

DOCTOR OF PHILOSOPHY

FIELD: COMPUTER SCIENCE / INFOMATICS ENGINEERING / SOFTWARE ENGINEERING

PROGRAMME SPECIFICATIONS

The Doctor of Philosophy, Field: Computer Science (PECS) / Infomatics Engineering (PECI) / Software Engineering (PECQ) is offered on a full-time basis. The programme is offered only at the UTM Main Campus in Johor Bahru. The duration of study for the programme is subjected to the student's entry qualifications and lasts between three (3) years to a maximum of eight (8) years.

The programme is offered full-time only and is based on a 2-Semester per academic session. This is a full research programme. The candidate is supervised by a qualified academic staff. 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		Doctor of Philosophy		
4. Final Award		Doctor of Philosophy		
5. Programme Code		PECSA3AJA / PECIA3AJA / PECQA3AJA		
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		
11. Study Duration		Minimum: 6 semesters Maximum: 16 semesters		
Type of Semester	Minimum No. of Semester		Maximum No of Semester	
	Full Time	Part Time	Full Time	Part Time
Normal	6	-	16	-
Short	-	-	-	-

Course Classification

No.	Classification	Credit Hours	Percentage
i.	University Courses	3	100%
ii.	Core Courses	0	0%
iii.	Research	0	0%
	Total	3	100%
Total Credit Hours to Graduate		3 credit hours	

COURSE MENU

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

- Research Methodology Course (course code UECP6013).
- One University Elective Course (course code U*** **3).

YEAR 1: SEMESTER 1			
Code	Course	Credit	Pre-requisite
UECS6013	IT Project Management	3	
UHAP6013	Seminar on Development, Economics and Global		
UICW6023	Philosophy Science and Civilization		
UHAZ6123	Malaysian Society and Culture		
UECP6013	Research Methodology	0	
PECS1100 / PECI1100 / PECQ1100	* Research	0	
	TOTAL CREDIT	3	
	CUMULATIVE CREDITS	3	

YEAR 1: SEMESTER 2			
Code	Course	Credit	Pre-requisite
PECS1200 / PECI1200 / PECQ1200	* Research	0	
	TOTAL CREDIT	0	
	CUMULATIVE CREDITS	3	

* Research (course code PEC***00), to be taken every semester until the submission of a thesis. The progress of a candidate in any 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/gsmsv4/>.

RESEARCH CODE

Semester	Research Course Code
1	PECS1100 / PECI1100 / PECQ1100
2	PECS1200 / PECI1200 / PECQ1200
3	PECS2100 / PECI2100 / PECQ2100
4	PECS2200 / PECI2200 / PECQ2200
5	PECS3100 / PECI3100 / PECQ3100
6	PECS3200 / PECI3200 / PECQ3200
7	PECS4100 / PECI4100 / PECQ4100
8	PECS4200 / PECI4200 / PECQ4200
9	PECS5100 / PECI5100 / PECQ5100
10	PECS5200 / PECI5200 / PECQ5200
11	PECS6100 / PECI6100 / PECQ6100
12	PECS6200 / PECI6200 / PECQ6200
13	PECS7100 / PECI7100 / PECQ7100
14	PECS7200 / PECI7200 / PECQ7200
15	PECS8100 / PECI8100 / PECQ8100
16	PECS8200 / PECI8200 / PECQ8200

Programme Educational Objectives (PEO)

Code	Intended Educational Objectives
PEO1	Mastery of knowledge and competency in advanced areas of Computing.
PEO2	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	Synthesize, critique, apply, and extend in-depth relevant knowledge independently using innovative techniques, tools, and skills in the field of Computing as a basis for research to produce new ideas and solution.
PLO2	Create new concept/theories/solutions/practice through independent research and originality that satisfies international standards within the field of Computing using the latest techniques, tools, and skills.
PLO3	Integrate highly advanced and specialized research methodologies based on the forefront knowledge and latest development in the field of Computing to solve complex research problems with reasonable degree of originality.
PLO4	Demonstrate decent collaboration with peers, scholarly communities and society at large in the relevant field of expertise and research.

PLO5	Communicate effectively the knowledge, skills, ideas and research findings using appropriate methods to peers, scholarly communities, and societies through various medium.
PLO6	Use, improve existing or develop new appropriate tools or methodologies using a broad range of digital technology, media and software to support and enhance research activities.
PLO7	Demonstrate skills in designing, critical evaluation, and analysing numerical and graphical data using quantitative or qualitative tools to support and enhance research activities.
PLO8	Demonstrate leadership, professionalism and management skills, and take full responsibility for own work, and significantly for others in the research organization.
PLO9	Demonstrate the ability to manage and enhance own self- and if necessary, can be accountable for overall management of one's research organization and professional development.
PLO10	Develop potential commercialisation research output.
PLO11	Demonstrate adherence to legal, professional and contribute to the development of ethical sound codes of practice.

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 courses are not allowed to graduate.

NO	CODE	COURSE	CREDIT EARNED (JKD)	CREDIT COUNTED (JKK)	TICK (✓) IF PASSED
CORE COURSES (0 CREDITS)					
1	UECP6013	Research Methodology	0	0	
TOTAL CREDIT OF CORE COURSES (a)			0	0	
UNIVERSITY ELECTIVE COURSES					
1	UECS6013	IT Project Management	3	3	
	UHAP6013	Seminar on Development, Economics and Global			
	UICW 6023	Philosophy Science and Civilization			
	UHAZ 6123	Malaysian Society and Culture			
TOTAL CREDIT of UNIVERSITY GENERAL COURSES (b)			3	3	
TOTAL CREDIT TO GRADUATE (a + b)			3	3	
RESEARCH					
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 any discipline. It discusses the fundamental process in conducting academic research. The theoretical and practical aspects of preparing a research proposal 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.

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)

UHAP6013 - Seminar on Development, Economics and Global

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

UICW6023 - 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.

UHAZ6123 - 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 the basics of Malay language as the national language of Malaysia.