ENGINEERING & TECHNOLOGY

Postgraduate
- Prospectus -
2024

SUNWAY UNIVERSITY
A CLASS ABOVE
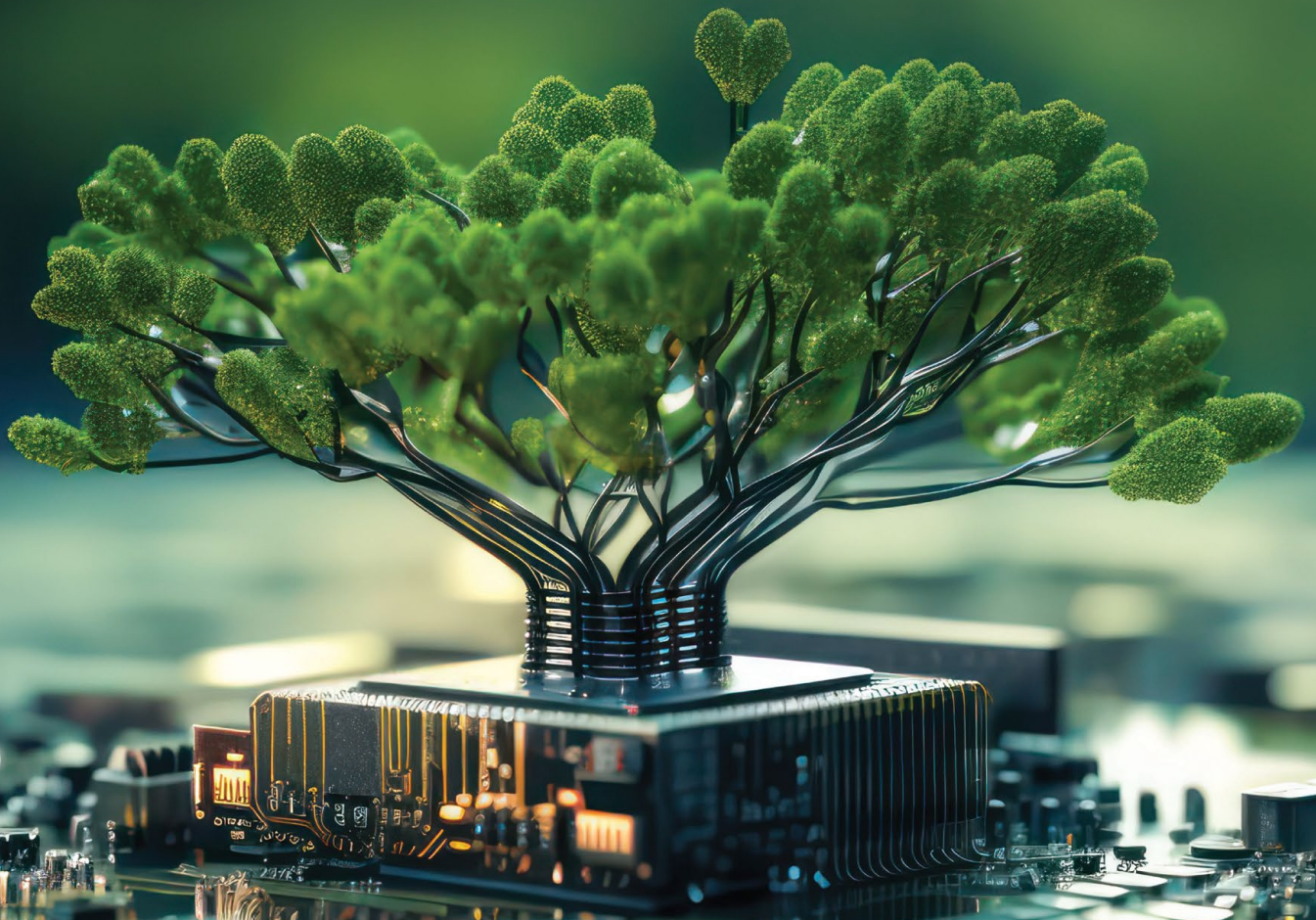
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CONTACT:

SUNWAY UNIVERSITY DU025 (B)
Owned and governed by the Jeffrey Cheah Foundation
Registration no : 200701042913 (800946-T)

No. 5, Jalan Universiti, Bandar Sunway, 47500 Selangor Darul Ehsan, Malaysia.

sunwayuniversity.edu.my

info@sunway.edu.my

+6 (03) 7491 8622

SunwayUniversity   @SunwayU

SUNWAY IS ONE OF THE TOP 150 UNIVERSITIES IN THE WORLD UNDER 50 YEARS OLD

As one of Malaysia's leading and internationally recognised private universities, Sunway University is positioned amongst top universities in the world by QS World University Rankings. Sunway University is ranked #586 globally in the QS World University Rankings 2024 and is the #1 non-government linked private university in Malaysia in the Times Higher Education World University Rankings 2023.

Sunway University has been awarded #1 in Graduate Employability among all universities in Malaysia by Talentbank Group for two consecutive years (2022, 2023) through the National Graduate Employability Index.

The University emerged as an Overall 5 Star rated (Excellent) institution in the QS Stars University Ratings, as well as Five-Star ratings for the individual categories: teaching, facilities, employability, social responsibility, inclusiveness, academic development and internationalisation.

Collaborating with world class partners - Lancaster University and Le Cordon Bleu International, Sunway University offers premier education with international repute. The University also partners University of Oxford, University of Cambridge, Harvard University, Massachusetts Institute of Technology and University of California, Berkeley.

MALAYSIA'S #1
NON-GLU* PRIVATE UNIVERSITY
as awarded by
Times Higher Education

THE World University Rankings 2024

*Government-Linked University

IN THE TOP 600 IN THE WORLD
2024

TEACHING
EMPLOYABILITY
FACILITIES
SOCIAL RESPONSIBILITY
ACADEMIC DEVELOPMENT
INTERNATIONALISATION
INCLUSIVENESS

EXCELLENT
★★★★★
QS

WHY STUDY AT SUNWAY UNIVERSITY?

Industry-relevant and job-ready programmes and curriculum

Numerous **research centres and research collaborations** with leading international universities

Abundant **networking opportunities** with renowned and award wining lecturers, distinguished top 2% research supervisors and industry experts

Flexible **full-time and part-time** study modes to accommodate your schedules
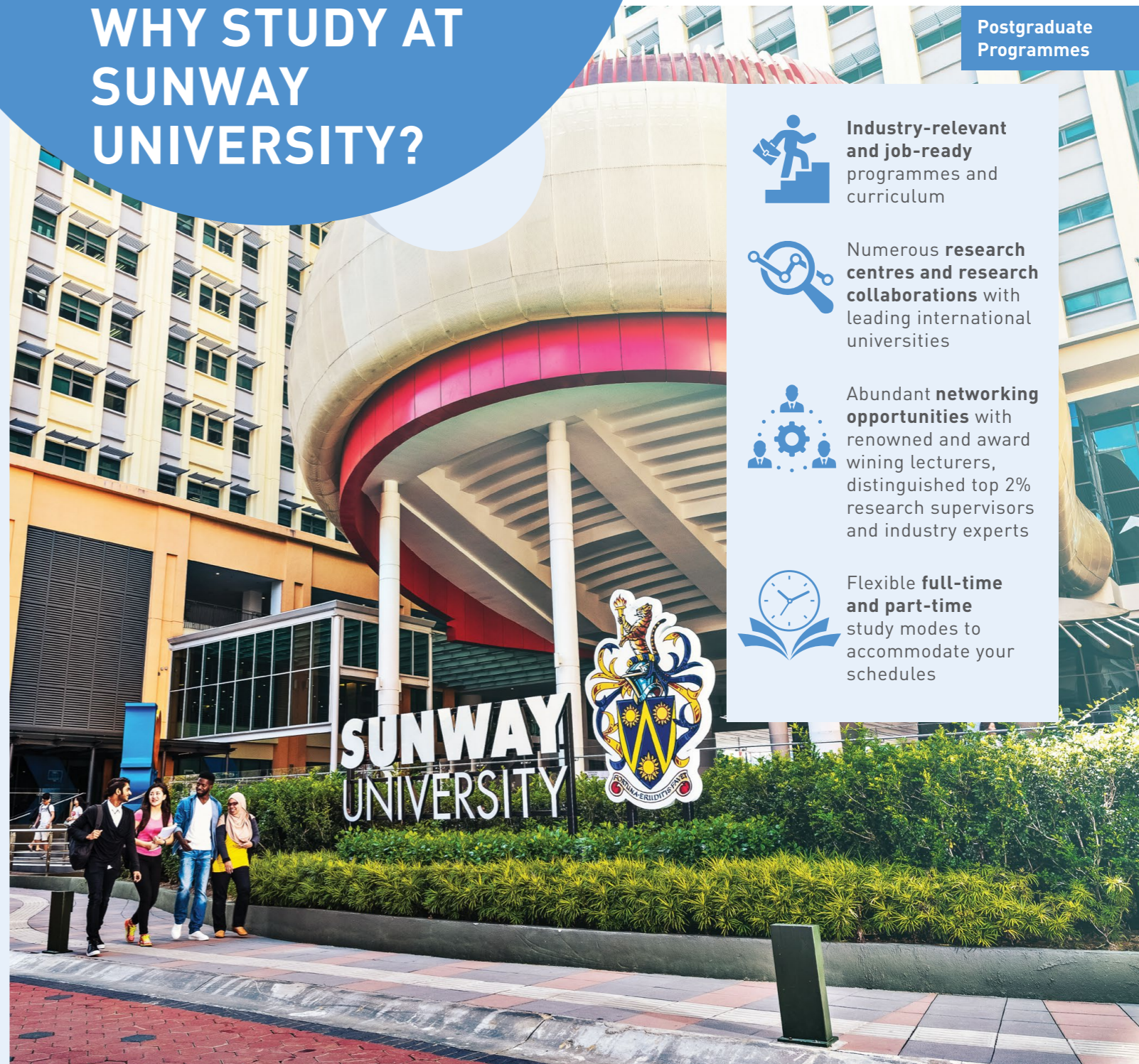
SCHOLARSHIPS & BURSARIES

For more information regarding available scholarships and bursaries, please refer to **https://scholarship.sunway.edu.my/**

*Terms and Conditions apply

ENTRY REQUIREMENTS

PROGRAMME	ENTRY REQUIREMENTS	ENGLISH LANGUAGE REQUIREMENTS
Master of Data Science (Online Distance Learning)	• A Bachelor's degree in Computing or related fields with a minimum CGPA of 2.50; **OR** • A Bachelor's degree in Computing or related fields with a minimum CGPA of 2.00 can be accepted subject to a minimum of five (5) years of working experience in the related fields and rigorous internal assessment; **OR** • Other qualifications equivalent to a Bachelor's degree in Computing or related fields must undergo appropriate prerequisite courses; **OR** • Candidates without a qualification in the related fields or relevant working experience must undergo appropriate prerequisite courses and meet a minimum CGPA of 2.00 with minimum of five (5) years of working experience in the related fields and internal assessment.* ** Rigorous internal assessment and candidate's working experiences will determine whether the candidate can be exempted from prerequisite courses.* • An APEL-A Certification at APEL T-7	
Master of Science in Computer Science (by Research)* Master of Science in Information Systems *	• A Bachelor's degree in Computing or related fields with a minimum CGPA of 3.00; **OR** • A Bachelor's degree in Computing or related fields with a minimum CGPA of 2.75 can be accepted subject to internal assessment; **OR** • A Bachelor's degree in Computing or related fields with a minimum CGPA of 2.50 can be accepted subject to a minimum of five (5) years of working experience in the related fields and internal assessment; **OR** • Other qualifications equivalent to a Bachelor's degree in Computing or related fields recognised but must undergo appropriate prerequisite courses; **OR** • Candidates without a qualification in the related fields or relevant working experience must undergo appropriate prerequisite courses and meet a minimum CGPA of 2.50 with a minimum of five (5) years of working experience in the related fields and internal assessment.* ** Rigorous internal assessment and candidate's working experiences will determine whether the candidate can be exempted from prerequisite courses.* • An APEL-A Certification at APEL T-7	IELTS or equivalent: 6.0 SPM English: B3 or B+ UEC English: Credit Sunway Intensive English Programme (IEP): Pass Level 4 with minimum 65% ESL/English: Satisfactory level in Pre-University programmes, where the medium of instruction is English. **Note:** The following students will be exempted from the English Language requirement: Students from countries that use English as the official language; **OR** Students with academic qualifications from institutions that use English as a full medium of instruction.
Doctor of Philosophy (Computing)	• A Bachelor's degree in Computing or related fields with first-class (CGPA of 3.67 or higher) or its equivalent; **AND** Undergo internal assessment; **AND** Meet any other requirement set by the Academic Senate; **OR** • A Master's degree in Computing or related fields as accepted by Academic Senate; **OR** • A Master's degree in non-Computing fields with minimum of five (5) years of working experience in the field of computing must undergo appropriate prerequisite courses; **OR** • Other qualifications equivalent to Master's degree in Computing or related fields must undergo appropriate prerequisite courses; **OR** • A Master's degree in non-computing fields with less than five (5) years of working experience in the field of computing or related fields must undergo appropriate prerequisite courses and internal assessment.* ** Rigorous internal assessment and candidate's working experiences will determine whether the candidate can be exempted from prerequisite courses.* **Note:** Bachelor's degree candidates who are registered for Master's degree programme may apply to convert to the Doctoral degree programme with the following conditions: • Completed 1 year of the full-time study and 2 years of part-time study; **AND** • Undergo internal assessment to evaluate competency and capability to conduct research at Doctoral level; **AND** • Acquire Academic Senate approval	
Doctor of Philosophy in Sustainability Science and Technology*	• A Master's Degree in Science or Engineering disciplines that can be accepted by the University's Senate • Any other qualifications will be considered on a case-to-case basis	

*There are specific requirements for all SET programmes after the student has passed the eligibility check which are listed down below:

STATEMENT OF RESEARCH INTEREST*
The statement of research interest should comprise a maximum of 1,000 words and follows the structure of:
• Working Title
• Nature of the research that interest you and why; and
• Reference to anything you have read relevant to this research area

REFEREES*
Please nominate TWO referees who can provide reference letters about your suitability to undertake the programme (preferably one academic and one professional).

HOW TO APPLY*

Application Checklist
Kindly email the following documents for an eligibility check:
• Curriculum Vitae
• Bachelor's/Master's degree transcript
• Completion certificate

After passing the eligibility check, the school administrator will brief the student further regarding the application process, Statement of Research Interest and Reference Letters that are required.

MASTER OF DATA SCIENCE
(Online Distance Learning)

DURATION
Part-time   -   2 years

INTAKES
January, March, May, July & September

TAUGHT PROGRAMME

• The Sunway Online Master of Data Science degree is designed to build the core understanding and critical analysis skills for you to thrive in a world of data.

• Learn analytics tools and techniques to leverage the value of data, combined with technical and managerial understanding, unlocking value across industries and providing a platform of informed insight to guide decision making and identify emerging opportunities.

• Focuses on building beyond technical understanding and providing the skills you need to thrive and evolve in the modern business landscape.

• Guided by renowned academics with extensive real-world experience who will empower you to unlock new opportunities for your career and your business.

CAREER PROSPECTS
• Data Scientist
• Data Analyst
• Data Engineer
• Machine Learning Manager
• Business Intelligence (BI) Analyst

PROGRAMME STRUCTURE

Core Modules
• Principles and Practice of Data Science
• Programming for Data Science
• Data Visualisation
• Statistical Methods for Data Science
• Data Mining
• Big Data Management
• Research Methodology
• Forecasting Analytics
• Deep Learning for Data Science
• Cloud Infrastructure and Services
• Data Science Capstone Project 1 and 2

Pre-requisite Pathway
• Foundations of Programming
• Database Concepts and Principles

CONTACT

For more information, please email
future.student@studyonline.sunway.edu.my
or
eligibilitycheck@studyonline.sunway.edu.my
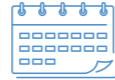or
call: 1800 180 029 (International: +603 2705 2663)

MASTER OF SCIENCE IN COMPUTER SCIENCE (BY RESEARCH)

JPT/BPP(U)(R2/481/7/0453/A9654)03/26

DURATION

Full-time – 2 years
Part-time – 3 years

INTAKES

January & July

RESEARCH PROGRAMME

- This programme trains you to carry out research in current and emerging fields within the Information Technology industry.
- Aim to expand your intellect by nurturing advanced knowledge in specialist technical subject areas.
- Lead future developments in the industry or in academia.
- You will be integrated as members of our research groups at Sunway University with various opportunities to participate in research alongside your supervisors through seminars, workshops, laboratory experiments and fieldwork.
- Develop your theoretical and practical skills in Information and Communications Technology (ICT) and Computer Science.
- Acquire analytical and problem-solving skills to work as senior consultants or in managerial positions.

VALIDATED BY:

Lancaster University

CAREER PROSPECTS

- Cloud Solution Architect
- Cyber Security Engineer
- Internet and networking specialist
- Research Scientists (Academia & Industry Labs)
- Senior systems consultant
- Software engineer
- Software quality assurance specialist
- Software solutions designer
- System analyst

PROGRAMME STRUCTURE

The MSc in Computer Science (by Research) consists of two taught modules and one thesis.

Candidates are required to complete two taught modules, namely Research Methodology and Directed Readings, before proceeding to write the thesis. By undergoing these two modules, candidates will develop the necessary skills and knowledge to conduct research successfully towards the Master's degree.

Research Methodology
Candidates will learn quantitative, qualitative and mixed research methods used in Computing and ICT fields. For each method, they will learn to use this method to design and implement research. At the end of the subject, candidates will be expected to formulate and submit an assignment requiring a clear research plan. It should cover various aspects such as problem statements, research motivation, objectives and requirements, the scope of research as well as research questions, hypothesis, and feasibility, identified selected research methodologies and their justifications, etc. All of this is to be in the area of candidate research interests and specialisation.

Class schedule for Research Methodology
- Full-time/Part-time:
  Monday & Wednesday (2.00pm to 3.30pm)*

Subject to change according to intakes

Directed Readings
This module will provide candidates with comprehensive reading lists and resources to help them develop research models and areas of interest. Literature review skills and training on how to manage information and resources will also be introduced in this module.

Thesis
The MSc is awarded based on the successful completion of a thesis. The thesis should demonstrate proficiency, critically and mastery in the subject or chosen area of research.

CONTACT

For more information, please email
setpgr_research@sunway.edu.my

MASTER OF SCIENCE IN INFORMATION SYSTEMS

JPT/BPP(U)(R2/0611/7/0014/FA1271)04/31

DURATION

Full-time – 2 years
Part-time – 3 years

INTAKES

January & July

RESEARCH PROGRAMME

- This programme strategically positions you to undertake information systems research that is theoretically and methodologically diligent.
- Expand your intellect by nurturing advanced knowledge in specialist technical and analysis subject areas.
- Provides the opportunity to pursue research in an aspect of Information Systems that particularly interests you and organisations.
- You will be integrated as members of our research groups at Sunway University with various opportunities to participate in research alongside your supervisors through seminars, workshops, experiments, and fieldwork.
- Become well-equipped with analytical and problem-solving skills to design ground-breaking solutions.
- Be well-equipped with analytical and problem-solving skills to work as system analysts, consultants or in managerial positions.
- Learn how to manage information resources, understand the technologies and analyse information system data for decision-making that is crucial to ensuring the success of today's modern enterprises.

VALIDATED BY:

Lancaster University

CAREER PROSPECTS

- Chief/Information officer
- Data analyst
- Data scientist
- Database administrator
- Database engineer
- IT auditor
- IT consultant
- IT project director
- IT/Business system analyst
- Research Scientists (Academia & Industry Labs)
- Software engineer

PROGRAMME STRUCTURE

The MSc in Information Systems consists of two taught modules and one thesis.

Candidates are required to complete two taught modules, namely Research Methodology and Directed Readings, before proceeding to write the thesis. By undergoing these two modules, candidates will develop the necessary skills and knowledge to conduct research successfully towards the Master's degree.

Research Methodology
Candidates will learn quantitative, qualitative and mixed research methods used in Computing and ICT fields. For each method, they will learn to use this method to design and implement research. At the end of the subject, candidates will be expected to formulate and submit an assignment requiring a clear research plan. It should cover various aspects such as problem statements, research motivation, objectives and requirements, the scope of research as well as research questions, hypothesis, and feasibility, identified selected research methodologies and their justifications, etc. All of this is to be in the area of candidate research interests and specialisation.

Class schedule for Research Methodology
- Full-time/Part-time:
  Monday & Wednesday (2.00pm to 3.30pm)*

Subject to change according to intakes

Directed Readings
This module will provide candidates with comprehensive reading lists and resources to help them develop research models and areas of interest. Literature review skills and training on how to manage information and resources will also be introduced in this module.

Thesis
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CONTACT

For more information, please email
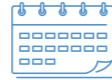**setpgr_research@sunway.edu.my**

DOCTOR OF PHILOSOPHY (COMPUTING)

JPT/BPP(U)(R2/481/8/0001/FA0031)09/27

DURATION

Full-time - 3 years
Part-time - 4 years

INTAKES

January & July

RESEARCH PROGRAMME

- This research-driven programme aims to further develop your research skills in crucial areas of computing.

- By working under the close guidance of your supervisors, you will be exposed to the many aspects of research activities including conducting a critical analysis of the literature, identifying areas of contribution, compiling information, and communicating ideas through journal publications and conference presentations.

- Supervision will be provided in an exclusive and one-to-one manner, and supervisors will be on hand to support you throughout the programme.

- Prior to enrolment, prospective candidates will access to luxury of consultation with Sunway's qualified and experienced supervisors to determine their areas of research.

CAREER PROSPECTS

Doctoral graduates are highly trained specialists in their fields. They may enter careers in academia, research, consulting as well as undertake specialist roles.

PROGRAMME STRUCTURE

Candidates are required to complete three core modules, to enhance their knowledge in research followed by a doctoral research thesis.

Core Modules:
- Research Methodology
- Directed Readings
- Research Proposal

Research Methodology
Candidates will learn quantitative, qualitative and mixed research methods used in Computing and ICT fields. For each method, they will learn to use this method to design and implement research. At the end of the subject, candidates will be expected to formulate and submit an assignment requiring a clear research plan. It should cover various aspects such as problem statements, research motivation, objectives and requirements, the scope of research as well as research questions, hypothesis, and feasibility, identified selected research methodologies and their justifications, etc. All of this is to be in the area of candidate research interests and specialisation.

Class schedule for Research Methodology
- Full-time/Part-time:
  Monday & Wednesday (2.00pm to 3.30pm)*

Subject to change according to intakes

Directed Readings
This module will provide candidates with comprehensive reading lists and resources to help them develop research models and areas of interest. Literature review skills and training on how to manage information and resources will also be introduced in this module.

Thesis
The PhD is awarded based on the successful completion of a thesis. The thesis should demonstrate proficiency, criticality and mastery in the subject or chosen area of research.

CONTACT

For more information, please email
setpgr_research@sunway.edu.my

DOCTOR OF PHILOSOPHY IN SUSTAINABILITY SCIENCE AND TECHNOLOGY

JPT/BPP(U)(N/520/8/0108/PA13722)06/27

DURATION

Full-time - 3 years
Part-time - 4 years

INTAKES

January & July

RESEARCH PROGRAMME

- This novel PhD programme is developed in line with United Nation's (UN) sustainable development goals (SDG) and aims to drive the best minds to discover new ideas in undertaking economic and environmental issues.

- Supported by its unique state-of-the-art lab facilities under different centres and departments with brand new high-end equipment.

- Work with highly qualified, experienced and world-class academicians who will supervise and train you to be leaders in academia and in the industry.

CAREER PROSPECTS

Doctoral graduates are highly trained specialists in their fields. They may enter careers such as:
- Lecturer/Senior Educator
- Entrepreneur
- R&D (Senior Researcher, Manager)
- Research Scientist/Post-Doctoral Research Fellow
- Consultant
- Prolific Scientific Writer
- Scientific Policy Maker

PROGRAMME STRUCTURE

The programme consists of core modules followed by a doctoral research thesis.

Research Methodology
Candidates are required to take only one module namely Research Methodology to learn the techniques used to identify, select, process and analyse information about a topic in research, in addition to the thesis component.

Class schedule for Research Methodology
- Full-time/Part-time:
  Monday & Wednesday (2.00pm to 3.30pm)*

Subject to change according to intakes

Thesis
The PhD is awarded based on the successful completion of a thesis. The thesis should demonstrate proficiency, criticality and mastery in the subject or chosen area of research.

CONTACT

For more information, please email
setpgr_research@sunway.edu.my

RESEARCH AREAS

- Energy Efficiency
- Energy Policy
- Energy Storage
- Graphene and 2D Material Synthesis and Application
- Heat Transfer
- Intelligent Systems in Power and Energy Applications
- Liquid Thermophysical Characterisation
- Microgrid/Smart Grid; Internet of Energy
- Nano-Enhanced Phase Change Materials
- Nanofluids/Nanolubricants and Nanoadditives
- Novel Green Solvents with Properties Tuned for CO_2 Capture
- Particle Radiation for Effective Treatment of Difficult-to-treat Cancers
- Phase Change Materials
- Photovoltaics/Thermal (PV/T)
- Power Electronics; Intelligent Inverter Controller; Custom Power Devices; Intelligent Embedded System
- Renewable & Sustainable Energy Technologies
- Radiation Biology and Radiation Protection Diagnostic and Therapeutic Medical Radionuclides
- Radiation Dosimetry
- Radiation Physics
- Radiological Risks Associated with Naturally Occurring Radioactive Materials (NORM)
- Separation Processes: Membrane Technology, Adsorption, Absorption
- Solar Energy
- Solar Photovoltaics
- Sustainability Science and Technology
- Sustainable Smart City
- Sustainable Value Chain
- Techno-economic, energy and exergy analysis
- Thermoelectrics and Energy Harvesting
- Water and Wastewater Treatment

• MASTER OF SCIENCE IN COMPUTER SCIENCE (BY RESEARCH)
• MASTER OF SCIENCE IN INFORMATION SYSTEMS
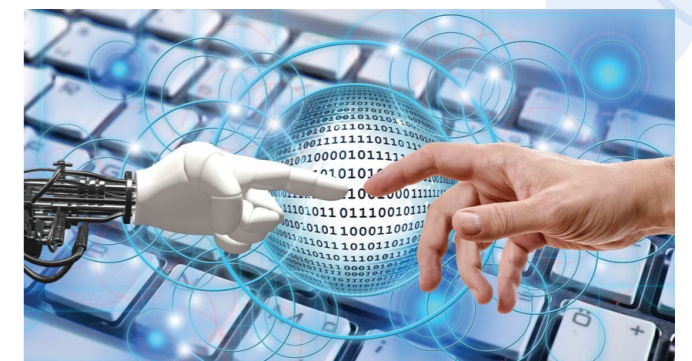## • DOCTOR OF PHILOSOPHY (COMPUTING)

- Artificial Intelligence / Machine Learning / Deep Learning
- Augmented Reality and Virtual Reality
- Big Data Analysis
- Blockchain
- Cognitive Radio Networks
- Computational Statistics
- Computer Vision
- Data Mining
- Digital Holography and Encryption
- Distributed and Self-sustainable Energy-efficient
- Distributed Overlay Networks
- Education Technology
- Electronic Design and Testing
- Empirical Software Engineering
- Evolutionary Computation

- Green Computing
- Haptics and Multimodal Senses
- Human-Computer Interaction
- Image Processing
- Information Security and Privacy
- Information Systems
- Instrumentation and Measurement
- Knowledge Management
- Mobile Computing
- Optical and Radio Communications
- Quantum Computing
- Requirements Engineering
- Robotics
- Security
- Sensors and Embedded Systems
- Sensory Technology
- Smart Transportation System
- Social Computing
- Sustainability Development Technology
- Technology Adoption
- Ubiquitous Computing
- Wireless Communications
- Wireless Sensor Networks

• DOCTOR OF PHILOSOPHY IN SUSTAINABILITY SCIENCE AND TECHNOLOGY

- Advanced Energy Materials
- Advanced Heat Transfer Fluids
- Applications of Ionising Radiations in Biomedicine and Industry
- Artificial Intelligence and Machine Learning for Sustainable Energy Use
- Bio and Nano Composites, Biomass processing and integrated biorefineries; Biomass energy & Waste management
- Carbon Dioxide Capture, Utilisation and Conversion to Value-added Chemicals
- Circular economy for Net Zero
- COSMO-RS Modelling
- Development and Optimisation of CO_2 Conversion Processes
- Development and Optimisation of Renewable Energy Systems
- Development of New Solid Sorbents for CO_2 Capture
- Dye-sensitised Solar Cells
- Electrochemical and Adsorption Processes Using Activated Carbon
- Electrochemical Conversions
- Electrochemical Energy Storage
- Electrochemical Sensors
- Emerging Nanomaterials

SUNWAY UNIVERSITY

A CLASS ABOVE

MALAYSIA'S

#1 Again

IN GRADUATE EMPLOYABILITY

2022 & 2023

Sunway University is honoured to be recognised as Malaysia's No. 1 in Graduate Employability* for the 2nd consecutive year and would like to thank all the local & international brands who selected graduates from Sunway University as the nation's best for 2022 and once again in 2023.

We are immensely proud of our graduates who have gone on to excel in their chosen fields and made such a huge positive impact to the performances of Malaysia's and some of the world's biggest companies.

Sunway University Graduates, Truly A CLASS ABOVE.

SUSTAINABLE DEVELOPMENT GOALS

4 QUALITY EDUCATION

sunwayuniversity.edu.my

RM **670** million
awarded in Scholarships & growing
jeffreycheah.foundation

Jeffrey Cheah Foundation
Nurturing the Seeds of Wisdom

SUNWAY UNIVERSITY DU 025 (B) A member of Sunway Education Group   No.5, Jalan Universiti, Bandar Sunway, 47500 Selangor Darul Ehsan.   *Talentbank GE Index 2023