

## **SKR5501 Performance Modeling of Communication Networks**

This course covers various aspects of modeling and simulation of wired and wireless communication networks highlighted for the purpose of performance benchmarking. Probability and queuing theories are used to evaluate the simulation of network performance. The concepts and elements of developing simulation systems are emphasized.

## **SKR5988 Dissertation/Project**

This course involves research or study by each student on a specific topic related to computer network scope. The topic of research or study will be determined by the student in consultation with the supervisor. It is carried out in two semesters. In the first semester, a proposal needs to be submitted that contains a literature review, problem statement, and research objectives, etc. In the following semester, the student needs to submit a complete project report (thesis). A student is also required to present the research project to a panel of assessors.



## **CONTACT US Application for Admission**

### **SCHOOL OF GRADUATE STUDIES**

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43400 UPM Serdang,  
Selangor Darul Ehsan.  
Tel. : (603) 9769 4218 / 4223 / 4165 / 4169 / 4225  
Website: [www.sgs.upm.edu.my](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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43400 UPM Serdang,  
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Master Programme Coordinator

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## **MASTER IN COMPUTER NETWORK FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**

### **INTRODUCTION**

The Master in Computer Network is a 40-credit postgraduate program by coursework at the Faculty of Computer Science and Information Technology, UPM. It aims to offer an opportunity for advanced studies and professionalism in the field of computer networks with competency, expertise, and equivalent skills internationally. It means to support the nation's aspirations for focusing on knowledge-based technology.

### **ENTRENCE REQUIREMENTS**

An applicant should have a Bachelor's degree or its equivalent, in the area of computing, science and technology, or related to computation, with a CGPA of at least 2.75, or

Applicants with a CGPA of between 2.50 and 2.75 ( $2.50 \leq \text{CGPA} < 2.75$ ) may be considered if they have at least one (1) year of working experience in a related field, or

Applicants with a CGPA below 2.50 must have at least five (5) years of working experience in a related field.

An applicant with another Bachelor's degree that is not in the areas of computing, science, and technology is required to register for a pre-requisite course. Do contact us for further information.



PROGRAMME REQUIREMENTS

Graduation Credit Requirements:

In order to graduate, students must complete at least 40 credits. The minimum cumulative average is 3.00. The minimum credit distribution for this program is as follows:

|                      |            |
|----------------------|------------|
| Compulsory course    | 21 credits |
| Elective courses     | 9 credits  |
| Dissertation/project | 10 credits |
| Total                | 40 credits |

a) Compulsory Courses (core modules)

| Course Code | Course Name                                    | Credit  |
|-------------|--|---------|
| SKR5090     | Research Methods in Computer Network           | 3 (3+0) |
| SKR5201     | Network and Communication Security             | 3 (3+0) |
| SKR5302     | Advanced Distributed Computing                 | 3 (3+0) |
| SKR5307     | Communication Technology and Network           | 3 (3+0) |
| SKR5401     | Wireless Pervasive Computing                   | 3 (3+0) |
| SKR5406     | Cloud Computing Architecture                   | 3 (3+0) |
| SKR5501     | Performance Modeling of Communication Networks | 3 (3+0) |

b) Elective Courses

| Course Code | Course Name                              | Credit  |
|-------------|--|---------|
| SKR5308     | Real Time Systems                        | 3 (3+0) |
| SKR5400     | Distributed High-Performance Computing   | 3 (3+0) |
| SKR5403     | Quantum Computing                        | 3 (3+0) |
| SKR5407     | Software Defined Network                 | 3 (3+0) |
| SKR5408     | Big Data Distributed System Architecture | 3 (3+0) |

c) Dissertation/Project

| Course Code | Course Name | Credit    |
|-------------|-------------|-----------|
| SKR5988     | Project     | 10 (0+10) |

TUITION FEES

The fee structure for this program consists of a basic fee and a credit-based fee:

a) Basic Fee

| Semester                       | Malaysian | International Students |
|--------------------------------|-----------|------------------------|
| First Semester                 | RM 1350   | RM 2400                |
| Second and subsequent Semester | RM 1100   | RM 2150                |

a) Credit-based Fee

| Student       | Amount            | Credit | Total Amount |
|---------------|-------------------|--------|--------------|
| International | RM 450 per credit | 40     | RM 18,000    |
| Local         | RM 300 per credit | 40     | RM 12,000    |

COURSE SYNOPSIS

SKR5090 Research Methods in Computer Network

This course comprises research methods used in computer networks. It also contains steps to efficiently plan, organize and use the available resources in conducting research.

SKR5201 Network and Communication Security

This course comprises advanced topics in cryptography, network security applications and communication system security that emphasize the practice of network and communication security. It also covers the explanation of practical applications that have been and still being used for ensuring network and communication security.

SKR5302 Advanced Distributed Computing

This course covers concepts and technical requirements in developing distributed systems based on open system standards. Performance aspects of processing and management of distributed computing are discussed.

SKR5307 Communication Technology and Network

This course covers the latest and most advanced concepts in wired and wireless networks and comprise explanations of communication technology and computer networks. Network performance evaluation through quantitative models such as queue theory and flow-control mechanisms has also been emphasized.

SKR5308 Real-Time Systems

This course covers the advanced topics of real-time systems in the latest computing systems. It comprises explanations of the concepts and designs for reliability, and fault-tolerance techniques that will be evaluated for their respective effectiveness.



SKR5400 Distributed High-Performance Computing

This course covers the concepts of parallel and distributed computing for high-performance computer systems with shared and distributed memory. This course also explains and implements programming models and applications that are usable on high-performance computer systems.

SKR5401 Wireless Pervasive Computing

This course covers various topics on wireless pervasive networks and mobile networks. It also includes topics on issues in designing pervasive and mobile networks, and technical requirements and performance that are required for such networks.

SKR5403 Quantum Computing

This course comprises the main concepts on quantum algorithms that can be applied in quantum computing processes to complement the emerging quantum computer devices and technology. Emphasis is given on the applications of quantum computing.

SKR5406 Cloud Computing Architecture

This course covers network architecture for virtualization and managing Cloud computing. It covers a description of the relation between distributed models and Cloud computing services, and the concept of Cloud programming on service-based computing.

SKR5407 Software Defined Network

This course will cover software-defined networking (SDN). It starts from the principle of designing SDN with several planes, SDN extensions, and its applications.

SKR5408 Big Data Distributed System Architecture

This course explains the architecture of big data distributed systems and the implementation of programming models. Applications that are usable for big data are emphasized.

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