

DOCTOR OF PHILOSOPHY (ENGINEERING EDUCATION) PROGRAMME SPECIFICATIONS

1. Programme Name		Doctor of Philosophy in Engineering Education		
2. Final Award		Doctor of Philosophy (Engineering Education)		
3. Awarding Institution		UTM		
4. Teaching Institution		UTM		
5. Professional or Statutory Body of Accreditation		MQA, MOHE		
6. Language(s) of Instruction		English		
7. Mode of Study		Conventional		
8. Mode of operation		Self-govern		
9. Study Scheme (Full Time/Part Time)		Full Time and Part time		
10. Study Duration		Full-time: Minimum: 3 year : Maximum: 6 years Part-time: Minimum: 4 years : Maximum: 8 years		
Type of Semester	No. of Semesters		No. of weeks per semester	
	Full Time	Part Time	Full Time	Part Time
Normal	6	8	14	14
Short	-	-	-	-
11. Entry Requirements	<ul style="list-style-type: none"> • A Master's Degree from Universiti Teknologi Malaysia or other higher learning institutes recognised by the Senate; or • Other qualifications equivalent to a Master degree and experience in the relevant field recognised by the Senate; or • Candidates who are currently undertaking a Master degree programme at Universiti Teknologi Malaysia, with the approval of the Senate. • Have experience in teaching or as a student in engineering or conducted research in engineering education of no less than three (3) years. • An international candidate is required to have a minimum qualification of Test of English as Foreign Language (TOEFL) of 550, or International English Language Test System (IELTS) of Band 6.0. Exemption may be given to those who are natives of English-speaking countries or who graduated from English-speaking countries. Those who do not meet the minimum requirement must attend and pass the Intensive English Programme before they are allowed to proceed with their studies. 			

12. Programme Objectives

Programme objectives of PhD (Engineering Education) are to produce teaching/training professionals who can:

- PEO1: Graduates are able to generate in-depth relevant knowledge in professional practices for the benefits of both national and international communities
- PEO2: Graduates are able to maintain conducive working environment qualities through effective leadership, complex problem solving and high order thinking skills
- PEO3: Graduates are able to advocate relevant knowledge and expertise through effective oral and written communications
- PEO4: Graduates are able to facilitate discovery to contribute towards the generation of new knowledge
- PEO5: Graduates are able to nurture, promote professional and ethical responsibilities including contemporary issues and environmental awareness

13. Programme Outcomes

Programme Outcomes	Teaching and Learning Methods	Assessment
PO1: Ability to integrate and generate in-depth relevant knowledge in professional practices for the benefit of the field of engineering education;	Lectures, Group Discussions, Paper Critique, Library Search, Research, Seminars	Assignment, Reflective Journal, Presentation, Academic Writing, Progress Report, Thesis, Viva
PO2: Ability to formulate hypothesis, carry out research scientifically to solve and explained observed phenomena in engineering education;	Research, Seminars	Presentation, Progress Report, Thesis, Viva
PO3: Ability to critically analyse and evaluate situations to synthesis findings and their implications into new ideas in engineering education;	Invited Speakers, Lectures, Group Discussions, Paper Critique, Library Search, Seminars, Research	Assignment, Reflective Journal, Presentation, Academic Writing, Progress Report, Thesis, Viva
PO4: Ability to independently conduct engineering education research in a professional and ethical manner;	Lectures, Group Discussions, Paper Critique, Seminars, Research	Assignment, Reflective Journal, Academic Writing, Progress Report, Thesis, Viva
PO5: Ability to communicate effectively in oral and written form the findings, knowledge, recommendations and rationale to experts, peers and the community in engineering education;	Group Discussions, Paper Critique, Seminars, Research	Reflective Journal, Academic Writing, Progress Report, Thesis, Viva
PO6: Ability to continuously update professional knowledge and skills.	Invited Speakers, Research, Seminar	Academic Writing, Progress Report, Thesis, Viva

14. Classification of Subjects

No.	Classification	Credit Hours
i.	University General Course	HW
ii.	Programme Core Courses	HW
iii.	Doctoral Thesis	0

15. Programme structures and features, curriculum and award requirements

The PhD in Engineering Education is a full research mode program. The students are required to conduct their research, and to proceed with their thesis writings. Each student will be supervised by two qualified supervisors: one with the background in engineering, while the other with the educational background. For the completion of the program, students are also required to attend and pass all the courses as the followings:

Course Category	Code	Course	Credit
University General Course (1 course)	Uxxx xxx3	(to choose from the list given by School of Graduate Studies)	HW
Program Core (5 courses not counted into the overall credits)	PLPT 6113	Fundamentals of Engineering Education	HW
	PLPT 6123	Research Methodology in Engineering Education	HW
	PLPT 6133	Data Analysis Techniques	HW
	PLPT 6140	Seminar in Engineering Education	HW
	PLPT 6143	Issues in Engineering Education	HW
Doctoral Thesis	PLPT xxx0	Thesis	0

Award requirements:

For the award of Doctor of Philosophy (Engineering Education), the students must attend and pass all the courses above, pass the assessment in every semester through the Progress Report, complete a research study, produce a doctoral thesis and pass the viva.

16. Mapping of Programme Outcomes to Subjects

		PROGRAMME OUTCOMES					
Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6
UNIVERSITY GENERAL COURSE							
UHxx xxx3	(to choose from the list given by School of Graduate Studies)					/	/
PROGRAM CORE COURSES							
PLPT 6113	Fundamentals of Engineering Education	/				/	
PLPT 6123	Research Methodology in Engineering Education	/	/	/	/		/
PLPT 6133	Data Analysis Techniques	/	/				
PLPT 6140	Seminar in Engineering Education	/		/		/	
PLPT 6143	Issues in Engineering Education	/		/	/	/	/
DOCTORAL THESIS							
PLPT xxx0	Thesis	/	/	/	/	/	/

17. Career Prospects

Due to its multidisciplinary nature, there is a wide variety of career options for graduates of this programme. Knowledge of the technical and social science aspects of engineering opens up opportunities for graduates to be well suited for both fields. This is especially when meeting the unique requirements of multidisciplinary knowledge and abilities demanded by both areas. Among the potential career for graduates are:

- Academics in engineering sciences, social sciences and education
- Academic administrators of engineering schools or departments in higher learning institutes
- Engineering and technology curriculum developers
- Higher education consultants and trainers
- Training designers and developers in industries
- Instructional designers
- Content developers in publishing companies
- Practicing engineers or administrators in industries
- Researchers

18. Cross Campus Programme

Not applicable

19. UTM Degree ++ Programme

Not applicable

20. Facilities available

1. Centre for Engineering Education
2. SPS Library
3. Sultanah Zanariah Library
4. Internet Services (ACID & VPN)
5. Lecture Rooms at F54
6. Viva Rooms
7. SPS Office
8. Visiting Lecture Room

21. Support for Students and their learning

1. Student Handbook and Module Guides
2. E-resources such as e-thesis, e-learning, e-journal and etc.
3. Extensive library and other learning resources and facilities.
4. Weekly colloquium
5. Assessment Panel
6. Meeting with Visiting Professors and Lecturers
7. Conferences (RCEE)
8. Journal Publication (ASEAN Journal of Engineering Education)

22. Methods for evaluating and improving the quality and standards of teaching and learning mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards

1. Periodical curriculum reviews involving external panel members (thesis external examiners and visiting professors)
2. Annual staff appraisal (e-LPPT)
3. External examiner reports
4. Postgraduate Academic Committee with responsibility for monitoring and evaluating quality and standards and review of curriculum gradually
5. University Quality Committee

6. Assessment Panels
7. Advisory Committee
8. Mechanisms for gaining student feedback on the quality of teaching and their learning experience
9. Lecturers' evaluation (e-PPP)
10. Regular course team meetings and comprehensive annual review and planning for forthcoming academic year
11. Weekly colloquium

23. Regulation of assessment

Formative assessment	Summative assessment
<ol style="list-style-type: none"> 1. Courses 2. Progress report via GSMS (every semester) 3. Log book via GSMS 4. Progress seminar 5. Proposal defense 	<ol style="list-style-type: none"> 1. Thesis 2. Viva-voce

Summary of grades for courses, marks and their interpretation are as follows:

Grade	Marks	Interpretation
HL	60 - 100	Pass
HG	0 - 59	Fail

Summary of grades for thesis (progress report) assessment, marks and their interpretation are as follows:

Mark Description	Overall Assessment	Interpretation
$9.0 \leq M \leq 10.0$	Satisfactory (Good Pass)	Excellent
$8.0 \leq M < 9.0$		Very Good
$7.0 \leq M < 8.0$		Good
$6.0 \leq M < 7.0$		
$5.0 \leq M < 6.0$	Unsatisfactory (Conditional Pass)	Fair
$4.0 \leq M < 5.0$		
$3.0 \leq M < 4.0$		
$2.0 \leq M < 3.0$	Fail	Poor
$1.0 \leq M < 2.0$		
$0.0 \leq M < 1.0$		

Summary of grades for final thesis viva, marks and their interpretation are as follows:

Grade	Interpretation
a	The candidate be awarded the degree of Doctor of Philosophy.
b1	The candidate be awarded the degree of Doctor of Philosophy subject to minor corrections.
b2	The candidate be awarded the degree of Doctor of Philosophy subject to amendments and corrections listed elsewhere in this report being made in the thesis to the satisfaction of Internal/External Examiner(s).
c	The candidate not be awarded the degree of Doctor of Philosophy but be permitted to resubmit the thesis for further examination in a revised form after a further period of study and research.
d	The candidate not be awarded the degree of Doctor of Philosophy but a lower.
e	The candidate not be awarded the degree of Doctor of Philosophy.