INTRODUCTION

Functional Devices Laboratory (FDL) was established on 1st March 2012 under the Institude Of Advanced Technology (ITMA). FDL conducts innovative research in the areas of sensors, electron devices as well as energy to provide affordable enabling technology in advanced electro-optical technologies, advanced RF technologies, electronic materials and devices, autonomous sensing, micro autonomous technologies and renewable energy. We coordinate these technologies within FDL and other laboratories in ITMA, with other services agencies, industry and academia, to leverage basic and applied research opportunities for the benefit of the nation.

OBJECTIVES

- To be a leading research center in functional devices, sensor and renewable energy.
- To develop world class research laboratories in functional devices and sensors.
- To disseminate innovative knowledge and technologies through seminars, publication and conferences.

RESEARCH PROGRAMS

Sensor Technology

Sensor technology includes the study and preparation of sensing material and characterized by related transducer, signal processing and design of system or devices (including micro and nanoscale) in development of sensor to meet society and industrial demands. Sensor system includes (but not limited to) electronic sensors, biosensors, and chemical sensors. Sensor technology has a very important role as the key technology to support a wide variety of research and industrial applications. It is also a vital element that can be applicable to water security, environment and green technology.

Electron Devices

Electron Devices is a program that has been offered under this laboratory starting from 2012. This program aims to perform basic and applied research in the growth of semiconductors and related electronic materials, as well as micro analysis with the aim of developing new and improved electronic devices. The vision in this area is next generation electronic devices and sensors for improved performance and reliability in complex environments. Research areas include nanoelectronics and MEMS, RF and energy harvesting.

RESEARCH AND SUPPORT FACILITIES

- Field Emmision Scanning Electron Microscope (FESEM)
- Energy Dispersive X-Ray Spectroscopy (EDX)
- Raman Spectroscopy
- X-Ray Diffractometer (XRD)
- Thermogravimetric Analyzer (TGA/DSC)
- Fourier Transform Infra-red (FTIR)
- UV-Visible Spectrophotometer (UV-Vis)
- Atomic Absorbtion Spectroscopy (AAS)
- Chemical Vapour Deposition (CVD)
- High Temperature Furnace
- High Shear Homogenizer
- High Frequency Probe Sonicator
- PCB Fabrication Machine
- Surface Area Analyzer (BET)
- Gas Chromatography (GC)
- High Performance Liquid Chromatography (HPLC)
- Nano Sizer
- Hysteresis Graph System
- Optical Microscope
- Wire Bonder
- Universal Testing Machine (UTM)
- High Energy Ball Mill

| Name | Email | Expertise |
|---|-------------------------|---|
| Assoc. Prof. Dr. Suhaidi Shafie | suhaidi@upm.edu.my | CMOS Image Sensor, Mix-signal IC Design, Solar Cell |
| Prof .Dr.Nor Azah Yusof | azahy@upm.edu.my | Nanosensors, Molecu- lar Imprinted Polymer, DNA Based Sensor |
| Assoc. Prof. Dr. Mohd Nizar Hamidon | mnh@upm.edu.my | Microelectronics (Sensor Technology), MEMS, Devices Fabrication and Packaging, Wireless System |
| Dr. Janet Lim Hong Ngee | hongngee@upm. edu.my | Graphene Based Polymer Nano-compo ites |
| Dr. Suriati Paiman | suriati@upm.edu.my | Compound Semicon- ductor Materials Science (III-V semicon- ductors), Compound Semiconductor |
| Dr. Nasri Sulaiman | nasri@upm.edu.my | Evolvable Hardware (EHW) and Digital Signal Processing |
| Dr. Jaafar Abdullah | jafar@upm.edu.my | Chemical and Biosensor |
| Dr. Mohd Khair Hassan | khair@upm.edu.my | Energy Engineering, Control System |
| Dr. Yap Wing Fen | yapwf@upm.edu.my | Optical Based Sensor |
| Dr. Shahrul Ainliah | ainliah@upm.edu.my | Surface Chemistry, Nanolithography Analytical Chemistry |
| Dr. Nizam Tamchek | nizamtam@upm.edu.my | Photonics |
| Dr. Mohd Hanif Yaacob | hanif@upm.edu.my | Electronic & Optical Communication |
| Dr. Yusran Sulaiman | yusran@upm.edu.my | Electroanalytical Chemistry and Materials Chemistry |
| Dr. Reza Hajian | rezahajian@upm.edu.my | Evolvable Hardware (EHW) and Digital Signal |
| | | |

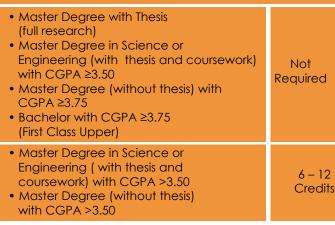
ACADEMIC REQUIREMENTS

FOR ADMISSION

PhD Program

- Bachelor Degree In Science or Engineering with minimum CGPA 3.75
- Master Degree in Science or Engineering (with thesis) or without thesis with minimum CGPA 3.25

COURSEWORK CREDIT REQUIREMENT



Master with Thesis Program

- Bachelor Degree in Science or Engineering with CGPA of at least 2.50 (Second Class Lower); or
- Bachelor Degree in Science or Engineering with CGPA <2.50 and of at least three (3) years working experience in relevant field.

COURSEWORK CREDIT REQUIREMENT

| Bachelor Degree in Science or | Not |
|--|-------------------|
| Engineering with CGPA 3.25 | Required |
| Master Degree in Science or Engineering (with thesis and coursework) with CGPA >3.50 Master Degree (without thesis) with CGPA >3.50 | 6 – 12 Credits |

Please apply online via www.sgs.upm.edu.my and send your application and supporting documents to the address below :

Dean School of Graduate Studies Universiti Putra Malaysia Zone 4, Off Jalan Stadium 43400 UPM Serdang, Selanaor





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CONTACT US

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FUNCTIONAL DEVICES LABORATORY



INSTITUTE OF ADVANCED TECHNOLOGY

FDL

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