DOCTOR OF ENGINEERING IN PROCESS PLANT MANAGEMENT

PROGRAMME SPECIFICATIONS

The Doctor of Engineering (EngD) in Process Plant Management programme by mixed-mode is aimed at developing individuals who will innovate but also able to implement the innovations. The programme is to provide solutions to one or more significant and challenging problems in managing complex process plant. Thus, the solution to the problem will have to consider factors such as financial constraints, timescales and human capital management as well as technological issues.

The EngD. is a radical alternative to the traditional PhD. being better suited to the needs of the industry and providing a more vocationally oriented doctorate in the process industry. It is highly flexible and able to accommodate candidates from all level of management. It is a full-time postgraduate programme where candidates are expected to spend most of their time carrying out research works at their organizations or industries.

General Information

<table>
<tr><td colspan="2">1. Awarding Institution</td><td colspan="2">Universiti Teknologi Malaysia</td></tr>
<tr><td colspan="2">2. Teaching Institution</td><td colspan="2">Universiti Teknologi Malaysia</td></tr>
<tr><td colspan="2">3. Programme Name</td><td colspan="2">Doctor of Engineering in Process Plant Management</td></tr>
<tr><td colspan="2">4. Final Award</td><td colspan="2">Doctor of Engineering in Process Plant Management</td></tr>
<tr><td colspan="2">5. Programme Code</td><td colspan="2">EKKL</td></tr>
<tr><td colspan="2">6. Professional or Statutory Body of Accreditation</td><td colspan="2">MQA</td></tr>
<tr><td colspan="2">7. Language(s) of Instruction</td><td colspan="2">English</td></tr>
<tr><td colspan="2">8. Mode of Study (Conventional, distance learning, etc)</td><td colspan="2">Mixed Mode</td></tr>
<tr><td colspan="2">9. Mode of operation (Franchise, self-govern, etc)</td><td colspan="2">Self-governing</td></tr>
<tr><td colspan="2">10. Study Scheme (Full Time/Part Time)</td><td colspan="2">Full Time</td></tr>
<tr><td colspan="2">11. Study Duration</td><td colspan="2">Minimum : 3 years
Maximum : 8 years</td></tr>
<tr><td rowspan="2">Type of Semester</td><td colspan="2">No. of Semesters</td><td>No of Weeks/Semester</td></tr>
<tr><td>Min</td><td>Max</td><td></td></tr>
<tr><td>Normal</td><td>6</td><td>16</td><td>14</td></tr>
<tr><td>Short</td><td colspan="2">-</td><td>-</td></tr>
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Course Classification

No.	Classification	Credit	Percentage
i.	University Elective (1 course)	3	40%
ii.	Programme Core	21	
iii.	Programme elective (1 course)	-	
iv	Doctorate Research Project	36	60%
	Total	**60**	**100%**

Programme Educational Objectives (PEO)

PEO1: The ability to create new knowledge, analyze critically, plan and innovatively solve complex problems associated with process plant management leading to effective plant management.

PEO2: The ability to communicate effectively, advocate their ideas and practice professional, ethical, environmental and societal responsibilities irrespective of different global and cultural prespectives.

PEO3: The ability to easily adapt to different roles, responsibilities, surroundings and communities, enabling them to contribute and lead in their organizations and society at large.

PEO4: The ability to be lifelong learners who are able to demonstrate business acumen and higher-order thinking skills needed to solve problems through innovation and creativity.

Programme Learning Outcomes (PLO)

PLO1: Graduates are able to create new knowledge and recommend (C6) innovation in the application of knowledge of process plan management.

PLO2: Graduates are able to initiate (P7) and solve issues related to process plant management.

PLO3: Graduates are able to demonstrate (P5) findings through communication skills effectively and to display (A5) the ability to work in a team.

PO4: Graduates are able to practice (A5) professional ethics in research projects that related with process plant management.

PO5: Graduates are able to practice (A5) the knowledge on business, management, process and plant technology

PO6: Graduates are able to create (P7) financial and business opportunity in process plant management.

GRADUATION CHECKLIST

To graduate, students must pass all the stated courses in this checklist with minimum B grade. Students must achieve a total of 40 credit hours with a minimum of cumulative B grade or CGPA of 3.0 and passed master research dissertation project and has submitted the approved dissertation to UTM. 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 COUNTED (JKK)	TICK (√) IF PASSED
UNIVERSITY ELECTIVE					
1	UHAP6013	Seminar Pembangunan Isu-Isu Sosial dan Ekonomi Global	3	3	
2	UHAW6023	Falsafah Sains dan Pembangunan Sosial	3	3	
3	UHAF6033	Kepimpinan Dinamik	3	3	
4	UHAZ6113	Budaya Malaysia I	3	3	
5	UHAZ6123	Budaya Malaysia II	3	3	
6	UHAZ6313	Bahasa Malaysia Akademik I	3	3	
7	UHAZ6323	Bahasa Malaysia Akademik II	3	3	
8	UBSE1123	Organizational Behavior	3	3	
9	UCSM1263	Pengurusan Projek IT	3	3	
10	ULAJ 6013	Japanese Language for Postgraduates	3	3	
TOTAL CREDIT OF UNIVERSITY ELECTIVE			**3**	**3**	
PROGRAMME CORE COURSES					
1	EKKL 1013	Research Methodology and value creation through innovation	3	3	
2	EKKL 1113	Building Operational Excellence	3	3	
3	EKKL 1163	Green Operational Management	3	3	
4	EKKL 1223	Financial Decision Making	3	3	
5	EKKL 1243	Production Planning	3	3	
6	EKKL1253	Wellness For Top Management	3	3	
7	EKKL1263	Product Design	3	3	
TOTAL CREDIT OF PROGRAM CORE			**21**	**21**	
PROGRAMME ELECTIVE COURSES* (none)					
DISSERTATION					
1	EKKL ****	Doctoral Research Project (4 Semesters minimum)	36	36	
TOTAL CREDIT OF DISSERTATION			**36**	**36**	
TOTAL CREDIT TO GRADUATE			**60**	**60**	
**The courses are offered subjected to availability of the courses for the particular semester in the School of Chemical and Energy Engineering*					

COURSE SYNOPSIS

CORE COURSES

EKKL 1013 - Research Methodology and Value Creation Through Innovation
In this course the students will be exposed to various aspects of the research process. Students will learn how to conduct research in terms of producing research problems and questions, proposal writing and supervision, writing a dissertation, literature reviews, research methods and how to ensure ethical integrity when conducting research. Students will also learn how to create value to a product. The module on value creation through 5 discipline of innovation will be based on SRI International model.

EKKL 1113 - Building Operational Excellence
The objective of this module is to provide an understanding of the fundamentals of process unit equipment in the process industry. This seminar would be beneficial to those directly or indirectly involved in the process industry. To those with experience in the process industry, this seminar can reinforce their practical experience and broaden their data base. To those new in the process industry, this seminar can serve as a platform to build their data base of experience. This seminar focuses on the core building blocks of the process unit equipment. The program will emphasize process unit equipment fundamentals, safe utilization of these fundamentals by operation and maintenance personnel, and equipment troubleshooting techniques.

EKKL 1163 - Green Operational Management
In the recent years, operation management in the process plant faces new challenges in handling issues of sustainability as compared to their traditional areas of interest. How to make the process and the operational management GREEN is the new growing business pressure, especially to pay more attention to the environmental and resources consequences of the products and services. This course introduces the two strategic fundamentals in green operational management: strategy design and strategy implementation. Participants will learn the effective execution of strategy by manipulating the different dimensions of operational management in the process industry. The course introduces green operational strategy with Total Quality Management (TQM), Statistical Process Control (SPC). Students will learn the concept and techniques of process optimization with Process-graph (P-graph). They will also gain exposure to life cycle assessment (LCA) and carbon footprint reduction concepts, tools, and techniques.

EKKL 1223 - Financial Decision Making
The aim of this module is to provide a broad understanding of long term financial decision making and it covers two complementary aspects of finance. An important aspect of the investment decision making process is the financial evaluation including the development and interpretation of criteria for assessing the risk and return. The other aspect is the sources of funding for long term projects and this is reviewed from the point of view of the implications for long term decision making.

EKKL 1243 - Production Planning

Production planning is a crucial element to ensure business competitiveness. Good production planning means higher profitability for the company. Supply chain, equipment and human resources are among the several important aspects in production planning. In this course, several process integration techniques for production planning for sustainable processes are introduced, i.e. water pinch, hydrogen pinch, property pinch, supply chain pinch, financial and human resource pinch analyses. The techniques are built on graphical representation where production planner will be able to obtain good insights in various decision making scenarios, e.g. optimum production planning, minimum waste and optimum use of resources.

EKKL 1253 - Wellness for Top Management

The objective of this module is to provide an overview and understanding on nature of human health and wellness. The knowledge is then use to chart out proactive strategy for the promotion and enhancement of health and wellness for optimum performance. The World Health Organization defines health and wellness as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. In addition, wellness encompasses emotional stability, clear and creative thinking and lifestyle that lead to a more balanced and fulfilling life. The modules focus on the building block of life and their physiological and psychological requirements. It is structured to highlight the importance of cellular metabolism and systemic behavior of the whole body in maintaining homeostasis. The importance of wholesome nutrition, clean air and water and conducive living environment will be discussed. The effect of mental and emotional states of homeostasis will be deliberated. The module draws on the well-known engineering principles such as material and energy balance, charge or ionic balance and process control strategies or the maintenance of homeostasis and wellness.

EKKL1263 - Product Design

Product design varies from project to project depending on the project strategies and objectives. However, there is a basic structure that is fundamental to product design process. The aims of this course are to introduce to the students the processes involved when designing a product, and to provide the students with a conceptual framework and case studies for understanding the role of product design in the industries. The course encompasses topics such as new product idea generation, idea screening, concept-proving, product market positioning, product launching, product evaluation, etc