



UNIVERSITI  
TEKNOLOGI  
MARA



# COMPUTING SCIENCES

**Faculty of  
Computer and Mathematical Sciences**  
Fakulti Sains Komputer dan Matematik (FSKM)



## FSKM campuses in MALAYSIA

PROGRAMME	CAMPUS	Perak	Selangor	Pahang	Kelantan	Johor	Kedah	Penang	Melaka	Sarawak	Perlis	Terengganu	N. Sembilan
CS110		✓		✓	✓	✓	✓		✓	✓	✓	✓	
CS230		✓	✓						✓			✓	
CS240			✓								✓		
CS243			✓										
CS244												✓	
CS245			✓						✓		✓		
CS246			✓						✓				
CS251			✓						✓		✓		
CS253			✓						✓				
CS707			✓										
CS708			✓										
CS750			✓										
CS751			✓										
CS770			✓										
CS950			✓										
CS951			✓										

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

Students 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.

## 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 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 Thesis Examiners Committee consisting of at least internal examiner and an external examiners.

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 or its equivalent from other recognised universities 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 Weekdays, Monday to Friday (Full-time) and Weekends or evenings of working days (Part-time).

## Total Graduating Credit Hours



40 hours



## Plan of Study



The Master of Science (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.

### Semester 1 Year 1

Advanced Software Engineering, Advanced Computer Architecture and Organization, Automata Theory and Formal Languages, Research Methods In Computing, Philosophy of Computer Science

### 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

**\*Please refer to Faculty website for updated version**

## Course Outline



The Master of Science (Computer Science) program is conducted as follows:

- o Candidates must pass all subjects with a CGPA of at least 3.00 to be awarded the degree.
- o This program offers two options :
  - Option A : Coursework
  - Option B : Coursework with dissertation.
- o Candidates must also choose one area of specialization by completing 2 elective courses from the selected area.

Those taking Option A, should complete 5 other elective courses from any area of specialization offered.

For option B, candidates may choose any 2 courses within the chosen specialization.

## 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 Weekdays, Monday to Friday (Full-time) and Weekends or evenings of working days (Part-time).

## Plan of Study



### Semester 1 Year 1

Advanced Network Design and Management, High Speed Network, Network Performance Modeling, Mobile Computing Technology, Elective 1

### Semester 2 Year 1

Advanced Wireless Network, Advanced Network Security, Advanced Network Programming, Research Methods in Computing, Advanced Internetwork Technologies

### Semester 3 Year 2

Advanced Distributed Systems, Computing Project, Elective 2

**\*Please refer to Faculty website for 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



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 and this is partly why it is one of the most popular postgraduate programmes in UiTM.

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



All students are required to take the following core courses:-

### 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, Professional and Societal Issues in Information Technology, Elective(s)

Students are required to choose only one among the four tracks:

(i) Technology Track, (ii) Management Track, (iii) Human Centered Informatics Track or (iv) Research Track

(\*Subjected to availability/changes).

**\*Please refer to Faculty website for updated version**

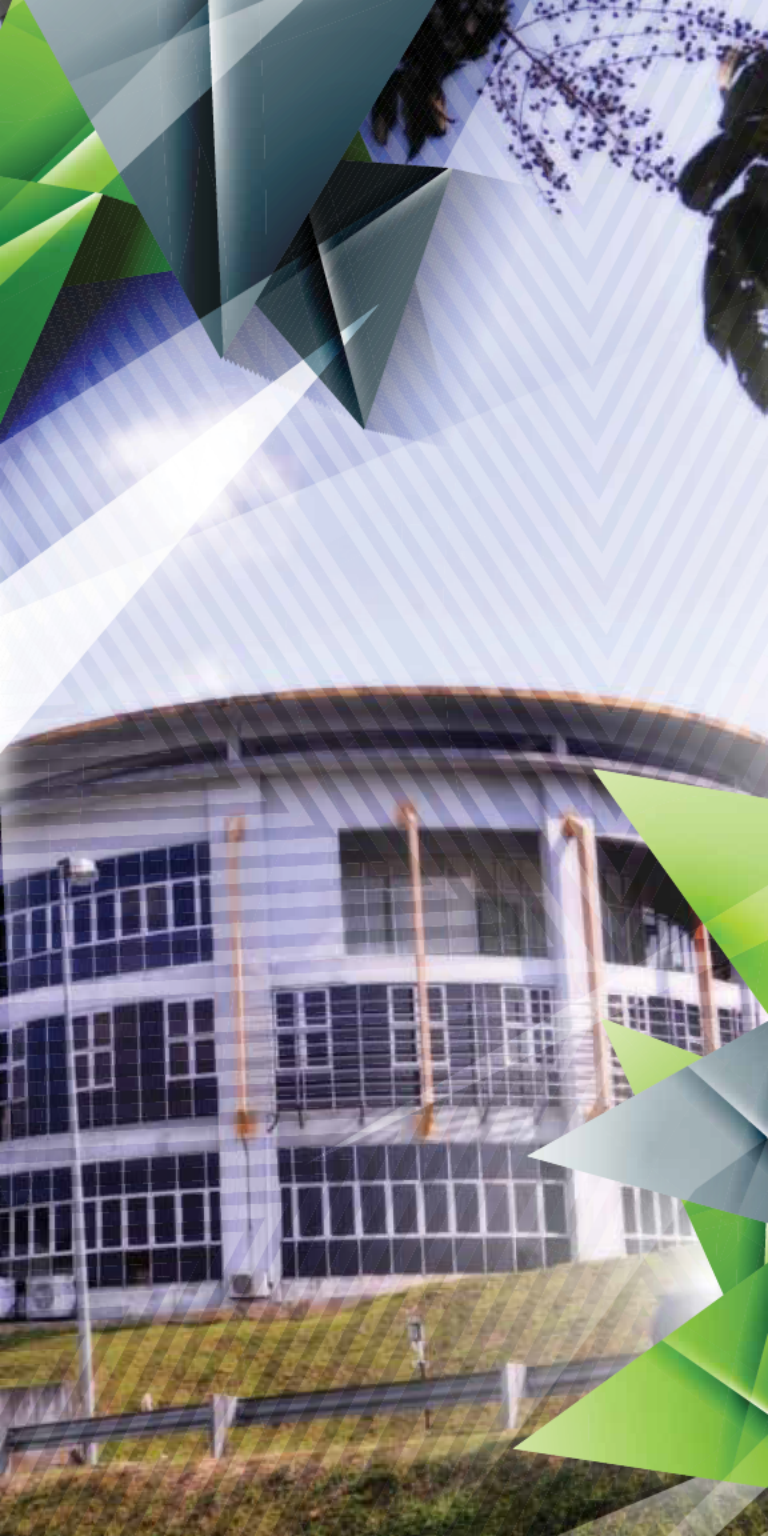
## Admission Requirements



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.*



CS230	Bachelor of Computer Science (Honours)
CS240	Bachelor of Information Technology (Honours)
CS243	Bachelor of Information Technology (Honours) Intelligent System Engineering
CS244	Bachelor of Information Technology (Honours) Business Computing
CS245	Bachelor of Computer Science (Honours) Data Communication & Networking
CS246	Bachelor of Information Technology (Honours) Information System Engineering
CS251	Bachelor of Computer Science (Honours) Netcentric Computing
CS253	Bachelor of Computer Science (Honours) Multimedia Computing

- STPM or its equivalent with a minimum CGPA of 2.50 and grade C+ (GPA 2.33) in Mathematics S/Mathematics T/Further Mathematics T and one (1) other subject excluding General Paper.  
AND  
Passed SPM/ its equivalent with credits in Physics/ Chemistry/Science and a pass in English.  
OR
- Asasi UiTM/PASUM/Matriculation with a minimum CGPA of 2.50 in and at least grade C+ (GPA 2.33) in two (2) subjects including Mathematics/Engineering Mathematics and grade C (GPA 2.0) in one (1) other subject.  
AND  
Passed SPM/its equivalent with credits in Physics/ Chemistry/Biology/Additional Science/ Science and a pass in English.  
OR
- A diploma from the Faculty of Computer and Mathematical Sciences, UiTM with a minimum CGPA of 2.50  
OR
- A diploma from Faculty of Computer and Mathematical Sciences, UiTM with a minimum CGPA of 2.00 and one (1) year of working experience in relevant fields.  
OR
- A relevant diploma from UiTM with a minimum CGPA of 2.50  
AND  
Passed SPM or its equivalent qualification which is recognized by the Government of Malaysia, with at least a credit in Additional Mathematics.  
OR
- A relevant diploma from UiTM with a minimum CGPA of 2.00 and one (1) year of working experience in related fields.  
AND  
Passed SPM or its equivalent qualification which are recognized by the Government of Malaysia, with at least a credit in Additional Mathematics.  
OR
- A relevant diploma from other institutions which are recognized by the Government of Malaysia with a minimum CGPA of 3.00.  
AND  
Passed SPM/its equivalent with 5 credits including Mathematics/Additional Mathematics and Physics/ Chemistry/ Additional Science/Science and a pass in English.  
OR
- A related diploma from other institutions which are recognized by the Government of Malaysia with a minimum CGPA of 2.75 and one (1) year of working experience in related fields.  
AND  
Passed SPM/its equivalent with 5 credits including Mathematics/Additional Mathematics and Physics/ Chemistry/ Additional Science/Science and a pass in English.

note: All applicants must pass MUET with a minimum score of Band 2.



## Programme Synopsis



As the world of computing evolves, it brings along the transformation of the process and operation in a workplace. Dynamic knowledge workers are ultimately needed to cope with these changes. The Bachelor of Computer Science program prepares students to become computer scientists who will be competent enough to face such computing challenges in their workplaces. In this program, students will be trained to gain scientific concepts and principles of the latest computer technology and software development. The content covers the computer problem solving, operating systems, database, software engineering, computer security, networking as well as Mathematics and English. In addition, extracurricular activities will shape the students into strong and versatile individuals that are capable to cope with the demanding working environment. Many of the offered courses require the students to work both independently and in a team, thus, preparing them into participating in a real-life working environment. Some industry-based short courses and certification programs are also available to the graduating students at the end of the program. This program is definitely should be your first choice to secure your future in a computing workplace.

## Career Opportunities



A computer science graduate has a wide range of job designations to choose from. Among the many job designations that can be filled by graduates of this programme are: systems analyst, systems consultant, software engineer, systems programmer, database analyst, scientific applications programmer, user interface designer, embedded systems application programmer, electronic data processing (EDP) auditor, database administrator, chief information officer, computer scientist / researcher, computer science professor, data miner, Internet applications programmer, Internet consultant, Webmaster, Internet advertising designer, technical support representative, trainer for software applications, systems integrator, technical writer and journalist for computer-related publications.



### **Semester 1 Year 1**

Co-Curriculum I, Applied Probability and Statistics, Linear Algebra, Interactive Multimedia, Programming I, Database Design and Application, Fundamentals of Computer Problem Solving, Computer Architecture and Organization.

### **Semester 2 Year 1**

Co-Curriculum II, Islamic and Asian Civilization, Preparatory College English, Calculus I, Introduction to Data Communication and Networking, Programming II, Principles of Operating Systems.

### **Semester 3 Year 2**

Co-Curriculum III, Sejarah Malaysia, Third Language I, Academic Reading, Object Oriented Programming, Discrete Structures, Database Management Systems, CS Elective I

### **Semester 4 Year 2**

Third Language II, Academic Writing, Software Engineering: Theory and Principles, Parallel Processing, Principles of Compilers, Fundamental of Data Structures, CS Elective II

### **Semester 5 Year 3**

Third Language III, Technology Entrepreneurship, Operational Research, Project Formulation, Data Structures, Algorithm Analysis and Design

### **Semester 6 Year 3**

Social, Ethics & Professional Issues, Project, Computer Security, CS Elective III, CS Elective IV

### **Semester 7 Year 4**

Industrial Attachment

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

## Programme Objectives



UiTM's Bachelor of Information Technology (Hons) offers you a strong study programme with a multi-skilled knowledge; a balance of technical and creative courses adherence to the dynamically changing field of computing and business needs.

The students will be prepared to become highly IT professionals or business minded IT entrepreneur who posses criteria such as creative thinker, being dynamic, sustainable, marketable and independently meeting the challenges of technologies. This can be achieved by completing a combination of core and elective subjects that we offered such as Fundamentals of Information Technology, Critical and Creative Thinking for Information Technology Solutions, Principles of Data Management, Human Computer Interaction (HCI), Web Technology and Application, Mobile Technology, E-Commerce Technology, Technopreneurship, User Interface Design and Information Architecture, Business Intelligence, Economics and many others. These subjects provide students with basic and advanced knowledge in respective areas.

In addition the highlights of the programme:

- Served as the underlying foundation for pursuing postgraduate level Masters degree in Information Technology in UiTM.
- Selected students with excellent results are invited to participate in the professional courses with our IT professional partners such as 3Ps, SAP, ITIL and Oracle. These courses are sponsored and students are given allowances throughout the training by the government.
- The students will undertake 14-weeks internship with some IT key players producers which in the past had hired our students such as Hewlett Packard, IBM, Orisoft Technology Sdn. Bhd, Petronas, PROTON, PNB, Sime Darby, MIMOS, Northport Sdn. Bhd., various government agencies, international such as HSBC and local banks such as Bank Muamalat, Maybank and CIMB.
- The students will be exposed to the state of the art technology through professional seminar or workshop conducted by the industry expertise such as on mobile apps development and usability evaluation.
- State of the art facilities used by the students to support their final year project (FYP) – Usability Lab, High Performance Computing Lab and Multimedia Lab.

## Career Opportunities



IT is integral in our lives as it drives the innovation and assists us to solve problems in government sector (local and federal), creative industries, organizations, software house, high-tech companies, education, research institution, logistics, transportation, professional group companies, banks, medical, aviation, wholesalers, retailers and in the development of new products and services. Hence it is hard to imagine a job anywhere in any professionals without IT knowledge and skills in hands!

Our graduates can work in a range of roles such as software engineer, programmer, system analyst, business analyst, data architect, system administrator, database administrator, software developer, IT officers, web master, web programmer, IT lecturers, mobile apps developer, IT entrepreneur, IT sales officer, IT consultant, IT researcher and many more.



### **Semester 1 Year 1**

Co-Curriculum I, Islamic and Asian Civilization, Preparatory College English, Fundamentals of Computer Problem Solving, Fundamentals of Information Systems Development, Applied Probability and Statistics, Fundamentals of Information Technology

### **Semester 2 Year 1**

Co-Curriculum II, Linear Algebra, Object Oriented Programming, Data Communication and Networking, Introduction to Management, Operations Research

### **Semester 3 Year 2**

Co-Curriculum III, Sejarah Malaysia, English for Academic Reading, Third Language (Level I), Critical and Creative Thinking for Information Technology Solutions, Database Management Systems, Principles of Operating Systems, Elective I

### **Semester 4 Year 2**

English for Academic Writing, Third Language (Level II), Principles of Data Management, Human Computer Interaction, IT Project Management, Elective II, Elective III

### **Semester 5 Year 3**

Third Language (Level III), Web Technology and Application, Project Formulation, Java Programming, Information Systems Engineering, Elective IV, Elective V

### **Semester 6 Year 3**

Technopreneurship, Project, Social, Ethical, and Professional Issues, Mobile Technology, Elective VI

### **Semester 7 Year 4**

Industrial Training

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

## Programme Objectives



The programme has the objectives of producing graduates:

- who can demonstrate an understanding of fundamentals of Information Systems concept.
- who are able to apply basic Artificial Intelligence knowledge in relevant areas.
- who can identify problems, apply and develop soft computing applications using Artificial Intelligence programming tools.
- who can communicate ideas effectively in written and oral form.
- who are able to work independently or in a team on projects.
- who are able to practise ethical standards in professional work.
- who are able to manage information in decision-making for life-long learning.
- who are able to apply managerial entrepreneurship skills.
- who are able to demonstrate leadership skills.

## Career Opportunities



Graduates from this programme may be employed as System Architect, Software Engineer, Knowledge Engineer, Systems Analyst, Intelligence System Developer, Computer Programmer, Database Administrator and Data Scientist, whether in public or private sectors. Other areas are Education, Engineering, Manufacturing, Finance, Transportation and Agriculture.



### **Semester 1 Year 1**

Fundamentals of Computer Science, Fundamentals of Computer Problem Solving, Islamic and Asian Civilization, Preparatory College English, Co-Curriculum I, Calculus I, Applied Probability and Statistics

### **Semester 2 Year 1**

Object Oriented Programming, Principles of Operating Systems, Dynamic Web Application Development, Co-Curriculum II, Fundamentals of Information Systems Development, Introduction to Data Communication and Networking, Linear Algebra I

### **Semester 3 Year 2**

Fundamental of Data Structures, Discrete Structures, Sejarah Malaysia, English for Academic Reading, Co-Curriculum III, Fundamentals of Artificial Intelligence, Database Management Systems, Third Language I

### **Semester 4 Year 2**

English for Academic Writing, Artificial Intelligence Programming Paradigms, Information Systems Engineering, Knowledge-Based Systems, Elective I, Elective II, Third Language II

### **Semester 5 Year 3**

Project Formulation, Intelligent Systems Programming Methodology, Artificial Neural Networks, Fuzzy Logic Systems, Intelligent Decision Making Support Systems, Elective III, Third Language III

### **Semester 6 Year 3**

Project, Technology Entrepreneurship, IT Project Management, Ethical, Social and Professional Issues, Elective IV

### **Semester 7 Year 4**

Industrial Training

### **(Elective Courses are :)**

Data Mining, Evolutionary Algorithms, Intelligent Agents, Special Topics in Artificial Intelligence, Introduction to Interactive Multimedia, Algorithm Design and Analysis, Simulation, Network Design and Management, Etika Dalam Perniagaan Islam.

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

## Programme Objectives



The programme has the objectives of producing:

- Graduates who are capable of employing a variety of information technology (IT) and information systems (IS) tools and use these tools to communicate results when making decisions and solving problems.
- Graduates who are competent in business computing knowledge.
- Graduates who are capable of integrating IT with business strategies within the organisational context of enterprise information system
- Graduates with professional mind set and behavior in accordance to ethical standards and practices
- Graduate with effective interpersonal and communication skills.
- Graduate who are team players with good leadership qualities and sufficient entrepreneurship knowledge.
- Graduates who are creative and innovative

## Career Opportunities



Among the many job designations that may be filled by graduates of this programme are: e-Commerce Technology Manager, Business System Consultant, Application Developer, Business Analyst, Database Administor, Project Manager, Web Content Manager, Service Support Executive and Marketing Executive. The graduates from this programme should be easily absorbed into all relevant business sectors.





### **Semester 1 Year 1**

Intermediate Financial Accounting and Reporting, Fundamentals of Computer Science, Fundamentals of Computer Problem Solving, Islamic and Asian Civilization, Preparatory College English, Co-Curriculum I, Introduction to Data Communication and Networking, Linear Algebra I

### **Semester 2 Year 1**

Introduction to Interactive Multimedia, Object Oriented Programming, Economics, Co-Curriculum II, Fundamentals of Information Systems Development, Introduction to Management, Applied Probability and Statistics

### **Semester 3 Year 2**

Sejarah Malaysia, Co-Curriculum III, Fundamentals of Information Systems, Introduction to E-Business, Database Management Systems, IT Investment, Business Intelligence

### **Semester 4 Year 2**

English for Academic Reading, Introduction to Electronic Commerce, Elective I, Information Systems Engineering, Elective II, Operational Research, Third Language I

### **Semester 5 Year 3**

Project Formulation, English for Academic Writing, IT Project Management, Electronic Commerce Application Development, Elective III, Third Language II,

### **Semester 6 Year 3**

Elective IV, Project, Technology Entrepreneurship, Ethical, Social and Professional Issues, Third Language III

### **Semester 7 Year 4**

Industrial Training

### **(Elective Courses are :)**

Principles of Interactive Design, Consumer Behaviour, Corporate Strategic Information System Planning, XML Programming

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

## Programme Objectives



The programme has the objectives of producing graduates:

- with strong principles of data communications and networking that lead to and sustain a productive networking career
- with effective communication, interpersonal and time management skills
- with professional attitude and ethics who will provide significant contribution for the benefit of humanity
- with good leadership qualities and work in a team
- who are adaptable and adequately prepared to join the local as well as the global workforce
- with techopreneurship capability
- with problem solving and critical thinking skills

## Career Opportunities



At present and even more in the future, smart phones, PDAs and tablet devices is getting common and they will be the media for pervasive/ubiquitous computing. This means that the information and business operations will be available at anywhere and anytime. This scenario creates a huge demand of Data Communication & Networking graduates within the communications industries, including software and hardware companies as well as telecommunications and other communications-based industries. Amongst the career path envision for these graduates are Network and Data Communication Analyst, Network Systems Engineer, Network Security Analyst, Network Support Engineer, Voice or Data Communications Analyst, Internet/intranet Administrator, Telecommunication Specialist and Support.

Besides these options, there are strong career paths open to graduates of this area within the civil service, general management positions and marketing departments of most industries and government. There are also a wide number of opportunities for further study at the postgraduate levels.



### Semester 1 Year 1

Co-Curriculum I, Tamadun Islam, Probability and Statistics, Accounting, Economics, Fundamentals of Computer Problem Solving, Fundamentals of Computer Sciences, Preparatory College English

### Semester 2 Year 1

Co-Curriculum II, Linear Algebra, Introduction to Management, Digital Electronics, Object Oriented Programming, Principles of Operating Systems, Fundamentals of Information Systems

### Semester 3 Year 2

Co-Curriculum III, Third Language I, Sejarah Malaysia, English for Academic Reading, TCP/IP, Principles of Networking, Information & Network Security, Elective I

### Semester 4 Year 2

English for Academic Writing, Third Language II, Microprocessor, Network Programming, Routing & Switching Technologies, Operational Research, Elective II

### Semester 5 Year 3

Third Language III, Network Design and Management, Project Formulation, Technopreneurship, Wide Area Network Technologies & Services, Elective III

### Semester 6 Year 3

Wireless & Mobile Computing, Project, Social, Ethical & Professional Issues, Elective IV

### Semester 7 Year 4

Industrial Attachment

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

## Programme Objectives



The programme has the objectives of producing graduates:

- who can demonstrate an understanding of fundamentals of Information Systems concept.
- who are able to analyze, model requirements and constraints, develop, compare and evaluate designs of information systems on the basis of requirements of the organizational needs.
- who are able to present creative solutions to technical and business problems using state-of-the art IT tools and appropriate information systems engineering methodology.
- who can communicate ideas effectively in written and oral form.
- who are able to work independently or in a team on projects.
- who are able to practise ethical standards in professional work.
- who are able to manage information in decision-making for life-long learning.
- who are able to apply managerial entrepreneurship skills.
- who are able to demonstrate leadership skills.

## Career Opportunities



Graduates from this programme may be employed as Application Developer, Business Analyst, Database Administrator, IT Project Manager, Web Content Manager, Information Systems Engineer, Software Engineer, Information System Officer and System Designer. There are also career opportunities in support areas such as Marketing, Sales, Management, Consultancy and System Support.



### **Semester 1 Year 1**

Fundamentals of Computer Science, Fundamentals of Computer Problem Solving, Islamic and Asian Civilization, Preparatory College English, Co-Curriculum I, Linear Algebra I, Applied Probability and Statistics

### **Semester 2 Year 1**

Intermediate Financial Accounting and Reporting, Object Oriented Programming, Economics, Co-Curriculum II, Fundamental of Information Systems development, Introduction to Data Communication and Networking, Introduction to Management

### **Semester 3 Year 2**

Sejarah Malaysia, English for Academic Reading, Co-Curriculum III, Fundamentals of Information Systems, Object Oriented Requirement Analysis, Software Improvement, Operational Research, Third Language I

### **Semester 4 Year 2**

Web Programming, JAVA Programming, English for Academic Writing, Introduction to Electronic Commerce, Object Oriented Design & Implementation, Database Engineering, Third Language II, Elective I, Elective II

### **Semester 5 Year 3**

Project Formulation, Technology Entrepreneurship, IT Project Management, Introduction to Enterprise Architecture Framework, System Testing & Evolution, Elective III, Third Language III

### **Semester 6 Year 3**

Project, Ethical, Social & Professional Issues, Elective IV, Elective V

### **Semester 7 Year 4**

Industrial Training

### **(Elective Courses are :)**

XML Programming, Introduction to Interactive Multimedia, Multimedia Technology and Applications, Web Programming, Introduction to E-Commerce, E-Commerce Application Development, Principles of Interactive Design, Dynamic Web Application Development, Internet Programming I, Data Structure & Algorithm Analysis, Intelligent Systems Development, Data Mining, Philosophical Logic in Islam, Shari'ah and Transaction, Ethics in Islamic Science, Historiography in Islamic Science

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

## Programme Synopsis



The programme has the objectives of producing graduates :

- with strong principles of netcentric that lead to and sustain a productive net centric career
- with effective communication, interpersonal and management skills
- with professional attitude and ethics who will provide significant contribution for the benefit of humanity
- with good leadership qualities and work in a team
- who are adaptable and adequately prepared to join the local as well as the global workforce
- with technopreneurship capability
- with problem solving and critical thinking skills

## Career Opportunities



At present and even more in the future, most or all organizations will have to embrace the Internet for their information and business operations. These huge market demands strong and competent Netcentrics' workforce to build, appreciate, understand and manage the business operations. At the same time, the distributed, scalable and flexible system is highly needed. The degree in Netcentric Computing prepares the graduates to meet these challenges. Amongst the career path envision for these graduates are Computer Network, Web-based Application and Distributed Systems Developer, Web Master, Network Administrator, Network Architect, Network Engineer, Telecommunication Specialist and Support.

Beside these options, there are strong career paths open to graduates of this area within the civil service, general management positions and marketing departments of most industries and government. There are also a wide number of opportunities for further study at the postgraduate levels.



### Semester 1 Year 1

Co-Curriculum I, Islamic and Asian Civilization, Fundamentals of Computer Problem Solving, Probability and Statistics, Fundamentals of Computer Science, Economics, Preparatory College English, Fundamental of Information Systems Development

### Semester 2 Year 1

Co-Curriculum II, Linear Algebra, Digital Electronics, Object Oriented Programming, Introduction to Management, Principle of Operating Systems, Dynamic Web Application Development

### Semester 3 Year 2

Co-Curriculum III, Third Language I, Sejarah Malaysia, English for Academic Reading, Netcentric Fundamentals, Principles of Networking, Database Management Systems, Elective I

### Semester 4 Year 2

English for Academic Reading, Third Language II, Information & Network Security, Web Technology, Advanced Netcentric, Elective II

### Semester 5 Year 3

Third Language III, Web Engineering, Project Formulation, Fundamental of Artificial Intelligence, Elective III, Elective IV

### Semester 6 Year 3

Technopreneurship, Social, Ethical & Professional Issues, Networking & System Administration, Project

### Semester 7 Year 4

Industrial Attachment

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



## Programme Profile



Multimedia is the most exciting field of computing to discover. It will let you dream beyond your wildest imagination and turn that dream into a reality. This Bachelor of Computer Science (Hons) Multimedia Computing will teach you how. It deals with the digital fundamental to graphics, sound, video, animation and virtual environments. This program serves to perfection by preparing the students with knowledge of the fundamentals, technology and techniques of multimedia, with an emphasis to the design elements and human computer interactions. This program strives to prepare students to excel in both knowledge and skills acquisition through our creative and innovative curriculum. The well-equipped multimedia labs stand to witness the creative minds that work passionately to design and develop their multimedia productions. These are some of the secrets that have helped our students to win numerous awards in multimedia design. The graduates for this program are sought for programming, content development, animation and audio & video creation in various digital production sectors. The faculty needs your brilliant ideas for our next multimedia project; so enrol now in this exciting Bachelor of Computer Science (Hons) Multimedia Computing and see how you can create magic at your finger tips.

## Career Opportunities



Graduates of this programme will be able to work in the ICT sector with concentration on highly computational and computing demands such as animators, bio-informatics computing researchers, real-time visualization experts, multimedia applications developers, multimedia programmers, multimedia network engineers, game developers, multimedia authoring specialists, digital audio-video consultants and virtual reality specialists.



### **Semester 1 Year 1**

Co-Curriculum I, Applied Probability and Statistics, Linear Algebra, Programming I, Database Design and Application, Introduction to Interactive Multimedia, Computer Architecture & Organization

### **Semester 2 Year 1**

Co-Curriculum II, Islamic & Asian Civilization, Preparatory College English, Calculus I, Introduction to Data Communication and Networking, Programming II, Principle of Operating System

### **Semester 3 Year 2**

Co-Curriculum III, Sejarah Malaysia, Academic Reading, Third Language I, Discrete Structures, Object Oriented Programming, Fundamental of Multimedia Computing, Computer Graphics

### **Semester 4 Year 2**

Third Language II, Academic Writing, Operational Research, Fundamental of Data Structures, Multimedia Programming, Programming Interactive Systems, Elective 1

### **Semester 5 Year 3**

Third Language III, Technology Entrepreneurship, Project Formulation, Temporal Media Processing, Virtual Reality, Elective 2

### **Semester 6 Year 3**

Social, Ethics & Professional Issues, Distributed Multimedia, Project, Elective 3, Elective 4

### **Semester 7 Year 4**

Industrial Attachment

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



## CS110 Diploma in Computer Science

Candidates must fulfill the UNIVERSITY GENERAL REQUIREMENTS and:

1. Passed SPM or equivalent qualification (recognized by the Government of Malaysia) with credits in the following subjects:

- Bahasa Melayu
  - Mathematics
  - Two (2) subjects including Additional Mathematics / Physics / Chemistry / Biology / Additional Science / Science / Information and Communication Technology/Fundamentals of Programming/Programming and Development Tools
  - English
- AND
- a pass in History (applicable for SPM 2013 onwards)

OR

2. Passed the Pre-Diploma in Science (PD008) from UiTM

OR

- 3\*. Certificate in Computer Programming from UiTM or Certificate in Information Technology from UiTM with a CGPA of at least 2.7 and ONE (1) year of working experience in any related field, and a pass in English at the SPM level.

\* Applicable for Diploma in Computer Science (CS110) only.

## Programme Objectives



The world of computing today demands programmers not only to be competent in software development but at the same time possess a strong fundamental in problem solving. This Diploma in Computer Science program prepares students for the challenging tasks by providing courses from the abstraction level up until implementation and deployment. The content designed for the curriculum covers the courses such as basic computing, programming, operating systems, networking, database, as well as Mathematics and English. These courses, together with extra curricular activities, will shape the mind and body of the students into strong and versatile individuals that are capable to cope with the demanding computing work environment. As part of the curriculum, the students will also be stationed at various software houses and offices around the country to let them feel a real work environment. The graduate of this program can seek employment in the area of software development, web design, web programming, PC maintenance, and any computing-related field.

## Career Opportunities



Diploma in Computer Science holders are needed in both private and public sector. There are many career opportunities available for graduates of this programme since most organizations will require IT personnels.

ICT introduces new ways for doing business resulting in many new job designations. Among the many designations that may be filled by the graduates are: Web Designer, Programmers, Technical Writers, System Analysts and other related posts. Diploma holders can also pursue their studies at a higher level.



### **Semester 1 Year 1**

Fundamentals of Islam, Co-curriculum I, Integrated Language Skills: Listening, Fundamentals of Computer Problem Solving, Pre Calculus, Accounting I, Fundamentals of Algorithm Development

### **Semester 2 Year 1**

Islamic Thought and Civilization, Co-curriculum II, Integrated Language Skills: Reading, Computer Organization, Structured Programming, Calculus 1, Principles of Economics

### **Semester 3 Year 2**

Science and Technology in Islam, Co-curriculum III, Integrated Language Skills: Writing, Object Oriented Programming, Introduction to Database Management System, Discrete Mathematics, Fundamentals of Management

### **Semester 4 Year 2**

Fundamentals of Entrepreneurship, Fundamentals of Data Structures, Information System Development, Practical Approach of Operating Systems, Introduction to Probability and Statistics, Elective 1

### **Semester 5 Year 3**

Web Application Development, Introduction to Data Communication and Networking, Linear Algebra I, Elective 2, Elective 3, Practical Training

### **Elective**

Digital Electronic, Interactive Multimedia, Visual Programming, Commercial Programming, Programming Paradigms, Introduction to Computer Security

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



**Deputy Dean (Academic)**



+603 5543 5307



tdafskm@fskm.uitm.edu.my

**Assistant Registrar**



+603 5543 5468

**Academic Affairs Office**

**Faculty of Computer and Mathematical Sciences**

**Fakulti Sains Komputer dan Matematik (FSKM)**

**Universiti Teknologi MARA**

**40450 Shah Alam, Selangor Darul Ehsan. MALAYSIA**



+603 5543 5304 / +603 5543 5395 / +603 5521 1246 / +603 5521 1247



+603 5543 5301



heafskm@fskm.uitm.edu.my



fskm.uitm.edu.my