

# FACULTY OF SCIENCE AND TECHNOLOGY

<b>Dean:</b>	Professor Dr. Abdul Latiff Mohammad, <i>BSc (Malaya), MSc, PhD (Reading), FLS, FMSA, DPSK</i>
<b>Deputy Deans:</b>	Professor Dr. Aminah Abdullah, <i>Dip. Agric (UPMalaysia), BS (LSU), Mag (NCSU, Raleigh), PhD (Missouri)</i> Professor Dr. Laily b. Din, <i>BSc (UKMalaysia), PG Dip. Chen (NEW), PhD (Salford), AMIC, DPMP</i> Professor Dr. Abdul Jalil Abdul Kader, <i>DVM (Punj), PhD (Wales)</i>

## Research Degrees:

Master of Science  
Doctor of Philosophy

## Taught Programmes:

Master of Science

The Faculty of Science and Technology (FST) was established officially on the 19<sup>th</sup> of July, 1999 as a result of restructuring of four science-based faculties namely the Faculty of Life Sciences, the Faculty of Mathematical Sciences, The Faculty of Physical and Applied Sciences, and the Faculty of Science and Natural Resources.

The Faculty of Science and Technology strives to be the centre of excellence in teaching, research and community services. FST encourages multidiscipline and innovative research towards attaining national and international recognition. Programmes are offered based on the expertise available in five schools in the Faculty. They are:

- ❖ School of Applied Physics
- ❖ School of Biosciences and Biotechnology
- ❖ School of Chemical Sciences and Food Technology
- ❖ School of Mathematical Sciences
- ❖ School of Environmental and Natural Resource Sciences

## PROGRAMME STRUCTURE

### Doctor of Philosophy

*(By research and thesis)*

### Master of Science

*(By Thesis)*

Candidates are required to take at least 6 units (depending on the requirement of a programme) including 4 units of Faculty's Course (STPD6014) and complete a research thesis. Total units required for graduation is 36. Should a candidate performs extremely well ( $PNGK \geq 3.67$ ), he or she can apply for conversion from M.Sc. to Ph.D. programme.

### Master of Science

*(By Coursework)*

Candidates have to register and pass 36 units of coursework and research project. Units for research project is between 8-12.

## FACULTY'S COURSE (STPD)

MSc candidates (except School of Mathematical Science) are required to register and pass STPD6014, Research Methodology.

## RESEARCH AREAS

*(Ph.D. Programmes)*

Research areas for the PhD are outline according to school as follows:

### Applied Physics

Alloys, Bio-polymer Composites Technology, Ceramics, Composites, Corrosion, Glassy Carbon, High Temperature Superconductivity, Magnetic Materials, Mathematical Physics, Medical Physics, Non-destructive Testing, Pollution, Polymer Technology, Pulp and Paper Technology, Renewable Energy, Solid State Ionics, Space Physics and Technology, Thin Films.

### Biosciences and Biotechnology

Plant Biotechnology, Genomic, Microbial-Animal interaction, Microbial-Plant interaction, Molecular Parasites, Plant Conservation, Gen Structure and Function.

### Mathematical Sciences

Algebra, Ethriomathematics, Analysis, Fuzzy Mathematics, Quantum Mechanics, Mathematical Modelling, Multilevel Modelling, Mathematical Education, Management of General and Life Insurance, Risk Management, Environmetrics Biometrics, Dynamical Systems, Statistical quality and measurement of Customer Satisfaction, Medical Statistics, Social Statistics, Bayesian Statistics.

### Chemical Sciences and Food Technology

Food Chemistry and Analysis, Flavour Compound, Edible Biopolymer, Phytochemicals and Food Additives, Food Ingredient, Sensory Evaluation and Food Acceptance, Food Safety and Quality, Food Microbiology, Food Toxicology and Fermentation, Community Nutrition, Food Processing, Natural Products, analytical Chemistry, Environmental Chemistry, Synthesis of Organic Compound, Catalysis, Thermoplastics, Composite and Polymers.

## Environment and Natural Resource Sciences

Air and Water Pollution and Quality; Aquatic Biology; Biochemical, heavy metal & Pesticide toxicology; Biological Control; Clastic and Carbonate Sedimentology; Climate Study & Modelling; Conservation Biology; Conservation Geology; Cytogenetics; Ecology and Systematics of Higher and Lower Plants; Ecology and Systematics of Mammals; Ecotoxicity; EIA; Engineering and Environmental Geophysics; Fish Biology; Forest Ecology; Geochemistry; Geotourism; Genetics and Breeding; Insect Systematics; Invertebrates Biology; Invertebrate Ecology and Systematics; Molecular Systematics; Marine Biotoxins; Marine Ecology; Marine Geochemistry & Radichemistry; Marine Plankton and Benthos; Micropaleontology; Mineralogy; Mineral Exploration; Paleontology; Palynology; Parasitology; Petroleum Geology; Petrology; Phycology; Physical Oceanography; Physiology & Diversity of Marine Microbes, Plant anatomy; Radiology; Safety; Health & Environment; Remote Sensing & Aerial Photography; Stratigraphy; Structural Geology; Soil Science; Weed Science.

## SCHOOL OF APPLIED PHYSICS

### PROGRAMME STRUCTURE

#### Master of Science (Physics)

A candidate for this programme is required to pass 36 units, consisting of 26 units of Thesis Research and 10 units of coursework.

#### COURSES OFFERED

STPD6014	Research Methodology
STSF6816	Thesis Research I
STSF6826	Thesis Research II
STSF6836	Thesis Research III
STSF6848	Thesis Research IV

And 6 units taken from the courses offered in the Master of Science (Applied Physics) or Master of Science (Energy Technology) Programmes, with the approval of the candidate's supervisor.

#### Master of Science (Material Science)

A candidate for this programme is required to pass 36 units, consisting of 26 units of Thesis Research and 10 units of coursework.

#### COURSES OFFERED

STPD6014	Research Methodology
STSB6816	Thesis Research I
STSB6826	Thesis Research II
STSB6836	Thesis Research III
STSB6848	Thesis Research IV

And 3 units taken from the Master of Science Programmes offered by the School of Applied Physics and 3 units from any of the Master of Science Programmes offered by the Schools in the Faculty of Science and Technology, with the approval of the candidate's supervisor.

## Master of Science (Nuclear Science)

A candidate for this programme is required to pass 36 units, consisting 26 units of Thesis research and 10 units of coursework.

#### COURSES OFFERED

STPD6014	Research Methodology
STSN6816	Thesis Research I
STSN6826	Thesis Research II
STSN6836	Thesis Research III
STSN6848	Thesis Research IV

And 6 units taken from the courses in the Master of Science Programmes offered in the Faculty of Science and Technology, with the approval of the candidate's supervisor.

## Master of Science (Energy Technology)

Candidates for this programme is required to pass 36 course units, comprising of 8 units of Research Project, 22 units of prescribed courses and 6 units of elective courses. The course structure is as shown in the table below.

#### COURSES OFFERED

##### Core Courses

STPD6014	Research Methodology
STSF6013	Energy Conversion Materials
STSF6023	Conceptual Design of Energy Systems
STSF6033	Energy Philosophy, Issues and Policy
STSF6073	Energy Economics and Management
STSF6083	Energy Control Instrumentation
STSF6063	Energy and the Environment
STSF6972	Research Project I
STSF6986	Research Project II

##### Elective Courses

STSF6113	Battery Technology
STSF6123	Combustion and Energy Generating Systems
STSF6133	Photo-voltaic Technology
STSF6143	Fuel Technology
STSF6153	Wind Energy Technology
STSF6173	Solar Thermal Technology

#### ACADEMIC STAFF

##### Chair Person

Professor Dr. Ibrahim Abu Talib

##### Professor

Baharudin Yatim, *BSc, PhD (Kent), FIPM, JSM, KMN, DNS, PPT, PMC*

Ibrahim Abu Talib, *BSc (UKMalaysia), MSc (London), PhD (Surrey), FIPM, FMASS*

Khalijah Mohd. Salleh, *BSc (Malaya), MSc (Kent), PhD (Calif), MIPM*

Lim Swee Cheng, *BSc (Malaya), PhD (London), FIPM*

Mazlan Othman, *BSc, MSc, PhD (Otago), MIPM, FRAS*

Mohamad Deraman, *BSc (UKMalaysia), MSc, PhD (Kent), MIPM, FMMS, MMASS, MPESAN*

Muhamad Yahaya, *BSc, Drs (ITB), PhD (Monash), FIPM, FMASS*

Muhamad Mat Salleh, *BSc, Drs (ITB), PhD (London)*

Mohd. Yusof Hj. Othman, *MSc (UKMalaysia), MSc (London), PhD (Aston), MIPM, KMN*

Roslan Abd. Shukor, *BSc, MSc (N. Illinois), PhD (Arkansas)*

Sahrim Hj. Ahmad, *BSc (Malaya), PhD (L'boro)*  
Supian Samat, *BSc (UKMalaysia), PhD (Wales), FIPM*

#### **Associate Professor**

Abd. Razak Daud, *BSc, DipEd (UKMalaysia), MSc, PhD (Surrey)*  
Ahmad Suhaimi Abdullah, *BSc (UKMalaysia), MSc (Surrey), PhD (Julich/Lough) MINDS*  
Elias Saniman, *BSc (UKMalaysia), MSc, PhD (Surrey)*  
Hasan Adli Alwi, *BSc (Harriot-Watt), MSc (Manchester), PhD (Birmingham)*  
Koh Aik Khoon, *BSc (UKMalaysia), MSc (Bath), PhD (NSW), CMMSA*  
Muhamad Othman, *Drs (GAMA) Dr.rer.nat (Hannover)*  
Mustaffa Hj. Abdullah, *BSc (Malaya), PhD (Leeds)*  
Ramli Omar, *BSc (UKMalaysia), PhD (Warwick)*  
Sarani Zakaria, *BSc (Bishop's Univ.), MSc, PhD (UMIST)*  
Shahidan Radiman, *BSc (London), PhD (Cambridge), SPLI, FCCS, FCPS, FABI*

#### **Lecturer**

Ahmad Puaad Hj. Othman, *BSc, MSc (N. Illinois), PhD (Manchester)*  
Ahmad Zaharim Abd. Aziz, *BSc (Queensland), PhD (Nottingham)*  
Azman Jalar @ Jalil, *BSc (UKMalaysia), PhD (Birmingham)*  
Geri Kibe Ak Gopir, *BSc UKMalaysia), MSc, PhD (Essex)*  
Mohammad Hafizuddin Hj. Jumali, *BSc (UKMalaysia), PhD (Warwick)*  
Mohd. Hafidz Ruslan, *BSc, MSc, PhD (UKMalaysia)*  
Muhammad Azmi Abdul Hamid, *BSc (UKMalaysia), PhD (Liverpool)*  
Noor Baa'iah Ibrahim, *BSc (UKMalaysia), MSc, PhD (Warwick)*  
Redzuwan Yahaya, *BSc (UKMalaysia), PhD (Sussex)*  
Roslinda Shamsudin, *BSc (UKMalaysia), PhD (Sheffield)*  
Rozaidi Rasid, *Dip. Rubber & Plastic Tech. (ITM), BSc (North London), PhD (UMIST)*  
Sithi Vinayakam a/l Muniandy, *BSc, MSc (UKMalaysia), PhD (Oxford)*  
Zahari Ibarahim, *BSc (UKMalaysia), PhD (Cardiff)*

## **SCHOOL OF BIOSCIENCES & BIOTECHNOLOGY**

### **TYPES OF PROGRAMMES**

#### **Master of Science:**

*(By Thesis)*  
Biochemistry; Microbiology;  
Botany; Genetics; Zoology

### **PROGRAMME STRUCTURE**

Every candidate of the programme is expected to successfully complete 36 units, consisting of 26 units of research and 10 units of courses. The research projects can be selected from the following areas, namely, Biochemistry, Molecular Biology, Microbiology, Plant Science or Plant Biotechnology, and Animal Science or Animal Biotechnology.

The required 10 units of courses should be made up of 6 units of core courses and 4 units of electives, respectively. The core courses are those offered by the Faculty and School while the electives can be chosen from any offered by the other Schools of Study.

## **COURSES OFFERED**

### **Core Courses**

STPD 6014 Research Methodology  
STBP6242 Latest Development in Molecular and Cell Biology  
STBP6252 Management of Biotechnology

### **School Courses (Electives)**

STBP6262 Bioinformatics  
STBP6342 Bioprocessing Technology  
STBP6352 Molecular Phylogeny  
STBP6362 Regulation of Cell Development  
STBP6442 Biology of Cancer Cells  
STBP6452 Molecular Mechanisms of Pathogenicity  
STBP6462 Molecular Genetics of Plant Development  
STBP6984 Thesis Research I  
STBP6996 Thesis Research II  
STBP6988 Thesis Research III  
STBP6998 Thesis Research IV

## **ACADEMIC STAFF**

### **Chair Person**

Prof. Dr. Normah Mohd. Noor

### **Professor**

Abdul Jalil Abdul Kader, *DVM (Punjab), PhD (Wales)*  
Alias Kamis, *BSc (UKMalaysia), MS (Guelph), PhD (Wales)*  
Azimahtol Hawariah Lope Pihie, *BSc (UKMalaysia), MSc (Strath.), PhD (Glasgow)*  
Farida Habib Shah, *BSc, MS (Malaya), PhD (NSWales)*  
Hamid Lazan, *BagSc (Malaya), MSc (R'dg), PhD (Macquarie)*  
Ismail Ahmad, *BagSc (Malaya), MS (Br.Col.), PhD (Arkansas)*  
Mohammed Noor Embi, *BSc, MSc (Otago), PhD (Dundee), DSDK, AMK,*  
Nor Muhammad Mahadi, *BCM, BSc, PhD (Monash),*  
Normah Mohd. Noor, *BCN, BA (Macalester Coll.), MS (Mich. State), PhD (UPMalaysia)*  
Othman Omar, *BSc (UKMalaysia), MSc (Mahidol), PhD (Sheffield)*  
Rahmah Mohamed, *BSc (CNA), PhD (Queensland)*  
Wan Mohtar Wan Yusoff, *BSc Chem.Eng. (Leeds), PhD (London), MICHEM*  
Zainal Abidin Abu Hasan, *BSc (UKMalaysia), PhD (London), F.R.S. Trop. Med. Hyg (London)*  
Zainon Mohd. Ali, *BSc (UKMalaysia), PhD (Macquarie)*

### **Associate Professor**

Abdul Karim Abdul Ghani, *BagSc (Malaya), MS (Calif., Davis), PhD (Wisconsin)*  
Abdul Wahab Datuk Kosai, *BSc (Malaya), PhD (St. Andrews), MIBiol (London)*  
Ainon Hamzah, *BSc (UKMalaysia), MSc (Salford), PhD (UPMalaysia)*  
Fauzi Daud, *BSc (UKMalaysia), PhD (Sheffield)*  
Halimah Abdullah Sani, *BSc (UKMalaysia), MSc (Aberd), PhD (Newcastle)*  
Hasidah Mohd. Sidek, *BS, MS, (N. Illinois), PhD (Melbourne)*  
Ismanizan Hj. Ismail, *BSc (UKMalaysia), PhD (Edinburgh)*  
Noran Majid, *BSc (Malaya), MSc (Mahidol), MS (Wisconsin), PhD (Malaya)*  
Rohani Abdul Kadir, *Dip. Agric (Malaya), BS, MS, PhD (Nebraska)*  
Ruslan Abdullah, *BSc.Ed (Hons)(UPMalaysia), PhD (Nottingham)*

Sahidan Senafi, *SMP, BSc (UKMalaysia), MMedSc (WAustralia), PhD (Dundee)*  
 Sheila Nathan, *BSc (UKMalaysia), MSc, PhD (Sussex)*  
 Wan Kiew Lian, *BSc (UKMalaysia), PhD (Cambridge)*  
 Zulkiflie Zamrod, *B.A (Humboldt), PhD (UCSD/San Diego State)*

#### Lecturer

Abdul Munir Abdul Murad, *BSc (Sheffield), PhD (Aberdeen)*  
 Adura Mohd. Adnan, *DipSc (ITM), MS (California), PhD (UKMalaysia)*  
 Aidil Abdul Hamid, *BSc (UKMalaysia), PhD (Hull)*  
 Asmat Ahmad, *BSc (UKMalaysia), MSc (Herriot-Watt), PhD (UKMalaysia)*  
 Farah Diba Abu Bakar, *BSc (Guelph), MSc (NuS)*  
 Kalaivani a/p Nadarajah, *BSc, MSc (UKMalaysia), PhD (East Anglia)*  
 Mahanem Mat Noor, *BSc (Malaya), PhD (Sheffield)*  
 Md. Anuar Osman, *DVM (Punjab), MSc, PhD (WAustralia)*  
 Mohd. Sharom Mohd. Yusof, *BSc (Sussex), MSc, PhD (London)*  
 Nazlina Ibrahim, *BSc, MSc (UKMalaysia), PhD (Warwick)*  
 Nik Marzuki Sidik, *BSc (UKMalaysia), PhD (Wales)*  
 Roohaida Othman, *BSc, PhD (Southampton)*  
 Shahrul Hisham Zainal Ariffin, *BSc (Malaya), MSc (UKMalaysia)*  
 Zamri Zainal, *BSc (UKMalaysia), PhD (Nottingham)*

## SCHOOL OF CHEMICAL SCIENCES AND FOOD TECHNOLOGY

### PROGRAMME STRUCTURE

#### Master of Science (Chemistry)

##### a) By Coursework

Candidates who follow the Master of Science (Chemistry) programme with coursework are required to register and pass at least 36 units courses during the study period.

#### COURSES OFFERED

##### Core Courses

STKK6976	Research Project I
STPD6014	Research Methodology
STKK6112	Quantum Chemistry
STKK6312	Inorganic Synthesis and Mechanism
STKK6512	Chemistry of Organic Synthesis
STKK6712	Principle of Analytical Instrumentation and Design
STKK6986	Research Project II
STKK6122	Macromolecule System
STKK6322	Applied Inorganic Chemistry
STKK6522	Spectroscopy in Organic Chemistry
STKK6722	Chemistry Management System

##### Elective Courses (Choose 2 from 5 courses)

STKK6142	Electrochemistry
STKK6342	Physical Inorganic Chemistry
STKK6542	Kinetic and Reaction Mechanism
STKK6742	Surface Sciences
STKK6942	Radiochemistry Techniques

##### b) By Thesis

Candidates registering for this programme are required to complete a minimum of 36 units to obtain the degree. Out

of 36 units, 28 units should comprise of thesis research and 8 units of course work. The core courses are as follows:

STPD6014	Research Methodology
STKK6014	Laboratory Research Skill
STKK6816	Thesis Research I
STKK6826	Thesis Research II
STKK6838	Thesis Research III
STKK6848	Thesis Research IV

#### Master of Science (Food Science)

##### a) By Coursework

Candidates registering for this programme must successfully complete a minimum of 36 units of course work. Out of the total of 36 units, 32 units are compulsory courses and 4 units are elective courses. Students that are not from the fields of Food Science and Nutrition or food Science and Technology are required to take undergraduate courses as prerequisite courses. Courses taken must be appropriate to the students' field of specialisation and will be decided by the programme.

#### COURSES OFFERED

STKM6113	Advanced Food Microbiology
STKM6313	Food Chemistry
STKM6712	Food and Nutritional Toxicology
STPD6014	Research Methodology
STKM6032	Fat and Oil Science
STKM6042	Confectionary and Chocolate Technology
STKM6976	Research Project I
STKM6123	Advanced Food Chemistry
STKM6323	Food Processing Operation
STKM6722	Food Packaging
STKM6063	Food Additive
STKM6023	Protein-Based Product Technology
STKM6242	Food Safety Management
STKM6986	Research Project II

##### b) By Thesis

Students registering for this program are required to complete a minimum of 36 units to obtain the degree. Out of the 36 units, 26 units should comprise of research and 10 units of coursework. Core courses are as follows:

STPD6014	Research Methodology
STKM6313	Food Quality
STKM6123	Advanced Food Chemistry
STKM6816	Research I
STKM6826	Research II
STKM6836	Research III
STKM6848	Research IV

#### ACADEMIC STAFF

##### Chair Person

Professor Dr. Ibrahim Baba

##### Professor

Abdul Hamid Othman, *BSc (Malaya), PhD (Reading), AMIC, DNS, KMN, PMC*  
 Abdul Salam Babji, *Dip. Agric (UPMalaysia), BS, MS, PhD (Nebraska)*  
 Aminah Abdullah, *Dip. Agric (UPMalaysia), BS (LSU), MAG (.NCSU, Raleigh). PhD (Missouri)*

Bohari Mohd. Yamin, *BSc (Malaya), PhD (King's College, London), PJK, KMN*,  
 Ibrahim Abdullah, *BSc (Malaya), PhD (Calif), AMIC, AMN, AMK*  
 Ibrahim Baba, *BSc (UKMalaysia), PhD (Reading), AMIC*  
 Ikram M. Said, *BSc (Hons) (Malaya), PhD (Illinois), FMIC, KMN, DNS, PMC*,  
 Laily bin Din, *BSc (UKMalaysia), PG Dip.Chem (NEW), PhD (Salford), AMIC, DPMP*,  
 Md. Pauzi Abdullah, *BSc (UKMalaysia), MSc (Salford), PhD (Wales), AMIC*  
 Mohd. Wahid Samsudin, *PCM, BSc (UKMalaysia), PhD (Reading)*  
 Sukiman Sarmani, *BSc (UKMalaysia), PhD (Reading), AMIC*  
 Zuriati Zakaria, *BSc (UKMalaysia), MSc (Mahidol), PhD (E. Anglia), FMIC*

#### **Associate Professor**

Amran Ab. Majid, *BSc (UKMalaysia), PhD (L'boro)*  
 Jamaludin Mohd Daud, *BSc (UKMalaysia), MSc, PhD (Salford)*  
 Harun Hj. Hamzah, *BSc (UKMalaysia), PhD (Salford)*  
 Lee Yoke Heng, *BSc (UKMalaysia), MSc, PhD (Cambridge), AMIC, MRSC, C.CHEM*  
 Mamot Said, *AMP, BSc (UKMalaysia), PhD (Leeds)*  
 Mat Zakaria, *BSc (UKMalaysia), MSc, PhD (Salford)*  
 Md Soot Hj Ahmad, *BSc, DipEd (UKMalaysia), MSc (Salford), PhD (Manchester), AMIC*  
 Mohd Ambar Yarmo, *BSc (UKMalaysia), PhD (UWIST)*  
 Mohd Khan Ayub, *BSc (UKMalaysia), MSc (Reading), PhD (Salford)*  
 Mohd Rozali Othman, *BSc (UKMalaysia), PhD (La Trobe)*  
 Musa Ahmad, *BSc (UKMalaysia), MSc, PhD (UMIST), AMIC*  
 Nik Idris Nik Yusof, *Drs (ITB), MSc (La Trobe), PhD (Essex)*  
 Nik Ismail Nik Daud, *BAGSc (Malaya), MSc (Strath), MBA (UKMalaysia), PhD (London)*  
 Osman Hassan, *BSc (UKMalaysia), Dip.Ed, MSc, PhD (Leeds)*  
 Sri Nurestri Abdul Malek, *BSc, MSc (Otago), PhD (King's College, London)*  
 Suriah Abdul Rahman, *Dip.Agric (UPMalaysia), BS (LSU), MS, PhD (Mississippi)*  
 Wan Yaacob Wan Ahmad, *BSc (UKMalaysia), MSc (Southern Calif)*  
 Yang Farina Abdul Aziz, *BSc Hons (Manchester), PhD (Reading), AMIC*

#### **Lecturer**

Anita Ramli, *BSc (UKMalaysia), PhD (Reading)*  
 Ayub Mohd Yatim, *MS, PhD (Tenn)*

Ishak Ahmad, *BSc (UKMalaysia), PhD (UMIST)*  
 Jalifah Latip, *BSc (UKMalaysia), MSc (Pharmacol), PhD (Strathclyde)*  
 Jumat Salimon, *BSc (UKMalaysia), MSc (Miami), PhD (Wales)*  
 Maaruf Abd. Ghani, *BSc (UKMalaysia), MSc (UPMalaysia)*  
 Maimunah Sokro, *BSc (UKMalaysia), PhD (Salford)*  
 Mohd Yusof Maskat, *BSc (UKMalaysia), PhD (Georgia)*  
 Muhammad Kassim, *BSc (Lakehead), MSc (UKMalaysia)*  
 Muhamad Samudi Yasir, *BSc (UKMalaysia), MSc (Osaka Prefac), PhD (Sussex)*  
 Nazaruddin Ramli, *BSc (UPMalaysia), MSc (UKMalaysia)*  
 Norrakiah Abdullah Sani, *BSc (UPMalaysia), MSc (London), PhD (Reading)*  
 Rusli Daik, *BSc (UKMalaysia), PhD (Durham), AMIC*  
 Wan Aida Wan Mustapha, *BSc (UKMalaysia), PhD (Nottingham)*  
 Zalifah Mohd Kasim, *BSc (UKMalaysia), MSc (UKMalaysia)*

## **SCHOOL OF MATHEMATICAL SCIENCES**

### **PROGRAM STRUCTURE**

#### **Master of Science (Mathematics)**

The Master of Science (Mathematics) program consists of three modules as follows:

- Pure Mathematics Module
- Mathematical Physics Module
- Management Mathematical Science Module

#### **a) By Thesis**

Candidates who choose to do Thesis are required to take 8 units of courses (consisting of STPD6014 Research Method and another course of 4 units related to the field of research) and 28 units of Thesis Research.

#### **COURSES OFFERED**

STPD6014	Research Method One 4 units course related to the field of research
STQM6814	Thesis Research I
STQM6828	Thesis Research II
STQM6838	Thesis Research III
STQM6848	Thesis Research IV

#### **b) By Coursework**

Candidates who choose to do Coursework only are required to take and pass at least 28 units of courses (compulsory and optional) besides completing a research project of 8 units.

#### **Pure Mathematics Module**

## COURSES OFFERED

### Core Courses

STQM6114	Topology
STQM6124	Algebra
STQM6134	Functional Analysis
STQM6224	Complex Analysis
STQM6292	History and Philosophy of Mathematics
STQM6988	Research Project

### Elective Courses

STQM6144	Differential Geometry
STQM6214	Fuzzy Mathematics
STQM6234	Ergodic Theory
STQM6244	Algebraic Topology
STQM6254	Combinatorial Group Theory
STQM6264	Category Theory
STQM6274	Measure Theory and Integration

## Mathematical Physics Module

### COURSES OFFERED

#### Core Courses

STQM6014	Deterministic Control Theory and its Applications
STQM6314	Quantization Method
STQM6334	Classical and Quantum Fields
STQM6414	Dynamical System
STQM6514	Philosophical Issues in Mathematical Physics
STQM6524	Linear Modelling of Non-Deterministic Dynamical System
STQM6534	Fluid Mechanics
STQM6988	Research Project

#### Elective Courses

STQM6184	Multi-objectives Deterministic Linear Planning
STQM6214	Fuzzy Mathematics
STQM6234	Research Theory
STQM6324	Numerical Method of Heat Transfer and Fluid Flow
STQM6344	Hamiltonian Dynamical System
STQM6354	Algebraic Structure and Physical Science
STQM6364	Fractal and Chaos in Physics
STQM6544	Particle Physics and Cosmology
STQM6554	Surface Statistics Thermodynamics, Interface and Membrane
STQM6564	Global Analysis in Physics

## Management Mathematical Science Module

### COURSES OFFERED

#### Core Courses

STQM6614	Deterministic Decision Model
STQM6624	Simulation
STQM6634	History and Philosophy of Management Science
STQM6624	Statistical Decision Making
STQM6988	Research Project

#### Elective Courses

STQM6184	Multi-objective Deterministic Linear Planning
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STQM6214	Fuzzy Mathematics
STQM6524	Linear Modelling of Non-Deterministic Dynamical System
STQM6644	Production Operational Mathematics and Logistics
STQM6654	Mathematical Economics and Finance in Business
STQM6664	The Mathematics of Public Service Planning
STQM6124	Process Control and Quality Improvement
STQM6134	Total Quality Management
STQM6624	Statistical Decision Making

## Master of Science (Statistics)

### a) By Thesis

Candidates who choose to do Thesis are required to take 8 units of courses (consisting of STPD6014 Research Method and another course of 4 units related to the field of research) and 28 units of thesis Research.

### COURSES OFFERED

STPD6014	Research Method
One 4 units course related to the field of research.	
STQS6814	Thesis Research I
STQS6828	Thesis Research II
STQS6838	Thesis Research III
STQS6848	Thesis Research IV

### b) By Coursework

Candidates who choose to do Coursework only are required to take and pass at least 28 units of courses (compulsory and optional) besides completing a research project of 8 units.

### COURSES OFFERED

#### Core Courses

STQS6034	Statistical Inference
STQS6254	Experimental Design and Analysis
STQS6274	Statistical Computing
STQS6584	Statistical Modelling
STQS6988	Research Project

#### Elective Courses

STQS6064	Medical Statistics
STQS6094	Sampling Technique
STQS6244	Stochastic Processes
STQS6284	Multivariate Analysis
STQS6444	Time Series Modelling and Forecasting

## Master of Science (Quality and Productivity Improvement)

Candidates are required to take 24 units of core courses with 12 units of elective courses.

### COURSES OFFERED

#### Core Courses

STQM6614	Quality Assurance and Standardisation
STQK6124	Process Control and Quality Improvement
STQK6134	Total Quality Management
STQK6154	Systems Methodology
STQK6998	Research Project

### **Elective Courses**

STQM6514	Quality Management in Service Sector
STQK6524	Productivity Measurement
STQK6534	Marketing Research Method
STQK6544	Quality Design and System Certainty
STQK6624	Statistical Decision Model
STQM6614	Deterministic Decision Model

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### **SCHOOL OF ENVIRONMENTAL AND NATURAL RESOURCE SCIENCES**

#### **PROGRAMME STRUCTURE**

##### **Master of Science:**

*(Biology; Botany; Genetics; Zoology; Geology; Marine Science;*

*Environmental Science)*

##### **a) By Thesis**

Students are required to complete 36 units, with 26 units of Thesis Research towards preparing a thesis and 10 units of course work.

##### **COURSES OFFERED**

STPD6014	Research Methodology
STAP6906	Thesis Research I
STAP6916	Thesis Research II
STAP6926	Thesis Research III
STAP6938	Thesis Research IV

and 6 elective units offered by any of the Schools in the Faculty of Science and Technology with prior approval of the student's supervisor.

##### **b) By Coursework**

##### **Master of Science (Conservation Biology)**

Candidates may enrol at the start of any semester. The 36 unit curriculum is composed of 12 units of core courses, 12 elective units and 12 units of research on an issue pertaining to conservation biology that is written up as a thesis-quality report.

##### **COURSES OFFERED**

##### **Core Courses**

STPD6014	Research Methodology
STAP6013	Natural Resource Exploration
STAP6032	Biogeography
STAP6063	Geographical Information System and Remote Sensing
STAP6976	Research Project I
STAP6986	Research Project II

### **Elective Courses**

STAB6113	Conservation Biology
STAB6023	Conservation Ethics and Legislation
STAB6033	Population and Community Ecology
STAB6073	Principles of Molecular Systematics
STAB6083	Economics of Natural Resources and the Environment

### **Master of Science (Plant Genetic Resource Management)**

The Master of Science (Plant Genetic Resource Management) is a 12-month (2 semesters) course-work programme. Candidates are required to take 36 units, with 12 units of core courses, 12 units of electives and 12 units of research.

### **COURSES OFFERED**

#### **Core Courses**

STPD6014	Research Methodology
STAP6032	Biogeography
STAP6043	Plant Diversity and Systematics
STAP6073	Environmental Management System
STAP6976	Research Project I
STAP6986	Research Project II

#### **Elective Courses**

STAB6143	Economic Botany and Ethnobotany
STAB6903	Plant Genetic Resource Diversity
STAB6913	Population Ecology and Community
STAB6923	Principles of Molecular Systematics

### **ACADEMIC STAFF**

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Professor Dr. Mahani Mansor Clyde

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