

# MASTER OF PHILOSOPHY

## FIELD: COMPUTER SCIENCE / SOFTWARE ENGINEERING

### PROGRAMME SPECIFICATIONS

The Master of Philosophy, Field: Computer Science (MECS) / Software Engineering (MECQ) is offered on a full-time basis. The full-time programme is offered only at the UTM Main Campus in Johor Bahru. The duration of study for the full-time programme is subjected to the student's entry qualifications and lasts between two (2) years to a maximum of four (4) years.

The programme is offered on full-time basis and is based on a 2-Semester per academic session. This is a full research programme. The candidate is supervised by a lecturer. The directed research work introduces candidates to the process by which new knowledge is developed and applied accordingly. Assessment is done by examining first assessment reports (research proposal), each semester's progress reports, and thesis examination (viva-voce).

### General Information

1. Awarding Institution		Universiti Teknologi Malaysia		
2. Teaching Institution		Universiti Teknologi Malaysia		
3. Programme Name		Master of Philosophy		
4. Final Award		Master of Philosophy		
5. Programme Code		MECSA3AJA / MECQA3AJA		
6. Professional or Statutory Body of Accreditation		Ministry of Higher Education		
7. Language(s) of Instruction		English		
8. Mode of Study (Conventional, distance learning, etc)		Conventional		
9. Mode of operation (Franchise, self-govern, etc)		Self-governing		
10. Study Scheme (Full Time/Part Time)		Full Time		
11. Study Duration		Minimum: 2 yrs (4 semesters) Maximum: 4 yrs (8 semesters)		
Type of Semester	No. of Semesters		No of Weeks/Semester	
	Full Time	Part Time	Full Time	Part Time
Normal	4	-	8	-
Short	-	-	-	-

## Course Classification

No.	Classification	Credit Hours	Percentage
i.	University Courses	3	33%
ii.	Core Courses	6	67%
iii.	Research	0	0%
	<b>Total</b>	<b>9</b>	<b>100%</b>
Total Credit Hours to Graduate		9 credit hours	

## COURSE MENU

Master of Philosophy students are required to register and pass the following courses before their first assessment (proposal defense)

- One University Elective Course (course code U\*\*\* \*\*3).
- Research Methodology
- Advanced Computer Science / Advanced Software Engineering

YEAR 1: SEMESTER 1			
Code	Course	Credit	Pre-requisite
UECS6013	IT Project Management	3	
UHMS6013	Seminar on Global Development, Economic and Social Issues		
UHS6013	Philosophy of Science and Civilization		
UHMZ6023	Malaysian Society and Culture		
UECP6013	Research Methodology	3	
MECS1203 / MECQ1203	Advanced Computer Science / Advanced Software Engineering	3	
MECS1100 / MECQ1100	* Research	0	
	<b>TOTAL CREDIT</b>	<b>9</b>	
	<b>CUMULATIVE CREDITS</b>	<b>9</b>	

YEAR 1: SEMESTER 2			
Code	Course	Credit	Pre-requisite
MECS1200 / MECQ1200	* Research	0	
	<b>TOTAL CREDIT</b>	<b>0</b>	
	<b>CUMULATIVE CREDITS</b>	<b>9</b>	

\* Research (course code MEC\*\*\*00), to be taken every semester until the submission of thesis. The progress of a candidate in any particular semester is assessed through research progress reports submitted at the end of each semester. It is important for the students to know that the submission of the progress report needs to be done by the student themselves via GSMS website <http://spsapp3.utm.my:8080/gsmv4/>.

## RESEARCH CODE

Semester	Research Course Code
1	MECS1100 / MECQ1100
2	MECS1200 / MECQ1200
3	MECS2100 / MECQ2100
4	MECS2200 / MECQ2200
5	MECS3100 / MECQ3100
6	MECS3200 / MECQ3200
7	MECS4100 / MECQ4100
8	MECS4200 / MECQ4200

## Programme Educational Objectives (PEO)

Code	Intended Educational Objectives
PEO1	Knowledgeable and competent in research on advanced areas of Computing.
PEO2	Practice professionalism and high standards of ethical conducts within organization and society.
PEO3	Responsive to changing situations by continuously acquiring new knowledge and skills.

## Programme Learning Outcomes (PLO)

After having completed the programme, graduates should be able to demonstrate the following competencies:

Code	Intended Learning Outcomes
PLO1	Integrate and generate in-depth relevant knowledge independently using innovative techniques, tools and skills for decision-making to manage and resolve a complex problem in the field of Computing as a basis for research.
PLO2	Construct a critical and innovative solution for complex problems or issues in the field of Computing through research using the latest techniques and skills.
PLO3	Devise standard research methodology that are based on the forefront knowledge and latest development in the field of Computing to solve research problems with reasonable degree of originality.
PLO4	Demonstrate effective collaboration with peers, scholarly communities and society at large in the relevant field of expertise and research.
PLO5	Communicate the knowledge, skills, ideas clearly using appropriate methods to peers, experts, and non-experts through various medium.
PLO6	Use a broad range of suitable digital technologies, media, and software to design, manage, analyse and report research studies.
PLO7	Demonstrate skills in designing, planning evaluation activities, and analysing numerical and graphical data using quantitative or qualitative tools in solving problems.
PLO8	Demonstrate leadership, autonomy and responsibility in conducting and managing own research and resources.
PLO9	Demonstrate the ability to manage and enhance own self-advancement for academic development, professional development and research skills using lifelong learning strategies.
PLO10	Develop potential commercialisation research output.
PLO11	Demonstrate adherence to legal, ethical and professional codes of practice in the field of Computing and research activities.

## GRADUATION CHECKLIST

To graduate, students must pass all the stated courses in this checklist. It is the responsibility of the students to ensure that all courses are taken and passed. Students who do not complete any of the course are not allowed to graduate.

NO.	CODE	COURSE	CREDIT EARNED (JKD)	CREDIT COUNT- ED (JKK)	TICK (✓) IF PASSED
<b>CORE COURSES (6 CREDITS)</b>					
1	UECP6013	Research Methodology	3	3	
2	MECS1203 / MECQ1203	Advanced Computer Science / Advanced Software Engineering	3	3	
<b>TOTAL CREDIT OF CORE COURSES (a)</b>			<b>6</b>	<b>6</b>	
<b>UNIVERSITY ELECTIVE COURSES (Choose 1 only)</b>					
1	UECS6013	IT Project Management	3	3	
	UHS6013	Philosophy of Science and Civilization			
	UHL6013	Malay Language for Post Graduates			
	UHMS6013	Seminar on Global Development, Economic and Social Issues			
	UHMZ6023	Malaysian Society and Culture			
	UBSS6013	Organization Behavior and Development			
	UBSS6023	Business Ethics, Responsibility and Sustainability			
	UHPS6013	Dynamics of Leadership			
	URTS6013	Environmental Ethics			
	UECS6023	Introduction to Technopreneurship			
	UMJJ6013	Basic Japanese Language and Culture			
<b>TOTAL CREDIT of UNIVERSITY GENERAL COURSES (b)</b>			<b>3</b>	<b>3</b>	
<b>TOTAL CREDIT TO GRADUATE (a + b)</b>			<b>9</b>	<b>9</b>	
<b>RESEARCH</b>					
1	Hard-Bound Thesis endorsed by supervisor – 3 copies				
2	Copy of CD for Each Thesis – Extra 1 unit				
3	Copy of All Semester Results (Pre-Transcript)				
4	Copy of Registration Slip (current semester)				
5	Abstract and Title Page Approval Form (original copy)				
6	Course Checklist (endorsed by coordinator)				
7	Copy of IC (local student) / first page of Passport (international student)				
8	Fee Release Letter (UTM Bendahari)				
9	Exit Survey				
10	Submission of Thesis Form – 3 copies				
11	Verification of Graduate Information Form – 1 copy				

## **COURSE SYNOPSIS**

### **CORE COURSES**

#### **UECP6013 - Research Methodology**

This course covers the general principles of Research Methodology that are applicable to both disciplines computer science and software engineering. It discusses the fundamental process in conducting academic research. The theoretical and practical aspects of preparing a research proposal are presented. Amongst topics that will be covered are introduction to research and its philosophy, problem formulation and research objective, literature review, research methodology and design, data collection procedures, data analysis, research proposal and thesis preparation and research management.

#### **MECS1203 - Advanced Computer Science / MECQ1203 - Advanced Software Engineering**

This course will expose students to the concepts, principles and state-of-the-art methods and approaches in the main knowledge areas across a broad range of Computer Science and Software Engineering. It also provides opportunities for the students to explore and systematically evaluate the currently available approaches.

### **UNIVERSITY ELECTIVE COURSES**

#### **UECS6013 - IT Project Management**

This course presents a hands-on perspective to Information Technology project management. This course will assist post-graduate students to plan and implement their post-graduate projects as well as other IT projects effectively. The subject is organized into three main sections, that covers I) Basic concepts, life cycle and framework of project management II) Detailed description of each project management knowledge areas under the Project Management Institute (PMI) Body of Knowledge (PMBOK) and its applications, and III) Real Project Initiation, Planning, Executing, Monitoring and Closing. The Project Management areas include – project integration, scope, time, cost, quality, human resource, communications, risks and procurement management. Students are expected to perform real projects with teams and achieve agreed Key performance Indicators (KPI)

#### **UHMS6013 - Seminar on Global Development, Economic and Social Issues**

Discussion on this subject includes issues related to globalization and development, economic and social crisis that has become a global concern. It aims in developing skills in understanding and analyzing global issues and recommending relevant solutions. Issues will be discussed in details.

#### **UHS6013 - Philosophy Science and Civilization**

This course is offered to international students in advanced scholar and doctoral programs from Malay societies such as Indonesia, Brunei, South Thailand and Malay-Singapore. This course contains two sections. This subject discusses the world view of its role and importance in shaping the culture of life and civilization; The concepts of revelation, science, humanity, nature and happiness; and Comparative Studies in the Philosophy of Science: Epistemology, Ontology and Axiology in Education. Discussions on current issues and challenges, among

others; the challenge of civilization between the West and the East; Development and the environment; Economy and trade; National administration and management; Scientific research; Communication and information technology; Ethics and morals; Crime and violence; and Family education.

### **UHMZ6023 - Malaysian Society and Culture**

This course is designed for international postgraduates from countries of non-Malay origins. Students will be exposed to various aspects of the Malaysian culture such as belief system, religious festivals, customs and etiquettes of different ethnic groups in Malaysia. Emphasis will be given to the Malay culture as it makes the core for the Dasar Kebudayaan Kebangsaan. Students will also be briefly introduced to basics of Malay language as the national language of Malaysia.