INTRODUCTION

Materials Processing and Technology Laboratory (MPTL) was established to fulfill the research necessity related to advanced materials processing as well as various nanotechnology applications. MPTL is developed to compliment the ITMA ecosystem, which aims to be a leader in the field of Nanotechnology and Advanced Materials. MPTL will focus on developing and promoting research in Materials Processing and Nanomaterials Technology in Malaysia. The main activities of the laboratory are conducting research in related fields, postgraduate programs, provide trainings and consultancy services.

OBJECTIVES

- To be a leading research center in processing and technology for advanced materials and nanomaterials.
- To produce experts in the field of Materials Processing and Nanomaterials Technology.
- To be a knowledge dissemination center of processing and technology for advanced materials and nanomaterials.

RESEARCH PROGRAMS

Materials Processing

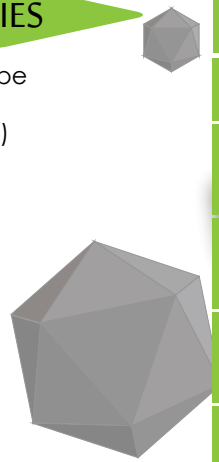
This program focuses on developing research related to scalable processing of advanced materials and nanomaterials. We have expertise in synthesis of carbon nanotructures such carbon nanotubes (CNT) and CNT cotton by both batch and continuous chemical vapour deposition (CVD) processes. The existing know how and facilities in CVD processing open other venues for research such as superconductor thin film and bottom-up synthesis of graphene and homologous graphene. Scalable top-down processes for preparation of graphene oxide and graphene quantum dots are also being actively pursued. Other scalable processes for synthesis of advanced materials and nanomaterials include hydrothermal and solvothermal approaches. We also have research dedicated to improving the efficiency and yield of traditional processes such as palm oil processing by introducing approaches such as integrated systems and advanced catalysis.

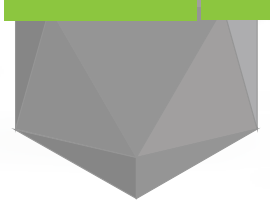
Nanomaterials Technology

This program focuses on the development of innovative products using advanced materials and nanomaterials for various applications. The different types of nanomaterials used include carbon based nanostructures such as carbon nanotubes (CNT), graphene oxide and reduced graphene oxide, graphene quantum dots as well as other various types of metal oxide nanoparticles. The products being developed are diverse and include nanofluids such as nanomaterial enhanced drilling fluids and heat transfer fluids for microfluidics, nanoemulsion systems such as nanoemulsion fuels and pesticides, a wide range of nanocomposites, nanocatalysts, nanocoatings and smart materials. The nature of research under this program ranges from fundamental studies to applied research to proof of concept and performance testing.

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)
- High Energy Ball Mill
- Hysteresis Graph System
- Optical Microscope
- Universal Testing Machine (UTM)
- Nano Sizer
- Wire Bonder





Name	*Email*	*Expertise*
Assoc. Prof. Dr. Suraya Abdul Rashid	suraya_ar@upm.edu.my	Nanomaterials Synthesis and Processing, Nanocomposites
Prof. Dr.Robiah Yunus	robiah@upm.edu.my	Chemical Engineering/ Renewable Energy, Reaction Engineering Process
Dr.Mohamad Amran Mohd Salleh	asalleh@upm.edu.my	Particle Technology, Biochar and Nanotechnology, Carbonaceous Particulates
Profesor Dr. Luqman Chuah b. Abdullah	chuah@upm.edu.my	Separation Technology, Chemical and Environmental Technology, Material Engineering (Polymer) and Particle Technology
Dr. Shafreeza Sobri	shafreeza@upm.edu.my	Corrosion, Electrochemistry
Assoc. Prof. Dr. Azowa Ibrahim	norazowa@upm.edu.my	Natural Fibre Reinforceced Composites, Nanocomposites
Dr. Faizah Mohd Yasin	fmy@upm.edu.my	Nanotechnology, Advanced Materials, Nanosensors
Dr. Nordin Hj. Sabli	nordin_sab@upm.edu.my	Photoelectrochemical cell, Fuel Cell
Dr. Siti Hajar Othman	s.hajar@upm.edu.my	Nanotechnology, Food Packaging Engineering
Dr. Dayang Radiah Awang Biak	dradiah@upm.edu.my	Nanotechnology, Nanomaterials, Nanobiocomposites
Dr. Umer Rashid	umer.rashid@upm.edu.my	Renewable Energy (Biodiesel)
Dr. Abdul Azis Ariffin	abdulazis@upm.edu.my	Biochemistry and Processing Technology

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 Degree with Thesis (full research) • Master Degree in Science or Engineering (with thesis and coursework) with CGPA ≥3.50 • Master Degree (without thesis) with CGPA ≥3.75 • Bachelor with CGPA ≥3.75 (First Class Upper)	Not 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

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 Engineering with CGPA 3.25	Not 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,
Selangor

Head of Laboratory
itma_kmptl@upm.edu.my

CONTACT US

Director
Institute of Advanced Technology
Universiti Putra Malaysia
43400 UPM Serdang,
Selangor Darul Ehsan
Tel : 03-8946 7533
Fax : 03-8946 7006

INSTITUTE OF ADVANCED TECHNOLOGY

ITMA

MPTL

MATERIAL PROCESSING AND TECHNOLOGY LABORATORY

UNIVERSITI PUTRA MALAYSIA