APPLICATION FOR ADMISSION

SCHOOL OF GRADUATE STUDIES
Zone 4, Off Jalan Stadium
Universiti Putra Malaysia
43400 UPM Serdang
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Tel: (603) 8946 4218 / 4223 / 4228
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For online application and further info:
Website: http://www.sgs.upm.edu.my

FOR FURTHER INFORMATION ON ACADEMIC PROGRAMMES, PLEASE CONTACT:

FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
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Website: http://www.fsktm.upm.edu.my
MASTER OF SCIENCE

Fields of Study

1. Computer Networks
2. Database Systems
3. Human Computer Interaction
4. Information Systems
5. Intelligent Systems
6. Multimedia Computing
7. Parallel and Distributed Computing
8. Security in Computing
9. Software Engineering

Introduction

The Master of Science programme provides students with specialisation education in the various fields of computer science. This is achieved through a completion of academic course work in the major fields with an independent research project. A student pursuing a Master of Science programme may complete the programme after a minimum period of one year and a maximum period of three years.

Entrance Requirements

An applicant should have a Bachelor Degree in Computer Science or its equivalent with a CGPA of at least 3.00 from UPM or other universities recognised by UPM, or

Applicants with a CGPA between 2.75 to 2.99 (2.75 =< PNGK <3.00), may be considered if they have at least one(1) year of working experience in the related field.

Programmes Offered by Semester

First and Second Semester of every year.
a) **Credits Requirements**

1. Criteria for Master’s programme by research.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Additional Requirements</th>
</tr>
</thead>
</table>
| Have a Bachelor’s degree (with honours) with a minimum CGPA of 3.0; OR Have a Bachelor’s degree (with honours) with a minimum of three years’ experience in the field of study. | a) Take a Research Methods course (if not taken), AND  
b) Take any course if deemed necessary by the advisor / supervisor and not more than 6 credits, AND/OR  
c) Approval by the Dean of Faculty |

2. A student who NOT meet the stipulated criteria is required to take a minimum 9 credits for coursework. The supervisory committee will determine the courses.

b) **Other Requirements**

1. **SPS 5903 Seminar**

   - The master candidate is required to take SPS 5903, which is presentation of research proposal (1 credit).
   - The course should be registered at least on or before 2nd semester.
   - Each Student is required to present their research proposal at the ‘Proposal Defense Seminar’.
   - The supervisory committee and an independent member will evaluate the proposal.
   - The proposal report and similarity report (generated by Turnitin) should be sent to the Research and Postgraduate Section. not later than two (2) weeks before the date of presentation.
   - The seminar will be held not later than the 15th week of a semester.
   - This course will be evaluated as satisfactory (M) or unsatisfactory (TM) grade.
2. SPS 5999 Master Research

The master candidate is required to register SPS 5999 Master Research every semester. This is a research project whereby at the end of the study period the candidate will submit a thesis. The thesis will be examined and a viva voce will be conducted to determine the student’s competency in the field of study.

3. Literature Review Seminar

- The seminar will be held not later than the 15th week of a semester.
- Advisor / supervisor and at least one appointed assessor will evaluate the presentation.
- Students must produce a manuscript report on Literature Review and submit to the Section of Research and Postgraduate Studies not later than one week after the date of presentation.
- Students also are required to submit the similarity report (generated using plagiarism checking software such as Turnitin) together with the manuscript.
- Advisor / supervisor will evaluate the suitability of a manuscript to be sent at least to an international conference.
- Failure to present and / or submit the manuscripts report on Literature Review shall result in a "TM" grade for the SPS5999.
Introduction

The Doctor of Philosophy programme provides students with specialisation education in the various fields of computer science. This is achieved through a completion of academic coursework in the major fields with an independent research project. A student pursuing the Doctor of Philosophy programme may complete the programme after a minimum period of two years and a maximum period of five years.

Entrance Requirements

The applicant should possess:

(a) a Master Degree (with coursework) in a relevant field with a minimum grade average of B, or
(b) a Master Degree with thesis in a relevant field.
Programmes Offered by Semester

First and Second Semester of every year.

Programmes Offered by Semester

a) Credits Requirements

1. Criteria for PhD programme by research.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Additional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have a Master’s degree with coursework in the field of study with a minimum grade average of B; OR</td>
<td>a) Take a Research Methods course (if not taken), AND b) Take any course if deemed necessary by the advisor / supervisor and not more than 9 credits, AND/OR c) Approval by the Dean of Faculty</td>
</tr>
<tr>
<td>Have a Master’s degree with thesis and have experience in the field of study; OR</td>
<td></td>
</tr>
</tbody>
</table>

2. A student who NOT meet the stipulated criteria is required to take a minimum 12 credits for coursework. The supervisory committee will determine the courses.

b) Other Requirements

1. SPS 6903 Seminar

   - The PhD candidate is required to take SPS 6903, which is presentation of research proposal (1 credit).
   - The course should be registered at least on or before 2nd semester.
   - Each Student is required to present their research proposal at the ‘Proposal Defense Seminar’.
   - The supervisory committee and an independent member will evaluate the proposal.
   - The proposal report and similarity report (generated by Turnitin) should be sent to the Research and Postgraduate Section not later than two (2) weeks before the date of presentation.
• The seminar will be held not later than the 15th week of a semester.
• This course will be evaluated as satisfactory (M) or unsatisfactory (TM) grade.

2. Comprehensive Examination

Students pursuing a doctoral programme must pass the comprehensive examination (written and oral examinations), which should be taken only after completion of all coursework required for the programme, within five semesters.

3. SPS 6999 Doctoral Research

The PhD candidate is required to register SPS 6999 Doctoral Research. This is a research project whereby at the end of the study period, the candidate will submit a thesis. The thesis will be examined and a viva voce will be conducted to determine the student’s competency in the field of study.

4. Literature Review Seminar

• The seminar will be held not later than the 15th week of a semester.
• Advisor / supervisor and at least one appointed assessor will evaluate the presentation.
• Students must produce a manuscript report on Literature Review and submit to the Section of Research and Postgraduate Studies not later than one week after the date of presentation.
• Students also are required to submit the similarity report (generated using by plagiarism checking software such as Turnitin) together with the manuscript.
• Advisor / supervisor will evaluate the suitability of a manuscript to be sent at least to an international conference.
• Failure to present and / or submit the manuscripts report on Literature Review shall result in a "TM" grade for the SPS6999.
Human Computer Interaction focuses on the models, theories and practical insights of human-human interaction, human-computer interaction and system development. This area also addresses world issues and the interaction of technology and capacity to identify the needs of specific user groups such as the elderly, the disabled and children other than general users. The core areas include design methodologies (e.g. user-centered design, activity theory, design principle and guidelines, software engineering methods); usability studies and evaluation (e.g. usability metrics; web usability); user experience (e.g. human psychology and behaviour, accessibility and enjoyability); social interaction design (e.g. computer-supported collaborative work); ubiquitous computing (e.g. haptic interaction, wearable computing, mixed reality); innovative learning (e.g. mobile learning, active learning, blended learning); multimodal interaction (e.g. data handling or exchange, tangible interfaces, gesture and sign languages in interaction, gaze/eye-movement interaction); interactive technology (e.g. tabletops and interactive surfaces, tablets, smart devices); web hypermedia technology and applications (e.g. web personalisation, user profiling and modeling, navigation and hyperlink, web interaction design); ethics and safety issues in Human Computer Interaction.

Computer Networks

This area encompasses research areas governing various domains of computer networks which include real-time systems, advanced computer networks, performance modeling of communication networks, network security, mobile and wireless, internetworking, network management, network design, satellite communication and optical communication.

Database Systems

Database has always been a crucial component in any information system. Current trends have shown the transition from the traditional centralized-relational database approach to more advanced databases. Research in database includes the following leading sub-areas: semantic web; database (centralised, distributed, parallel, mobile, multimedia, bio-medical); data quality; data warehouse; query formulation, processing and optimisation; integrity, integration, privacy and security in databases; applications, models and frameworks for e-commerce, e-governance; and ontology management.
**Information Systems**

This area focuses on studies that are related to information systems environment in the organization by emphasising on core aspects such as strategic information systems planning, web-based information systems, knowledge management systems, management and enterprise information systems, information systems and business intelligence, e-commerce, techniques and methods of integrated information systems development, management of information technology, data warehousing and data mining.

**Intelligent Systems**

Intelligent Systems seeks to undertake research in the theory, design, implementation, and application of intelligent computing. This includes establishing new techniques that can intelligently transform massive data into useful information and knowledge; surveying techniques in genetic algorithms, swarm optimization theory, ant colony optimization; demonstrating their uses and capabilities; studying agent semantics and ontology; interacting within multi-agent systems, mobile computation, social networking and knowledge sharing; research in text mining, semantics, and natural language processing which focuses on intelligent content analysis by developing efficient algorithms to process texts and to make their information understandable across computer application; developing and applying state-of-the-art mathematical and computer science techniques to problems now arising in the life sciences, particularly those now appearing in the post-genomic era. Intelligent systems also pursues research on finding methods for implementation of intelligent solution for embedded systems that can be utilized in robotics and smart devices. Research in intelligent systems covers the following sub areas: data mining, intelligent agents, evolutionary computation and optimization, computational linguistics, bioinformatics, semantics, text mining, natural language processing, and embedded systems.
Multimedia Computing

This research area focuses generally on digital media processing, computer graphic, computer vision, information visualization, and multimedia systems. Basically, the research activities involve the understanding of the fundamentals and mathematics behind digital media tools and applications from various media data types such as audio, video and image. The research areas also cover 2D and 3D rendering which include the mathematical modelling that represent real problem solution. Thus, the expansion also includes image processing, acquisition, feature extraction, segmentation, detection, recognition, matching, multiple view integration for space reconstruction and content-based retrieval. It includes information visualization, focusing on visualization techniques in the form of simulation, animation, graphics and images to visualize and understand large and complex data sets. To complete the research journey from fundamental up to commercialisation, the research area includes integration of images, animation, text, digital video, and audio capabilities in computer systems, with applications such as virtual reality, augmented reality, computer games, video streaming, multimedia technology, film and animation environment, simulation, and others.

Parallel and Distributed Computing

This area encompasses various domains which include Peer to Peer (P2P) systems, online social networks, massive-multiplayer online games, grids and clouds, multicore architecture, parallel programming, performance modeling, real-time systems, advanced distributed systems, distributed databases and various areas of High Performance Computing (HPC).

Security in Computing

This research area addresses the principles of security in computing. Research in this area covers sub-areas in computer and system security, including cryptography and protocols, access control, quantum key distribution, information hiding (such as steganography, watermarking), multimedia information security, operating system security, computer forensic, intrusion detection systems, network and communication security, software security, malware analysis and information security management. In addition, this programme offers the necessary knowledge to apply cryptography in real life applications and services such as authenticity, integrity, non-repudiation and secrecy.
Software Engineering

Software Engineering is an engineering discipline that is concerned with every aspects of software production from early stages of software requirement specification through to maintaining the software after it has gone into use. The investigations cover systematic, disciplined, quantifiable techniques and methods in designing, development, implementation, and maintenance of quality software. Issues related to theoretical and formal aspects of software engineering, software architecture, software web services, software modeling, software quality, software engineering management, enterprise software engineering and integration, green software engineering, component-based software engineering, search-based software engineering, software measurement, estimation and metrics are among the popular topics in this research. In addition, research is also carried out in the area of special-purpose embedded software engineering which involves multidisciplinary research disciplines such as educational study, agricultural science, and health science.
### MASTER OF SCIENCE

<table>
<thead>
<tr>
<th>Semester</th>
<th>1st Semester (MYR)</th>
<th>2nd - 3rd Semester (MYR)</th>
<th>4th Semester (MYR)</th>
<th>5th Semester (MYR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>2,106.00</td>
<td>1,850.00</td>
<td>1,350.00</td>
<td>1,850.00</td>
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<tr>
<td>International</td>
<td>6,506.00</td>
<td>4,250.00</td>
<td>3,750.00</td>
<td>4,000.00</td>
</tr>
</tbody>
</table>

1. If the thesis is submitted before the deadline the student required to register and pay **MYR 350.00** only for next semester.

2. If you have to re-submit your thesis, your thesis re-submission fees in **MYR 1,500.00**.

### DOCTOR OF PHILOSOPHY

<table>
<thead>
<tr>
<th>Semester</th>
<th>1st Semester (MYR)</th>
<th>2nd - 3rd Semester (MYR)</th>
<th>4th Semester (MYR)</th>
<th>5th Semester (MYR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>2,668.50</td>
<td>2,412.50</td>
<td>1,850.00</td>
<td>2,850.00</td>
</tr>
<tr>
<td>International</td>
<td>7,118.50</td>
<td>5,162.50</td>
<td>4,600.00</td>
<td>5,100.00</td>
</tr>
</tbody>
</table>

1. If the thesis is submitted before the deadline the student is required to register and pay **MYR 350.00** only for next semester.

2. If you have to re-submit your thesis, your thesis re-submission fees in **MYR 2,250.00**.

**NOTE:** The fee amount is subject to change from time to time without prior notice by the University. Prospective and current students are advised to check the SGS website for any fee changes not earlier than one (1) month before the start of each semester/new students' registration. All fees must be paid upon registration.

**OTHER FEES:** Please refer to School of Graduate Studies website at http://www.sgs.upm.edu.my
<table>
<thead>
<tr>
<th>Faculty Research Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Digital Information Computation and Retrieval</strong></td>
</tr>
<tr>
<td>Assoc. Prof. Dr. Shyamala Doraisamy</td>
</tr>
<tr>
<td>+603-8747 1717</td>
</tr>
<tr>
<td><strong>Database Technology and Application (DbTA)</strong></td>
</tr>
<tr>
<td>Assoc. Prof. Dr. Lilly Suriani Affendy</td>
</tr>
<tr>
<td>+603-8747 1709</td>
</tr>
<tr>
<td><strong>Network, Parallel and Distributed Computing</strong></td>
</tr>
<tr>
<td>Prof. Dr. Mohamed Othman</td>
</tr>
<tr>
<td>+603-8747 1707</td>
</tr>
<tr>
<td><strong>Wireless, Mobile and Quantum Computing</strong></td>
</tr>
<tr>
<td>Prof. Dr. Shamala Subramaniam</td>
</tr>
<tr>
<td>+603-8747 1748</td>
</tr>
<tr>
<td><strong>Software Engineering</strong></td>
</tr>
<tr>
<td>Dr. Koh Tieng Wei</td>
</tr>
<tr>
<td>+603-8747 1799</td>
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<tr>
<td><strong>Human Computer Interaction (HCI)</strong></td>
</tr>
<tr>
<td>Dr. Azrina Kamaruddin</td>
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</tr>
<tr>
<td><strong>Intelligent Computing</strong></td>
</tr>
<tr>
<td>Assoc. Prof. Dr. Nur Fadhлина Mohd Sharef</td>
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<tr>
<td><strong>Information Security</strong></td>
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<tr>
<td>Dr. Mohd Taufik Abdullah</td>
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<tr>
<td><strong>Applied Informatic</strong></td>
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<tr>
<td>Prof. Dr. Rusli Abdullah</td>
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<td>+603-8747 1725</td>
</tr>
<tr>
<td><strong>Computer Graphics, Vision and Visualization</strong></td>
</tr>
<tr>
<td>Prof. Dr. Rahmita Wirza O.K Rahmat</td>
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<tr>
<td>+603-8747 1704</td>
</tr>
</tbody>
</table>
for further information, please contact:

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