Postgraduate Programmes Entry Requirements

Entry requirements :

Doctor of Philosophy

- A Master's Degree in physics from Universiti Teknologi Malaysia or any other Institutions of Higher Learning recognised by the Senate ; or
- Other qualifications equivalent to a Master's degree with experience in the relevant field recognised by the Senate ;
  and approved by the Faculty's Graduate Studies Committee and the Senate

Master's Degree

- A Bachelor's Degree with good honours in physics from Universiti Teknologi Malaysia or any other institution of Higher Learning recognised by the Senate ; or
- A qualification equivalent to a Bachelor's Degree with experience in the relevant field recognised by the Senate ;
  and approved by the Faculty's Graduate Studies Committee and the Senate

Research Field

- Computational physics : Amorphous state, polymers, condensed matter physics, electromagnetic simulation, nuclear physics & space plasma physics.
- Lasers & sensors : Fibre lasers, laser-matter interaction, biosensor & optical fibre sensor.
- Materials science : Biopolymer membrane, crystal growth and characterizations, glass, bioactive glass, ceramic and amorphous drugs syntheses and characterizations, proton batteries & second harmonic generation materials.
- Nanomaterials & thin film physics : Nanostructured materials, semiconductor nanostructures & perovskite - based thin film solar cells.
- Muon physics : Data analysis for OMC4DBD and COMET experiments.
- Environmental radiation and nuclear waste : Environmental radioactivity monitoring and nuclear siting, nuclear safety/security assessment & radioactive waste materials.
- Radiation measurement : Radiation detection and dosimetry, medical radiation dose assessment & TLD/OSLD in medical application.
- Plasma physics : Non-thermal plasma technology and applications.
- Quantum computing : ESR Quantum Computing.
- Spectroscopic techniques : Fourier transform infrared spectroscopy, laser spectroscopy & optical emission spectroscopy.
- Vacuum science and instrumentation.

Facilities

X-Ray, Thermal Analysis and Spectroscopy : X-Ray Diffractometer (XRD), Thermal Analyser (TGA-DTA), Ultraviolet-Visible Spectrometer (UV-Vis), Micro Raman Spectroscopy, Photoluminescence Spectrometer and High Resolution Fourier-Transform Infrared (FTIR) Spectroscopy for Gas Analysis.

Microscopy and Imaging : Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM) and Optical Microscope.

Thin Films and Nanostructured Materials Deposition System : Magnetron Sputtering, Thermal Evaporator and Plasma Enhanced-Metal Organic Chemical Vapor Deposition (PE-MOCVD) System.

Radiation Detection and Measurement : High Purity Germanium Spectroscopy System, Radon Detector, Optically Stimulated Luminescence (OSL) Reader System, High Temperature Vacuum Oven, Heating Furnace.

Optical Measurement : Terahertz (THz) Spectrometer, Optical Spectrum Analyzer (OSA), Laser-Induced Breakdown Spectroscopy (LIBS), Non-thermal Plasma System, Multi Channel Fiber Optics Interrogator, Fiber Optics Preparation and Testing Facilities, Diffuse Reflectance Spectroscopic System, UV - NIR Optical Emission Spectrometer.

Electrical Measurement : Four Point Probe Resistivity Measurement System, Ultrasonic Flaw Detector and Recorder and Eddy Current Flaw Detector Kit.

Career Prospects

Graduates of the programme can explore wide range of career opportunities such as :

- Process, maintenance, product, or sales engineers in industries,
- Quality control or quality assurance engineer,
- Academics in higher learning institutions or secondary school teacher,
- Research scientists in higher learning institutions or government research institutions,
- Science officer or industrial supervisor,
- Occupational Health and Safety Officer,
- Health/Medical Physicist, Meteorologist, Metallurgist, Nanotechnologist, or Geophysicist,
- Manufacturing officer, managers, or marketing officers in agencies or industries.

For Further Information, please visit the following websites :

UG entry requirement (Malaysian) :
https://admission.utm.my/entry-requirements-ug-malaysian/
UG entry requirement (International) :
https://admission.utm.my/entry-requirements-ug-international/
PG entry requirement (Malaysian):
https://admission.utm.my/postgraduate-entry-requirements/
PG entry requirement (International):
https://admission.utm.my/int-pg-entry-requirements/

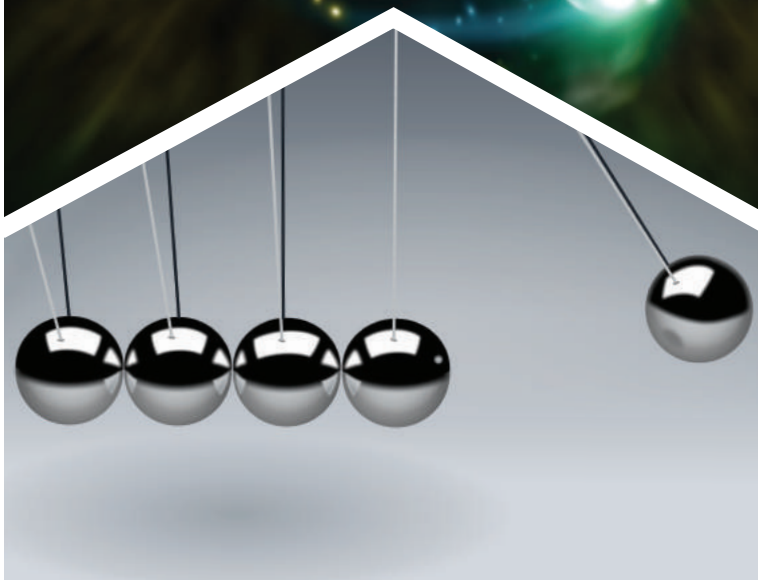
https://science.utm.my/ | https://admission.utm.my/
Universiti Teknologi Malaysia
81310 Johor Bahru, Johor, Malaysia.
pengarah.fizik@utm.my

UTM Faculty of Science
UNIVERSITI TEKNOLOGI MALAYSIA

DEPARTMENT OF PHYSICS

FACULTY OF SCIENCE

... where great minds are nurtured



Overview

Physics is the branch of science concerned with the nature and properties of matter and energy. One thing that may come to mind when speaking of physics is Albert Einstein's famous equation, $E=mc^2$. But there are many more great breakthroughs ever since the time of Newton. Students will have the opportunity to walk through the journeys of great physicists and learn their discoveries in the programmes offered in the Department of Physics. We offer two undergraduate programmes and three postgraduate programmes with emphasis on five main areas; Materials, Optics, Instrumentation, Radiation and Nuclear Physics, and mathematical and theoretical. Students will also develop soft skills in addition to technical knowledge to prepare them for the workforce through the adaptation of UTM's New Academia Learning Innovation (NALI).

Programmes Offered

Undergraduate

> Bachelor of Science (Industrial Physics) with Honours
> Bachelor of Science (Physics) with Honours

The aim of these programmes is to provide the graduates with Physics knowledge, technical skills, and positive attributes to face the challenges in the workplace mainly in industries and research-based institutes/industries. The graduates will become professionals who are competent, innovative, productive and talented physicists for research and development (R&D) and industrial needs. On top of that, they will be equipped with appropriate soft skills for lifelong learning, as well as global citizens with positive attitude, integrity and high responsibility to the community.

The curricula of these Industry Physics programmes have been designed to endow the students with the foundation of core physics within the first three years. In the final year, students will be taking industrial-based elective courses which are divided into four main panels of instrumentation physics, radiation and nuclear physics, materials physics and optical physics, whereas physics students will be taking mathematical and theoretical-based elective courses. The students from both programmes will also undergo a twelve-week research or industrial training in related research institutes or industries.

Undergraduate Programmes Entry Requirements

Minimum Entry Requirements for
STPM/Matriculation/Foundation/Diploma & Equivalent Holders :

University General Entry Requirements :

- Passed the Malaysian Certificate of Examination (SPM) or equivalent with a credit in Bahasa Melayu/Bahasa Malaysia or a credit in Bahasa Melayu/Bahasa Malaysia, July paper and passed History subject effective from year 2013 ; and
- Passed the Malaysian Higher School Certificate (STPM) and obtained a CGPA of at least 2.00 with Grade C in THREE (3) subjects including General Studies ; or
- Passed the Ministry of Education Malaysia (MOEM) Matriculation/ UM Science Foundation/ UKM Foundation/ UiTM Foundation with a CGPA of at least 2.00 ; or
- Obtained an UA/ILKA/US or other equivalent Diploma approved by the Government of Malaysia and the University Senate (special programme entry requirements according to the types of programmes offered) ; and
- Obtained at least Band 1 the Malaysian University English Test (MUET). The validity period for MUET is FIVE (5) years from the date of the MUET result ;

Programme Entry Requirements
STPM/Matriculation/Foundation Holders

- Obtained a CGPA of at least 2.80 at STPM/Matriculation/Foundation level ; and
- Obtained at least Grade B (CGPA 3.00) in Physics at STPM/ Matriculation/Foundation level ; and
- Obtained at least Grade B- (CGPA 2.67) in any ONE (1) of the following subjects : Mathematics, Chemistry, Biology ; and
- Passed with a credit in Mathematics (Grade C) at the Malaysian Certificate of Examination (SPM) level or equivalent ; and
- Obtained at least a Band 2 in the Malaysian University English Test (MUET) or at least Band score of 6.0 in the International English Language Testing System (IELTS).

Diploma Holders

- Obtained a Diploma from UTM or any other institutions approved by the Government of Malaysia and related to the applied course with CGPA of at least 3.00 ; or
- Other equivalent qualifications approved by the Government of Malaysia and the University Senate and related to the applied course with CGPA of at least 3.00 ; or
- Candidates who obtained a CGPA of less than 3.00 but have at least TWO (2) years working experience in related field are eligible to apply ; and
- Passed with credit in Mathematics (Grade C) at the Malaysian Certificate of Examination (SPM) level ; or
- Obtained at least Grade C in any of Mathematics subjects at the Diploma level ; and
- Obtained at least a Band 2 in the Malaysian University English Test (MUET).

Postgraduate

> Master of Philosophy Field of Research : Physics
> Doctor of Philosophy Field of Research : Physics

The Department of Physics offers two research-based programmes leading to the M.Phil. and PhD. degrees in Physics. These programmes are tailored for those who are interested in research and in-depth knowledge in physics through individual and specialised research projects. Students are expected to develop intellectual independence and technical skills while working under the supervision of experienced academic supervisors.

> Master of Science in Physics

The Master of Science programme is designed for students who are interested in broadening their knowledge in physics through classes while gaining some research experience. Students will be required to complete the coursework portion which consists of core and elective courses during the first two semesters of their study. Upon completion of these courses, students will be assigned a supervisor who will guide them through the dissertation project.