Duration

Master of Science - Mixed Mode and Coursework
(Medical Physics, Solid State Physics, Applied Geophysics and Radiation Science)
Full-time : Min 2 semesters / Max 4 semesters

Master of Science - Mixed Mod
{International Master Parallel Programme [(Master of Engineering in Electrical and Microsystems Engineering) and (Master of Science in Solid State Physics)]}
Full-time : Min 4 semesters / Max 10 semesters

Master of Science (MSc) - Research
Full-time : Min 2 semesters / Max 6 semesters
Part-time : Min 4 semesters / Max 12 semesters

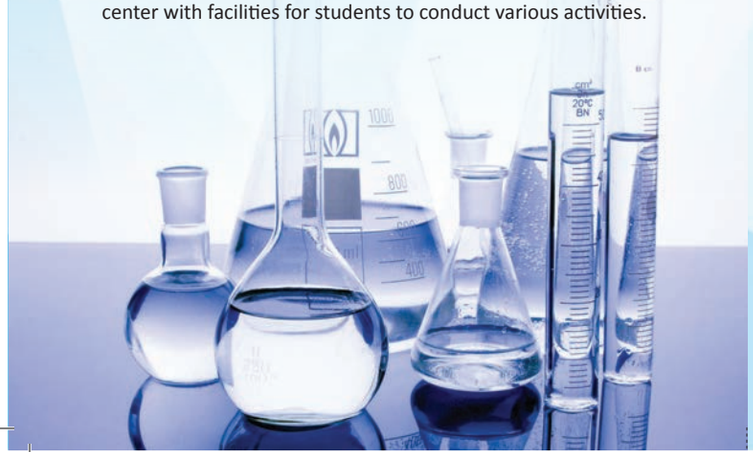
Doctor of Philosophy (PhD) - Research
Full-time : Min 4 semesters / Max 10 semesters
Part-time : Min 6 semesters / Max 15 semesters

Facilities

The School of Physics houses many scientific facilities and laboratories to support the ongoing teaching and research activities. Some of which are:

- First and Second Year Teaching laboratories
- Computer and CAI laboratories
- Microprocessor laboratory
- Engineering Physics laboratory
- Workshop for Engineering Physics
- Medical Physics laboratory
- Radiation Biophysics laboratory
- X-Ray Crystallography laboratory
- Geophysics laboratory
- Solid State laboratory
- Energy laboratory
- Theoretical Physics laboratory
- Institude of Nano-Optoelectronics Research and Technology (INOR) - shared facilities

The new Student Center at the School of Physics is a one-stop center with facilities for students to conduct various activities.



International Study Program

International Dual Degree Programme [(Master of Engineering in Electrical and Microsystems Engineering) and (Master of Science in Solid State Physics)]

Our new Master degree programme places a strong focus on electronics and semiconductor technology. It provides a solid theoretical background as well as a minimum of 6 months internship in one of our international partner companies (e.g. Osram, Infineon Technologies, Continental Automotive Corporation) in Malaysia or Germany. Besides the classic master programme there is the possibility of a dual degree. This dual degree programme offers you the opportunity to obtain a Master degree from Malaysia (USM Penang) in combination with an accredited European Master degree (M. Eng in Electrical and Microsystems Engineering) from OTH Regensburg (Germany) simultaneously. The course is structured to enable students to work independently, efficiently and responsibly using scientific methods and problem-solving techniques. Aside from conveying technical expertise, the course is designed to build personalities and leadership knowledge and skills. Graduates will be equally proficient in performing technical tasks and leadership roles.

Lectures in Malaysia or Germany:
Min. 24 months (min. of 12 months in Germany) / Max 8 semesters

Master thesis in Malaysia or Germany (usually in a company):
Min. 6 months

Application Process

Application at USM Malaysia

↓

Selection interview at USM Malaysia or OTH Regensburg, Germany

↓

Confirmation USM Malaysia and OTH Regensburg, Germany

↓

Start of the Master programme

UNIVERSITI SAINS MALAYSIA

APEX™

POSTGRADUATE PROGRAMME

School of Physics, UNIVERSITI SAINS MALAYSIA.

Introduction

The School of Physics was established in 1969 at the MTC (RECSAM) building where USM was initially located. When USM moved its location to Minden in 1971, the School of Physics was transferred to the new campus grounds and had been sited at the G06 building. With the growing needs for education and research, the School of Physics occupies building G05 and G06A as its teaching and administration building. The School of Physics had developed under several prominent Deans and had continued in its excellence under the present administration of Professor Dr. Haslan Abu Hassan. Ever since it was first established, the School of Physics had offered several academic programmes. At present there are five undergraduate programmes namely, Pure Physics, Applied Physics, Geophysics, Medical Physics and Engineering Physics. The higher degree programmes at the School of Physics commenced in 1972 and is well established to help meet the growing needs of physicists in various fields in the era of high technology and knowledge - based society.

Currently four postgraduate programmes are being offered namely, Master of Science degree by coursework that is M.Sc. (Solid State Physics) and M.Sc. (Medical Physics), Master of Science degree by mixed mode that is M.Sc. (Applied Geophysics) and M.Sc. (Radiation Science) and M.Sc. and Ph.D by Research programmes. At par with the development of USM as APEX University, the School of Physics has developed its research activities. The academic staff have excelled in their research fields and innovation reaping numerous awards at national and international levels in the related disciplines.

Postgraduate Study

Master of Science - Coursework
- Medical Physics
- Solid State Physics

Master of Science - Mixed Mode
- Applied Geophysics
- Radiation Science
- International Master Parallel Programme [(Master of Engineering in Electrical and Microsystems Engineering) and (Master of Science in Solid State Physics)]
- Msc (Radiation Science) Off-shore

Master of Science and Doctor of Philosophy - Research
Research Areas:
- Applied and Engineering Physics
- Condensed Matter Physics and X-ray Crystallography
- Energy Studies
- Geophysics, Astronomy and Atmospheric Science
- Medical Physics and Radiation Science
- The oretical and Computational Physics

Master of Science (Physics) and Doctor of Philosophy

This Programme includes research on various fields. The fields offered are as followed:-

Research Thrust Areas

A) Applied and Engineering Physics
- Semiconductor Fabrication (Thin Film, Epitaxy and Nano structures)
- Sensors and Actuators
- Digital Image Processing (Land Cover Mapping, Water and Air Quality Monitoring)
- Optical and Remote Sensing Technology
- Photonic Devices, Systems and Applications
- Thermal Processes in Device and Packaging

B) Condensed Matter Physics and X-ray Crystallography
- Materials Fabrication and Characterization for Electronics, Optoelectronics and Biomedicine
- Studies of Condensed Matter Materials and Devices
- Photonic Materials and Devices
- Modelling and Simulation of Condensed Matter Devices
- X-ray Structure Determination and Characterization (Organic/ Organometallic Compounds, Non-linear Optical Materials, Natural Products)

C) Energy Studies
- Solar Thermal and Photovoltaic
- Computer Simulation and Modelling of Solar Energy
- Bioenergy
- Fuel Cell and Batteries

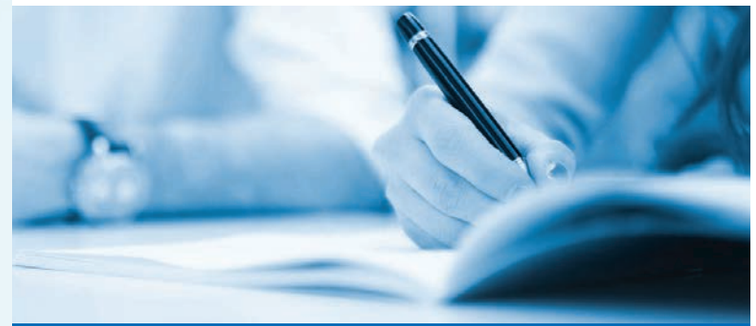
D) Geophysics, Astronomy and Atmospheric Science
- Exploration Geophysics
- Physical Oceanography
- Environmental Remote Sensing (Land and Water)
- Positional Astronomy
- Photometric and Spectroscopic Studies
- Ozone Studies
- Atmospheric Studies
- Meteorology
- Atmospheric Remote Sensing
- Radioastronomy
- Astrophysics

E) Medical Physics and Radiation Science
- Radiation Dosimetry, Radiation Protection (Monte Carlo Methods, Non-destructive Testing)
- Medical Instrumentation (Lasers, Ultrasound, MRI, CT, Nuclear Medicine, Imaging Techniques)
- Radiation Physics
- Biophysics (Radiation, Cardiovascular, Cellular)

F) Theoretical and Computational Physics
- Computational Condensed Matter Physics
- Linear and Nonlinear Optics
- Theoretical Condensed Matter Physics (Magnetic, Ferroelcectric Materials and Liquid Crystals)
- High Energy Physics (Non-Abelian Gauge Theory, Elementary Particles)

Research Group Leader

1. APPLIED AND ENGINEERING PHYSICS
   Associate Pro fessor Dr. Mutharasu Devarajan
   mutharasu@usm.my
2. CONDENSED MATTER PHYSICS AND X-RAY CRYSTALLOGRAPHY
   Dr. Quah Ching Kheng
   ckquah@usm.my
3. ENERGY STUDIES
   Associate Professor Dr. Adilah Shariff
   adilah@usm.my
4. GEOPHYSICS, ASTRONOMY AND ATMOSPHERIC SCIENCE
   Associate Professor Prof. Dr. Khiruddin Abdullah
   khirudd@usm.my
5. MEDICAL PHYSICS AND RADIATION SCIENCE
   Dr. Norlaili Ahmad Kabir
   norlailikabir@usm.my
6. THE ORETICAL AND COMPUTATIONAL PHYSICS
   Dr. Yoon Tiem Leong
   tlyoon@usm.my



How to apply

Apply directly via online through USM website: http://onlineips.usm.my/admission/

For further enquiries, please contact:

Dean
School of Physics,
Universiti Sains Malaysia, 11800 Pulau Pinang
Tel: 04-653 3200 Facsimile: 04-657 9150
e-mail: dean_phy@usm.my
http://www.fizik.usm.my/