reviewed international journal published four issues annually with 20 articles in each issue. IJNeaM aims to publish original work of importance in the fields of nanoscience and engineering. The current chief editor is Assoc. Prof. Dr. Voon Chun Hong. IJNEAM was awarded with **Journal Impact Factor of 0.5** in the recently released 2022 Annual Journal Citation Report by Clarivate Analytics on June 28, 2023.

INSTITUTE OF NANO ELECTRONIC ENGINEERING (INEE)

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INSTITUTE OF NANO ELECTRONIC ENGINEERING [INEE]

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INTRODUCTION

Institute of Nano Electronic Engineering (INEE) was established in November 2008 as a converging hub for innovation, research, and expertise in Malaysia, particularly for the Northern Corridor Economic Region (NCER). The objectives of the Institute are to continuously promote nanoelectronics expertise within the Malaysian market, introduce the best in micro and nanofabrication practices from around the world to Malaysian society, and build direct links between the technology and education sectors.

INEE emphasizes nanoelectronics engineering research activities that focus on nanobiochip, novel devices, memory devices, and nanophotonic devices. INEE also expands its research activities to nanomaterials and nanobiotechnologies through interdisciplinary programs and collaborations. As a nanoelectronics research centre, INEE's role is to encourage and embrace collaborative work and interdisciplinary research among scientists and technologies. INEE strives to be a leading nanoelectronics research centre in the region, in line with Malaysia's goal of having world-class scientists. INEE is designed to accommodate a series of fabrication and analytical laboratories equipped with sophisticated scientific equipment to allow scientists to design, fabricate, characterize, and test their own devices.

Currently, INEE is designed to accommodate state-of-the-art facilities and equipment, to be coherent with cutting-edge technologies for researchers to utilize and materialize comprehensive research. Innovative efforts, blending fundamental and applied sciences with technological advances in the field of nanofabrication, should lead to the creation of high-performance devices with greater speed, simplicity, and low cost for market needs in the 21st Century.

Recognizing the importance of the above, INEE aspires to make an impact on Malaysian research communities, specifically in nano electronic research areas, and to strengthen Malaysia's economic capability as well as the wellbeing of the nation.

MISSION

To serve as an excellent landmark and function as a reference institute in nanoelectronics engineering with performance beyond conventional devices which are based on the current industry standard.

VISION

To emerge as a leading frontier research institute across the spectrum of nanoelectronics engineering from the life and physical sciences to engineering and medicine.

OBJECTIVES

In order to achieve its mission and vision, INEE will embark on the following objectives:

- To be a reference institution and expertise provider in nano electronic engineering
- To accommodate a series of fabrication and analytical laboratories equipped with sophisticated scientific equipment enabling scientists to design, fabricate, characterize and test devices
- To enhance, modernise and encourage new exploration in nano electronic engineering through fundamental and applied research activities for society and country benefits
- To facilitate training programmes and post graduate studies for interested researchers in nano electronic engineering
- To consult and extend collaboration with related institutions engaged in research of nano electronic engineering.

INEE Theme From Nano Structure to Systems

RESEARCH FOCUS AREA

I. Nanomaterials

- a. Nanomaterials-based biosensor
- b. Nanostructure surface modifications
- c. DNA Immobilization and hybridization
- d. Simulation and modelling of nano structure bio molecule interaction

II. Nanoelectronics

- a. Biomedical devices
- b. Nanofabrication technology
- c. Nanoelectronics biosensor

III. Nanobiotechnology

- a. Emerging diseases
- b. Food security

RESEARCH-BASED HIGHER DEGREE PROGRAMMES

INEE is approved by the Ministry of Higher Education for the following degree programs. Postgraduate intakes are open for applications to graduates who wish to further their studies in research-based higher degree program leading to

MASTER of SCIENCE (MSc)

- i. MR17 M.Sc in Nanomaterial Engineering
- ii. MR18 M.Sc in Nanoelectronic Engineering
- iii. MR19 M.Sc in Nanobiotechnology Engineering

DOCTOR of PHILOSOPHY (PhD)

- i. PE17 Ph.D in Nanomaterial Engineering
- ii. PE18 Ph.D in Nanoelectronic Engineering
- iii. PE19 Ph.D in Nanobiotechnology Engineering



RESEARCH STAFF

	RESEARCHER	AREA OF INTEREST
	Assoc. Prof. Ir. Ts. Dr. Muhammad Mahyiddin Ramli (Director) mmahyiddin@unimap.edu.my	Synthetic Graphite, Graphene Oxide, Gas Sensor, Biomedical Devices, DSSC
	Assoc. Prof. Ts. Dr. Foo Kai Loong (Deputy Director) klfoo©unimap.edu.my	Nanostructure Fabrication and Nanobiosensors
	Dr. Mohamad Faris Mohamad Fathil (Postgraduate Programme Chairman) mohamadfaris@unimap.edu.my	Nanoelectronic Biosensor, Semiconductor Device Simulation
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