UNIVERSITI TEKNOLOGI MARA

PROGRAM

POST GRADUATE

Fakulti Sains Komputer dan Matematik
Universiti Teknologi MARA

50 TAHUN
FAKULTI SAINS KOMPUTER & MATEMATIK
inisiatif, inovatif, komprehensif UiTM

SOARING UPWARDS
MALAYSIAN HIGHER EDUCATION

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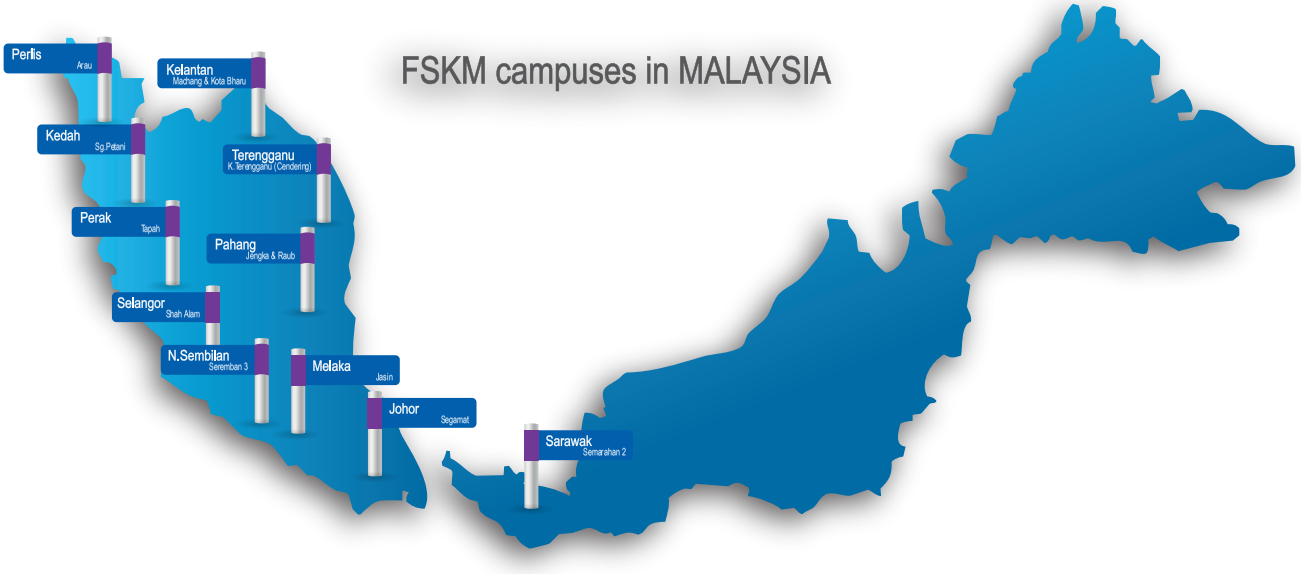
FSKM campuses in MALAYSIA



PROGRAMME / CAMPUS	Perak	Selangor	Pahang	Kelantan	Johor	Kedah	Melaka	Negeri Sembilan	Sarawak	Perlis	Terengganu
CS702		✓									
CS707		✓									
CS708		✓									
CS717		✓									
CS727		✓									
CS733		✓									
CS737		✓									
CS770		✓									
CS771		✓									
CS773		✓									
CS750		✓									
CS751		✓									
CS752		✓									
CS753		✓									
CS754		✓									
CS755		✓									
CS950		✓									
CS951		✓									
CS952		✓									
CS953		✓									
CS954		✓									
CS955		✓									

The faculty was first established as the School of Actuarial Science, Statistics, Mathematics, Econometries and Cybernetics (ASMEC), in 1966 at the Institut Teknologi MARA (ITM) Jalan Othman Campus, Petaling Jaya.

Student with good background in Mathematics were offered either one of the two external programmes which prepared them for examinations by the Institute of Statisticians and the Institute of Actuaries, United Kingdom. In 1969, the school took a bold step in introducing the Diploma in Computer Science, an internal programme. The school moved to a new and much bigger campus at Shah Alam in 1970. Soon after 1974 it was renamed the School of Mathematical Sciences and Computing. The external programmes were gradually replaced by the internal diploma programmes. Students had the opportunity to further their studies when the Advanced Diploma in Statistics was introduced in 1980, and also the offering of a joint degree programmes with Universiti Kebangsaan Malaysia in 1985. The awarded degree was known as BSc Computer Science (Hons) (ITM-UKM).

In 1996, The ITM Act was changed, allowing ITM to award its own degrees. Three of the advanced diploma programmes offered in the school was renamed as Bachelor of Science with honours in their respective fields. In June that year, the school moved to a new building of its own within the Shah Alam Campus. The new building provides improved computing and networking facilities for both the students and staff. Since then, the faculty has progressed with offering of programs at postgraduate, undergraduate, diploma and certificate level.

COMPUTING SCIENCES PROGRAMMES

CS950 Doctor of Philosophy (Computer Science)

CS951 Doctor of Philosophy (Information Technology)

Programme Profile

The Doctor of Philosophy programme is entirely research-based. It provides comprehensive training in a particular subject area through authentic exploration and experimentation, culminating in the preparation of a thesis of the research undertaken.

Submission of a thesis that demonstrates the candidate's capacity of independent advanced research to the satisfaction of the faculty is a requirement of the PhD. The thesis must be first approved by Thesis Examiners Committee consisting of an internal examiner and at least two external examiners.

Upon recommendation to the Senate of UiTM by the faculty and the Institute of Graduate Studies, the degree of PhD is conferred on candidates who have demonstrated substantial scholarship, high attainment in a particular field of knowledge, and an ability to do independent investigation and presentation results of their research.

Admission Requirements

Master degree from UiTM in the area of specialisation to be pursued; or

Master degree from other universities or an equivalent qualification from any institution approved by UiTM.

A candidate applying for admission into this programme is required to submit a research proposal to the faculty. The acceptance of a candidate shall be at the discretion of the UiTM senate, whose decision shall be final.

Mode & Duration

Full Time : 3 - 5 years, 6 semesters - 10 semesters
Part Time : 3 - 6 years, 6 semesters - 12 semesters

Career Opportunities

Graduates of this programme will have an opportunity to be research scientists, research consultants, software specialists, managers or academicians in the government and private sectors.

CS750 Master of Science (Computer Science)

CS751 Master of Science (Information Technology)

Programme Profile

The Master of Science by research programme provides support and guidance that will help highly motivated individuals extend and deepen their research interests through a process of focused academic enquiry to a mastery level.

Submission of a thesis that demonstrates the candidate's capacity of independent advanced research to the satisfaction of the faculty is a requirement of the MSc. The thesis must be first approved by the Thesis Examiners Committee consisting of at least internal examiner and external examiner.

Upon recommendation to the Senate of UiTM by the faculty and the Institute of Graduate Studies, the degree of MSc is conferred on the candidates who have satisfactorily shown an ability to do independent investigation, completed all requirements as prescribed by the faculty and who have satisfactorily presented the results of the research undertaken.

Admission Requirements

Bachelor of Science (Hons) from UiTM in a related and appropriate area of specialisation with a minimum CGPA of 2.75; or

Bachelor degree from other recognised universities or an equivalent qualification in a related course of specialisation from any institution approved by UiTM with a minimum CGPA of 2.75.

A candidate applying for admission into this programme is required to submit a research proposal to the faculty. The acceptance of a candidate shall be at the discretion of the UiTM senate, whose decision shall be final.

Mode & Duration

Full Time : 1 ½ - 3 years, 3 semesters - 6 semesters
Part Time : 2 - 4 years, 4 semesters - 8 semesters

Career Opportunities

Graduates of this programme will have an opportunity to be research scientists, research consultants, software specialists, managers or academicians in the government and private sectors.

Programme Objectives

Master of Computer Science programme is offered on a full time and part time basis in order to accommodate both fresh graduates and working professionals. It offers a curriculum that emphasizes the fundamentals in computing as well as its various applications. The emergence of new technologies in computing demands computer professionals to be well-versed in the related areas of computer science such as software engineering, database, multimedia, networking, data communication, security, and artificial intelligence. Thus, the Master of Computer Science programme in UiTM is designed to further strengthen both theoretical and practical aspects of computer science.

Admission Requirements

Bachelor Degree qualification in Computing or Engineering, with a minimum CGPA of 2.50 or its equivalent, recognised by the UiTM senate; or

Bachelor Degree qualification in Computing or Engineering with CGPA less than 2.50 or its equivalent recognised by the UiTM senate, can be accepted, with a minimum of five (5) years working experience in the relevant field.

Mode & Duration

Full-time : 3 – 4 semesters
Part-time : 4 – 8 semesters

Classes are conducted on weekends or evenings of working days.

Total Graduating Credit Hours

41 hours

Course Outline

The Master of Computer Science program is conducted as follows:

- Candidates must pass all subjects with a CGPA of at least 3.00 to be awarded the degree.
- This program offers two options :
  Option A : Coursework and 5 elective courses.
  Option B : Coursework with dissertation.

Career Opportunities

Graduates have a wide range of career advancement opportunities in computer related organizations.

Plan of Study

Semester 1 Year 1
Advanced Software Engineering, Advanced Computer Architecture and Organization, Automata Theory and Formal Languages, Research Methods in Computing, Philosophy of Computer Sciences.

Semester 2 Year 1
Compiler Constructions, Advanced Algorithm & Analysis, Reading in CS, Seminar in CS, Elective 1

Semester 3 Year 2
Computing Project, Emergent Computing Technologies, Elective 2

Programme Profile

The programme is aimed at professionals working in the field of computer networking technologies, who wish to further their education, gain a higher academic qualification and enhance their career prospects.

The programme offers an education based on key concept and advanced principles required to analyse, design, develop and manage future networking systems and understand current and future technologies.

At the end of the programme students are expected to develop professional attitudes and technical skills necessary to progress in the rapidly evolving field of networking technologies.

Admission Requirements

Bachelor Degree qualification in Computing or Engineering, with a minimum CGPA of 2.50 or its equivalent, recognised by the UiTM senate; or

Bachelor Degree qualification in Computing or Engineering with CGPA less than 2.50 or its equivalent recognised by the UiTM senate, can be accepted, with a minimum of five (5) years working experience in the relevant field.

Mode & Duration

Full-time : 3 – 4 semesters
Part-time : 4 – 8 semesters

Classes are conducted on Weekends or evenings of working days.

Plan of Study

Semester 1 Year 1
Advanced Network Design and Management, High Speed Networks, Network Performance Modeling, Mobile Computing Technology, Elective I.

Semester 2 Year 1
Advanced Wireless Networks, Advanced Network Security, Advanced Network Programming, Research Methods in Computing, Advanced Internetwork Technologies.

Semester 3 Year 2
Advanced Distributed Systems, Computing Project, Elective II.

***Please refer to the Faculty website for an updated version**

Courses Offered

Students are required to complete 42 credit units of courses and pass with a minimum B grade with a Cumulative Grade Point Average (CGPA) of at least 3.00.

Programme by Coursework and Dissertation

The Master of Science in Computer Networking by coursework and dissertation programme is a combination of a taught course and a submission of a dissertation. This programme requires candidates to follow a programme of nine (9) courses and a submission of a dissertation which is relevant to the focus of the programme.

Programme Profile

The Master of Computer Science in Language Computing Technology is mixed-mode programme (coursework plus dissertation) that offered on a full-time and part-time basis in order to accommodate both working professionals and fresh graduates. This program is designed to introduce students to the fundamentals concepts and the ideas of computers ability to recognize, understand, interpretation, written, spoken, produce and imitate human languages. It develops an in-depth understanding of both the algorithms available for the processing of linguistic information and the underlying computational properties of natural languages. This program simplifies and improves computer-man communication and generally supports communication between people. From a cognitive perspective the study of language computing technology aims at comprehending the framework and ingredients of an effortless man-computer communication, preferably as effortless as man-man communication.

Programme Objectives

To produce graduates who are able to:

- Demonstrate a comprehensive and thorough understanding of language computing concepts.
- Apply advanced computing linguistics knowledge in relevant areas.
- Identify and formulate problems in a given situation of greater complexity.
- Communicate ideas effectively in written and oral form.
- Work in a team on projects.
- Practice ethical standards in professional work.
- Manage information in decision-making for life-long learning.
- Apply managerial or entrepreneurship skills.
- Demonstrate leadership skills.

Mode and Duration

Full Time : 3-4 Semesters
Part Time : 4-8 Semesters
Classes are conducted on Saturday and Sunday.

Programme Structure

Core courses	: 19 credit hours
Dissertation	: 21 credit hours
Total credit hours	: 40 credit hours

Suitable Candidates

Fresh graduates, researchers, professionals and executives who wish to enhance their analytical skills in decision making that are relevant for their career advancements in the public and corporate sectors.

Career Opportunities

The qualified graduates have a wide range of opportunities in industry and public sectors such as: • Speech processing and recognition system development • Machine learning and translation system • Semantic web search engine developer • E-Learning • Spoken language applications • Text understanding and Summarization system• Question answering and Cross-linguistic information retrieval system administrator.

Admission Requirements

Bachelor of Computer Science (Hons) or its equivalence from UiTM with CGPA of at least 2.75, OR

Bachelor of Computer Science (Hons) or its equivalence from any local or foreign universities with CGPA of at least 2.75 or its equivalence, OR

Bachelor of Computer Science (Hons) or its equivalence from any local or foreign universities with CGPA of at least 2.50 and working experience of at least 2 years in a related field.

Plan of Study

All students are required to take the following courses:

Semester 1 Year 1
Research Methods in Computing, Speech Recognition Technology, Natural language Processing and Philosophy of Computer Science.

Semester 2 Year 1
Research Proposal, Storage and Retrieval Algorithms and Computational Semantics.

Semester 3 Year 2
Dissertation in Language Computing Technology.

Programme Profile

Master of Computer Science (Web Technology) is to change the direction of the country's landscape-oriented Web technology users (technology-user) to the inventor (technology-creator). Technology users only use the existing infrastructure, while the inventor of the technology is able to create, modify and develop appropriate applications and platforms. Therefore, this program is structured to produce versatile graduates characterized by techno-entrepreneurs who will propel Malaysia to become a high-income developed countries and relevant to the objectives of the Malaysia Education Blueprint 2015-2025. The main goal of this program is intended to meet the challenges and demand for local and international markets to produce experts in the context of Web technology.

Programme Objectives

Graduates who:

- able to obtain creative and innovative solutions to web computing problems and provide quality services to web-based computing industries;
- have expertise in analysing and solving real-life problem using web-based technical and social approach for communicating research findings;
- have competent managerial and analytical skills with strategic leadership qualities;
- have sufficient technopreneurship knowledge as well as creative and innovative.

Admission Requirements

Bachelor degree with honours in the field of computer science (level 6 KKM) OR related discipline from Universiti Teknologi MARA with a minimum CGPA of 2.75; OR

Bachelor degree with honours in the field of computer science (level 6 KKM) OR related discipline from local or foreign universities with a minimum CGPA of 2.75 or equivalent; OR

Bachelor degree with honours in the field of computer science (level 6 KKM) OR related discipline from local or foreign universities with a minimum CGPA of 2.50 and less than 2.75 with stringent internal evaluation; OR

Bachelor degree with honours in the field of computer science (level 6 KKM) OR related discipline from local or foreign universities with CGPA less than 2.50 AND subject to a minimum of 5 years working experience.

Mode and Duration

	Full time		Part time	
	Long Semester	Short Semester	Long Semester	Short Semester
Number of weeks	17	-	17	-
Number of semester	3-4	-	4-8	-
Number of years	Min - 1 ½ years Max - 2 years		Min - 2 years Max - 4 years	

Plan of Study

Semester 1, Year 1
Web Economics
Web Architecture
Seminar in Computer Science
Elective 1
Research Methods in Computing

Semester 2, Year 1
Web Technology and Engineering
Advanced Data Organization
Search Engine and Web Navigation
Reading in Computer Science
Elective 2

Semester 3, Year 2
Data Visualization
Web Intelligence
Computing Project

Electives
Interactive Computing
Network Society and Internet Culture
Virtual Environment
Adaptive Semantic Web
Web Information Security
Usability Engineering
Ethics and Cyber Law

Career Opportunities

Graduates have the opportunities to become experts in the field of web technology for local and global companies, competitive workforces who have advanced knowledge to lead the field of ICT and scholars who are able to explore new research areas and pursue higher academic achievements.

Top rank careers: Web Designer, Platform-based Web Developer

Programme Profile

The Master of Information Systems (Intelligent Systems) is targeted to produce high capability graduates who are able to design and develop advanced software products in the field of intelligent computing. Graduates will be exposed to advanced technology such as optimization, agent technology, and machine learning techniques. The programme produces competent workforces in solving real problems and become research leaders in intelligent computing technologies.

Programme Objectives

The objectives of the programme are :

- To produce graduates in the field of Intelligent Systems with high capability of designing and developing software products of intelligent computing.
- To produce graduates in the field of Intelligent Systems that can apply intelligent computing with vast and advanced knowledge in the organization.
- To produce competent workforce in solving real problems and molding research leader in the field of computer technology.

Mode and Duration

- Full Time : (3 - 4 semester / 1½ - 2 years)
- Part Time : (4 - 8 semester / 2 - 4 years)
- Mode : Course Work (Mode C: 75:25)

The program requires at least 3 semesters. Each semester includes 14 weeks and do not include the revision week and no final exam.

Programme Structure

CORE COURSES	27 credit hours
PROJECT	9 credit hours
ELECTIVE COURSES	6 credit hours
Total	42 credit hours

Suitable Candidates

Any computer-related or engineering or science-related undergraduates who wish to enhance their knowledge and analytical skills in intelligent computing for their career advancements.

Admission Requirements

For international students :
TOEFL
- 550 (PAPER BASED)
- 213 (COMPUTER BASED)
- 70-80 (IBT)

OR

IELTS with at least band 6

For bumiputeras students :
Bachelor of Computer Science (Hons.) or its equivalent from UiTM with a minimum HPNG of 2.75;

OR

Bachelor of Computer Science (Hons.) or its equivalent from UiTM in related and appropriate area specialization or any institution of higher education within and outside the country recognized by the Malaysian government with a cumulative grade point average (CGPA) of at least 2.50 and have work experience of at least two (2) years in a related field;

OR

Diploma in a related field from UiTM or other universities recognized by Malaysian government AND at least 5 years working experience in a related field (as required by MQA).

Plan of Study

Semester 1 Year 1
Advance Information Systems, Research Methods in Computing, Philosophy of Artificial Intelligence, Advanced Decision Support Systems, Applied Knowledge-Based Systems.

Semester 2 Year 1
Neural Networks and Applications, Seminar in Applied Intelligent Systems, Optimization with Natured-Inspired Computing, Shaping Information System Project, Agent Technology.

Semester 3 Year 2
Computing Project, Elective I, Elective II

Elective Courses
Applied Data Mining, Intelligent Security Informatics, ICT Economics, Enterprise System Engineering, Advanced Signal processing , Advanced Data Networks , Image and Video Coding.

Career Opportunities

Earning a degree in this program will boost your employability together with providing a route for intelligent software developer with advanced knowledge and valuable skills. Graduates in this master degree are able to fill job designations such as: Business Information Technology Analyst, Business Development Manager, Data Processing Manager, Data/System Analyst, Data Scientist, Intelligent Systems Engineer as well as Executive in Business Development.

Programme Profile

The Master of Science in Strategic Information System with Business Management programme is offered on a full-time and part-time basis in order to accommodate both working professionals and fresh graduates. The programme offers a curriculum that are able to produce managers with the ability of planning, designing, conducting, and developing in the area of strategic information systems and business in solving real world problems.

Programme Objectives

To produce graduates who are able to:

- demonstrate a comprehensive and in-depth understanding of information system concepts, principles and processes.
- apply knowledge of Information System/ Information Technology skills in management strategic decision in business environment.
- synthesize strategic thinking, direction section and planning skills to effectively lead an organization / business.
- communicate ideas effectively in written and oral form in an enterprise environment.
- work cooperatively in a team on Information Technology business related projects.
- practice proper governance in term of professional, social, and ethical responsibilities in workplace.
- manage enterprise information and knowledge through lifelong learning.
- apply entrepreneurship skills to innovate high level information systems in business.
- demonstrate good entrepreneur leadership qualities.

Mode and Duration

Full Time : 3-4 Semesters
Part Time : 4-8 Semesters

Classes are conducted on weekday evenings and weekends.

Programme Structure

CORE COURSES	24 credit hours
PROJECT	9 credit hours
ELECTIVE COURSES	9 credit hours
Total	42 credit hours

Suitable Candidates

Fresh graduates, researchers, professionals, executives and managers who wish to enhance their analytical skills in decision making that are relevant for their career advancements in the public and corporate sectors.

Admission Requirements

- A Bachelor Degree (Honour) in the field of Computer Science, Information Technology, Business Computing OR related disciplines from Universiti Teknologi MARA or other Higher Learning Institutions recognized by the Malaysia government with a minimum CGPA of 2.75 OR
- A Bachelor Degree (Honour) in the field of Computer Science, Information Technology, Business Computing OR related disciplines from Universiti Teknologi MARA or other Higher Learning Institutions recognized by the Malaysia government with CGPA more than 2.50 but less than 2.75, can be considered subject to strict internal evaluation process, OR
- A Bachelor Degree (Honour) in the field of Computer Science, Information Technology, Business Computing OR related disciplines from Universiti Teknologi MARA or other Higher Learning Institutions recognized by the Malaysia government with CGPA less than 2.50 and minimum FIVE years of working experience in the relevant field.
- A candidate without a bachelor degree in Computer Sciences OR Science Technology is required to take the prerequisite modules in order to be considered.
- For International students, they need to have a minimum score of 550 in Test of English as a Foreign Language (TOEFL) OR band 5.0 in English Language Testing System (IELTS)

Plan of Study

All students are required to take the following courses:

Semester 1 Year 1
Research Methods in Computing, Information System Strategic Planning, Organization Behaviour, Information System Project Management

Semester 2 Year 1
Shaping IS Projects, Enterprise Wide E-Business, Advanced Decision Support System

Semester 3 Year 2
Managerial Finance, Strategic Marketing Management, Computing Project

Elective Courses
Students are required to select only three elective courses.

ICT Economics, Enterprise System Engineering, IS Governance, Seminar in Global Issues, IT Risk Management in Enterprise Environment, Advanced Information Systems, Information Security Management.

Programme Profile

Strategic Thinking, Professional Attitude, Dynamic Team Player and Respectful; these are some of the values highly sought after by the industry. These values are embedded within the Master of Science in Information Technology (MSIT) programme.

We offer an exciting portfolio that is multidisciplinary in nature. The programme is designed to provide theoretical grounding, practical knowledge and hands-on experience responding to the demands of private and public organizations for qualified IT professional. The MSIT programme facilitates a friendly and supporting learning environment where students would grasp IT concepts, theories and practices. We believe a good learning climate can equip students with a wide range of IT skills and expertise.

The MSIT programme aims for students who are dynamic, creative and innovative and this is reflected through the teaching methods and content. They mirror the dynamic nature of technological advances in society today. As a student you will have the opportunity to explore a variety of areas including: problem solving skills, data technology and security, human computer interaction, strategic and innovative planning, human factors, user experience and ethical issues.

Understanding the demands of job commitments and student requirements, this coursework programme offers flexibility where students can choose one among four tracks; (i) Technology Track, (ii) Management Track, (iii) Human Centered Informatics Track or (iv) Research Track. Each track is embedded with taught and project element, essential in developing students' abilities in management and problem solving skills. Further to this, the MSIT programme is offered both on a full-time and part-time basis.

Career Opportunities

The content and methods applied in the coursework aims to help you develop your ability to think critically and creatively, to acquire problem-solving skills and communicate results effectively. These characteristics speak volume of an IT professional where all sectors in the industry root for.

Earning a degree in this program will enhance your employability as you will be equipped to take on leading roles in IT advancement where the demands for strategic planning and competency with high regards to professionalism and respect are particularly important. You will have the potential to become IT professionals, such as Programme Directors, Chief Technology Officers, Chief Information Officers or HCI specialist with the ability to leverage technology in providing a competitive advantage for the organization you serve.

Aiming for a higher qualification? Then, following this programme would provide a route for IT professional in developing valuable skills for management, problem solving, innovation, ideation and many more useful skills towards the pursuit of a PhD degree.

Mode & Duration

Full Time : 3 – 4 semesters
Part Time : 4 – 8 semesters
Classes are normally conducted on weekdays for full time and weekend (Saturday) for part time students.*
* Subjected to changes.

Programme Structure

Core Courses	: 35 credit hours
Elective Courses	: 6 credit hours
Total Credit Hours	: 41 credit hours

Plan of Study

Semester 1*
Information and Convergence Technology, Problem Solving Formalisms for Information Technology, Information Technology Infrastructure, Human Centered Informatics, Advanced Data Technology.

Semester 2*
Research Methods in Computing, Advanced Web Systems Engineering, Strategic Information Technology Planning, Information Technology Entrepreneurship and Innovation.

Semester 3*
Computing Project, Societal Issues in Information Technology, Elective(s)

Student are required to choose only one (1) among the four (4) tracks:
(i) Technology Track, (ii) Management Track, (iii) Human Centered Informatics Track or (iv) Research Track.
(*Subjected to availability/changes)

**Please refer to the Faculty website for an updated version*

Admission Requirements

Bachelor Degree qualification in Computing, with a minimum CGPA of 2.50 or its equivalent, recognised by the UiTM senate; or

Bachelor Degree qualification in Computing with CGPA less than 2.50 or its equivalent recognised by the UiTM senate, can be accepted, with a minimum of five (5) years working experience in the relevant field.

Note: Candidate with qualification other than Computing field can be accepted with the condition of taking prerequisite module as an early preparation for their graduate studies.

MATHEMATICAL SCIENCES PROGRAMMES

CS952	Doctor of Philosophy (Mathematics)
CS953	Doctor of Philosophy (Statistics)
CS954	Doctor of Philosophy (Decision Science)
CS955	Doctor of Philosophy (Actuarial Science)

Programme Profile

The Doctor of Philosophy programme is entirely research-based. It provides comprehensive training in a particular subject area through authentic exploration and experimentation, culminating in the preparation of a thesis of the research undertaken.

Submission of a thesis that demonstrates the candidate's capacity of independent advanced research to the satisfaction of the faculty is a requirement of the PhD. The thesis must be first approved by Thesis Examiners Committee consisting of an internal examiner and at least two external examiners.

Upon recommendation to the Senate of UiTM by the faculty and the Institute of Graduate Studies, the degree of PhD is conferred on candidates who have demonstrated substantial scholarship, high attainment in a particular field of knowledge, and an ability to do independent investigation and presentation results of their research.

Admission Requirements

Master degree from UiTM in the area of specialisation to be pursued; or

Master degree from other universities or an equivalent qualification from any institution approved by UiTM.

A candidate applying for admission into this programme is required to submit a research proposal to the faculty. The acceptance of a candidate shall be at the discretion of the UiTM senate, whose decision shall be final.

Mode & Duration

Full Time : 3 - 5 years, 6 semesters - 10 semesters
Part Time : 3 - 6 years, 6 semesters - 12 semesters

Career Opportunities

Graduates of this programme will have an opportunity to be research scientists, research consultants, software specialists, managers or academicians in the government and private sectors.

Programme Profile

The Master of Science in Applied Statistics programme is offered on a full-time and part-time basis in order to accommodate both working professionals and fresh graduates. The programme offers a curriculum that provides a balanced approach towards learning of statistical theory and its applications.

Programme Objectives

To produce graduates who are able to:

- demonstrate a comprehensive and thorough understanding of statistical concepts.
- solve real life problems using their computational skills and relevant statistical methods.
- identify and formulate problems using appropriate statistical methods.
- communicate statistical findings effectively in written and oral forms.
- work as a team in statistical related activities.
- practise ethical values and professionalism in conducting statistical tasks.
- generate information from statistically analyzed data for decision making and life-long learning.
- demonstrate entrepreneurship skills in statistical services.
- exhibit good managerial and analytical leadership skills.

Mode and Duration

Full Time : 3-4 Semesters
Part Time : 4-8 Semesters

Classes are conducted on weekday evenings and Saturday.

Programme Structure

CORE COURSES	24 credit hours
DISSERTATION	9 credit hours
ELECTIVE COURSES	9 credit hours
Total	42 credit hours

Suitable Candidates

Fresh graduates, researchers, professionals and executives from the public and private sectors who wish to enhance and upgrade their analytical skills that are relevant for their career advancements.

Career Opportunities

The graduate can be employed as statisticians, data analyst, data scientist, research executives in financial industries, banking sectors, communication and media, medical and pharmaceutical sectors, agricultural sectors and quality assurance executives.

Admission Requirements

- Bachelor Degree qualification in any of the following areas of study: Statistics, Actuarial Science, Mathematics, Engineering or any related programme with minimum CGPA of 2.75 or its equivalent, recognized by the UiTM Senate, or
- Bachelor Degree qualification in any of the following areas of study: Statistics, Actuarial Science, Mathematics, Engineering or any related programme with minimum CGPA of 2.50 or its equivalent, recognized by the UiTM Senate, with at least two (2) years relevant working experience.

Plan of Study

All students are required to take the following courses:

Semester 1 Year 1
Advanced Statistical Inference, Advanced Multivariate Analysis, Statistical Computing and one elective course.

Semester 2 Year 1
Sampling Theory and Practice, Applied Statistical Modelling, Research Methodology, Statistical Consulting and Entrepreneurship and one elective course.

Semester 3 Year 2
Design and analysis of Experiments, Research Project in Applied Statistics and one elective course.

Elective Courses
Students are required to select one of the two specializations. They are required to select only three elective courses from the chosen specialization.

Specialization 1: Data Science
Statistical Data Mining, Stochastic Models, Advanced Statistical Methods, Data Visualization and Advanced Data Organization.

Specialization 2: Business and Social Sciences
Advanced Time Series Modelling and Forecasting, Input-Output Analysis, Demographic Analysis, Quality Management and Analysis, Strategic Management.

CS752	Master of Science (Mathematics)
CS753	Master of Science (Statistics)
CS754	Master of Science (Decision Science)
CS755	Master of Science (Actuarial Science)

Programme Profile

The Master of Science by research programme provides support and guidance that will help highly motivated individuals extend and deepen their research interests through a process of focused academic enquiry to a mastery level.

Submission of a thesis that demonstrates the candidate's capacity of independent advanced research to the satisfaction of the faculty is a requirement of the MSc. The thesis must be first approved by the Thesis Examiners Committee consisting of at least internal examiner and external examiner.

Upon recommendation to the Senate of UiTM by the faculty and the Institute of Graduate Studies, the degree of MSc is conferred on the candidates who have satisfactorily shown an ability to do independent investigation, completed all requirements as prescribed by the faculty and who have satisfactorily presented the results of the research undertaken.

Admission Requirements

Bachelor of Science (Hons) from UiTM in a related and appropriate area of specialisation with a minimum CGPA of 2.75; or

Bachelor degree from other recognised universities or an equivalent qualification in a related course of specialisation from any institution approved by UiTM with a minimum CGPA of 2.75.

A candidate applying for admission into this programme is required to submit a research proposal to the faculty. The acceptance of a candidate shall be at the discretion of the UiTM senate, whose decision shall be final.

Mode & Duration

Full Time : 1½ - 3 years, 3 semesters - 6 semesters
Part Time : 2 - 4 years, 4 semesters - 8 semesters

Career Opportunities

Graduates of this programme will have an opportunity to be research scientists, research consultants, software specialists, managers or academicians in the government and private sectors.

Programme Profile

The Master of Quantitative Science programme is offered on a full-time and part-time basis in order to accommodate both working professionals and fresh graduates. The term Quantitative Science may be regarded as related to the use of logical and rational analyses to solve complex decision making problems. It emphasizes the construction of mathematical models to investigate organizational problems to aid decision making.

This program is designed to study that addresses the issues of communication between decision makers, problem solvers and computer system builders, in particular, concentrating on the following elements:

i. modeling and problem solving
ii. computing skills
iii. the study of context within which decision making takes place

These elements have been integrated into the program's curriculum and are suitable to the needs of the industry that requires knowledge workers in all areas of economic sectors.

Programme Objectives

To produce graduates who are able to:

- acquire the appropriate knowledge of quantitative sciences for decision making.
- apply acquired skills of using quantitative sciences models for problem solving.
- evaluate solutions using critical thinking with scientific skills for better decisions making.
- communicate ideas on problem solving in oral and written form.
- collaborate effectively as a team.
- demonstrate ethical values and professionalism in decision making.
- manage information and demonstrate life-long learning skills.
- apply good managerial and entrepreneurial skills.
- demonstrate leadership skills.

Mode and Duration

Full Time : 3-4 Semesters
Part Time : 4-8 Semesters

Classes are conducted on weekday evenings and Saturday.

Programme Structure

Students are required to select one of three specializations: Financial Engineering, Operations Management and Quantitative Economics. Students are required to complete a total of 42 credit hours comprising of 11 courses (3 credit hours each), and a dissertation (9 credit hours).

Suitable Candidates

Fresh graduates, researchers, professionals and executives who wish to enhance their analytical skills in decision making that are relevant for their career advancements in the public and corporate sectors.

Career Opportunities

Degree holders in Quantitative Sciences can be employed in managerial tasks such as decision making, market research, quality control, supply chain operation, banking and financial in both public and private sectors.

Admission Requirements

- Bachelor Degree qualification in any of the following areas of study: Statistics, Actuarial Science, Mathematics, Engineering, Economics, Business Studies or any related programme with minimum CGPA of 2.75 or its equivalent, recognized by the UiTM Senate; or
- Bachelor Degree qualification in any of the following areas of study: Statistics, Actuarial Science, Mathematics, Engineering, Economics, Business Studies or any related programme with minimum CGPA of 2.50 or its equivalent, recognized by the UiTM Senate, with at least two (2) years relevant working experience.

Plan of Study

All students are required to take the following courses:

Semester 1 Year 1
Operations Management, Applied Econometrics, Advanced Time Series Modelling and Forecasting and one elective course.

Semester 2 Year 1
Research Methodology, Applied Data Mining, Advanced Operations Research and two elective courses.

Semester 3 Year 2
Simulation Modelling and Analysis, Strategic Management, Research Project for Quantitative Sciences.

Elective Courses
Students are required to select only two elective courses from the chosen specialization and one from any specialization.

Specialization 1: Financial Engineering
Stochastic Models, Valuation and Risk Management of Fixed Income Securities.

Specialization 2: Operations Management
Supply Chain and Logistic Modelling, Project Analysis, Quality Management and Analysis

Specialization 3: Quantitative Economics
Input-Output Analysis, Quantitative Economics Analysis, Applied Sampling and Survey Design, Marketing Models, Quantitative Marketing, Marketing Management, International Business.

Programme Profile

The Masters of Science in Applied Mathematics is a two semester program giving in-depth knowledge of advanced applied mathematics topics and computational tools in three areas, computational mathematics, engineering mathematics and financial and management mathematics. Students are required to do a 20 credit hour dissertation in the second semester.

The program aims to sharpen analytical, modeling and problem solving skills for career advancement in industry, business, management, education and other professions wherever mathematics is applied. Graduates will also be well prepared to further their studies at the doctoral program.

Programme Objectives

To produce graduates who are able to:

- demonstrate a comprehensive and thorough understanding of mathematical concepts.
- employ mathematical techniques, skills and ICT tools in solving mathematical problems.
- identify, analyze, formulate and solve related problems mathematically.
- communicate ideas effectively in written and oral form.
- collaborate with other researchers.
- adhere to ethical standards and practices in professional work.
- use mathematical knowledge for life-long learning.
- manage mathematics project, conduct consultation and be involved in entrepreneurship.
- lead and work in a team on problem solving projects.

Mode and Duration

Full time: 2-3 semesters
Classes are conducted during the day from Monday to Friday

Programme Structure

Students are required to complete a total of 40 credit hours, comprising of 16 credit hours in semester one (1 core course and 3 elective courses of 4 credits each) and 24 credit hours in semester two (1 elective course of 4 credits and a dissertation of 20 credits).

Suitable Candidates

Graduates of mathematics, researchers and professionals working in the mathematics environment, who wish to deepen their knowledge in applied mathematics and enhance their mathematical modelling skills and analytical problem solving skill.

Admission Requirements

- BSc degree with minimum CGPA of 2.75 in the field of Mathematics from UiTM or other institutions of higher learning approved by the UiTM senate; or
- BSc degree with minimum CGPA of 2.50 in the field of Mathematics from UiTM or other institutions of higher learning approved by the UiTM senate and a minimum of two (2) years relevant working experience.

Plan of Study

All students are required to take the following courses:

Semester 1 Year 1
Matrix Theory and 3 elective courses

Semester 2 Year 1
Dissertation and 1 elective course

Students are required to choose one of the three tracks and select elective courses from the chosen track.

Track 1: Computational Mathematics

Semester one:
Choose any three from : Fundamentals of Numerical Analysis, Computational Mathematics, Dynamical Systems, Fluid Mechanics and Heat/Mass Transfer, Finite Difference Methods for Partial Differential Equations.

Semester two:
Chose one from: Mathematics for Parallel Computation, Advanced Mathematical Methods.

Track 2: Engineering Mathematics

Semester one:
Choose any three from: Mathematical Programming, Computational Mathematics, Dynamical Systems, Fluid Mechanics and Heat/Mass Transfer, Finite Difference Methods for Partial Differential Equations.

Semester two:
Chose one from: Mathematics for Parallel Computation, Advanced Mathematical Methods.

Track 3: Financial and Management Mathematics

Semester one:
Choose any three from : Mathematical Programming, Financial Mathematics ,Fuzzy Modelling for Finance and Management, Mathematics in Logistics, Discrete Event Simulation Techniques .

Semester two:
Chose one from: Advanced Mathematical Methods, Mathematics in Financial Risk Management.

Career Opportunities

Graduates could be involved in any work wherever mathematics is applied - from being a climate analyst, a forensic scientist, an engineer working in improving quality of yield and output of industry to someone in the financial markets, concerned with value of stock, bonds and derivatives, or a manager or planner determining policies in optimizing procedural efficiency.

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