

### **Sixth Edition**

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## **PREFACE**



Bismillahirrahmanirrahim

Assalamulaikum w.b.t and Salam Sejahtera.

Dear Students,

First and foremost, I would like to welcome you to our beloved Politeknik Merlimau (PMM). As you can see, the atmosphere and the ambience here are very conducive for teaching and learning.

As we are aware, the industry requires graduates who are knowledgeable and have impeccable track records and self-discipline. We in PMM have taken measures to ensure all these requirements are met.

Furthermore, in order to add value to our graduates, we greatly emphasize our students to be involved in co-curricular activities, especially the uniformed bodies.

I believe that with the quality courses offered by the Civil, Electrical and Mechanical Engineering Departments as well as Commerce and Tourism and Hospitality, we would be able to produce high quality of towering personality graduates who would contribute to the development of our nation.

I am looking forward to meeting you and I hope that you would take advantage of all the facilities provided in order for you to attain the best knowledge and become the contributing citizen for our beloved Malaysia.

Thank you	

Sincerely,

### Mohd Hatta bin Zainal

Director

Politeknik Merlimau

## **PREFACE**

Assalamualaikum w.b.t.



This Programme Handbook is meant to provide a comprehensive guilines for the students of Department of Electrical Engineering pertaining to the programmes offered by this department.

Department of Electrical Engineering offers programmes which are the Diploma in Electronic Engineering (Computer) DTK, Diploma in Electronic Engineering (Communication) DEP and Diploma in Electrical Engineering DET. Those programmes cater to four categories of courses or subjects. It means that students have to complete all the courses listed for their programmes in order to graduate. The four categories of courses are core, elective, compulsory and common courses.

Politeknik Merlimau (PMM) will be the ground for students to develop themselves holistically because PMM provides various kinds of activities that cater to both academic and non-academic purposes. Amongst those activities are Innovation, Pre-graduation Night, Industrial Attachment, Head of Department Award/List, Collaboration and Community Service. The activities organised gear the students to develop themselves into more competitive and resourceful people that would lead to the creation of towering personality graduates.

The Department of Electrical Engineering provides a vast range of facilities as to ensure the success of our teaching and learning process. The facilities are such as Wiring Laboratory, Project Laboratory, Power System Laboratory, Electronic Laboratory, Audio and Communication Room, Telecommunication Laboratory, Computer Repair Laboratory, Computer Hardware Laboratory, Computer Programming Laboratory, Computer Aided Design Laboratory, Power Electronic Laboratory, Lecture Hall and Server Room.

Heartiest thanks to the Director and to all the lecturers as well as the supporting staff who work as an effective and efficient team for the success of our students. I also thank the other Academic Departments that have helped us to mould the students. It is our hoped that the graduates will excel globally and be well-balanced in terms of spiritual, intellectual, emotional and physical.

All the best and welcome to the Department of Electrical Engineering . Thank You. Sincerely,

#### Saifful Bahari Bin Omar

The Head of Electrical Engineering Department Politeknik Merlimau

## INTRODUCTION

Politeknik Merlimau (PMM) is the 14th polytechnic of the Department of Polytechnic Education Ministry of Higher Education. PMM is located in the District of Merlimau, 26 kilometers south of the state capital city, Melaka Historical City.

Established in 2002, PMM started in Politeknik Melaka (back then was Politeknik Kota Melaka). Moving to its own Merlimau campus in the end of 2002, Politeknik Merlimau since then has risen to the forefront of achievements in various fields, emerging as the catalyst polytechnic in academic, innovation as well as social responsibilities activities.

The PMM campus is spread across the area of 100 acres which houses seven academic departments, two non-academic departments and twelve supporting service units. Those academic departments consist of five main departments and two ancillary departments. The main departments are the Department of Civil Engineering, Department of Electrical Engineering, Department of Mechanical Engineering, Department of Commerce and Department of Hospitality and Tourism. The ancillary departments, on the other hand, are the Department of Mathematics, Science & Computer and Department of General Studies.

PMM believes that learning environments play a critical role in the development of strong learning communities which is one of the key aims of curriculum evolution at PMM. These communities are supported by place, technology and cohort-targeted of diploma graduate students. Thus, PMM provides a wide range of facilities and spaces that can be utilized by both the staff and students of PMM such as the CIDOS e-learning tools which serves as the Learning Management System. It is developed for the purpose of teaching and learning processes continuous improvement.

PMM provides a broad-based curriculum underscored by multi-disciplinary courses with the enrichment of the ancillary department's courses which are aligned with the transformative pillars of the Department of Polytechnic Education, Ministry of Higher Education. The classroom lessons and activities are based on sound principles of pedagogy and practice where lectures are given in English. These promote to nurture well-rounded graduates characterized by innovative thinking and relevant skills to thrive in a knowledge economy.

All in all, PMM provides students an ideal, supportive and innovative environment in which students can find their future direction, while making full use of their valuable time. This is further enhanced with practicality, entrepreneurship, and the pursuit of academic and management excellence. It is hoped that the well-rounded graduates enveloped with outstanding leadership qualities will enable them to make valuable contributions to tomorrow's society .

## VISION & MISSION



VISSION To Be the Leading-Edge TVET Institution

NIISSION

1.To develop holistic,
entrepreneurial and balanced
TVET graduates through
dynamic education in-line
with the current Industrial
Revolution.

2.To capitalise on smart
partnership with
stakeholders.

3.To empower communities
through life-long learning,
research and innovation.



**Expertise For** Excellence, X4X



## MANAGEMENT ORGANISATION



## **OUTCOME BASED EDUCA-**

Ministry of Higher Education, Malaysian Qualification Agency (MQA) and related professional bodies require all programs offered by Institution of Higher Learnings to adopt the Outcome Based Educatio (OBE) approach in their teaching and learning activities. This is in line with the paradigm shift mooted by the Ministry of Higher Education to enhance the quality of education in Malaysia.

Outcome-based education (OBE) is an educational approach that focuses on what students are able to do upon completion of a course. All curriculum and teaching decisions are made based on how best to facilitate the desired outcome. The term outcomes in this matter would be a set of values or 'wish list' on what students should acquire upon their educational program completion. Outcome-based education is designed so that "all students are equipped with the knowledge, skills and qualities needed to be successful after they exit the educational system" (Spady, 1994, p. 9).

In brief, OBE answers the following questions:

- What must the student learn?
- What do the teachers or lecturers want the student to learn?
- How does what student learn affect the overall educational outcome?
- How do the teachers or lecturers make sure that the students learn what they are intended to learn?

Thus, OBE outlines the guidance for planning, delivering and evaluating teaching and learning activities to achieve the results expressed in terms of individual student learning

outcomes as shown in Figure 5.1 below.

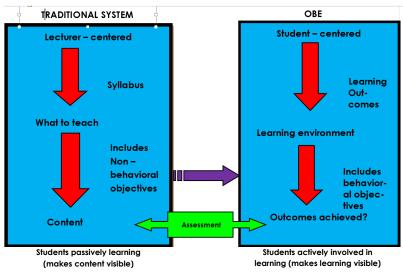
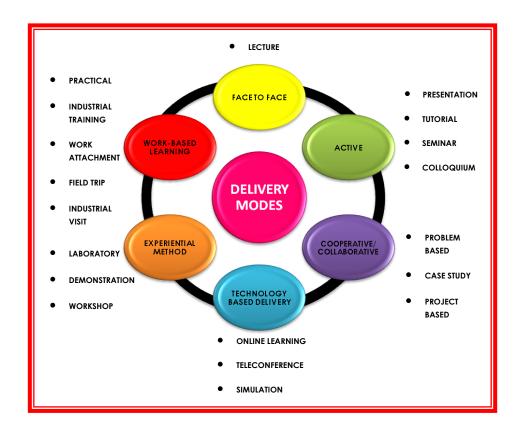


Figure 5.1: A Paradigm Shift for Educational System

## OUTCOME BASED EDUCA-

### **DELIVERY MODES**

The diversity of teaching and learning methodologies can be adapted by lecturers as to cater to the hetrogeneous or different students' potentials. This is important to ensure that different students are at the maximum level while the less potential ones are not left behind. Figure 5.2 shows that there are many modes of delivery that can be employed to suit various teaching and learning purposes.



## **OUTCOME BASED EDUCA-**

### **OBE EDUCATIONAL FRAMEWORK**

### Programme Educational Objectives (PEO):

The broad statements that describe the career and professional accomplishments which the program is preparing graduates to achieve.

#### Programme Learning Outcomes (PLO):

The statements that describe what students are expected to know and able to perform or attain in terms of skills, knowledge and behaviour or attitude by the time of graduation.

### Course Learning Outcomes (CLO):

The statements that describe the specification of what a student should learn upon completing a course .

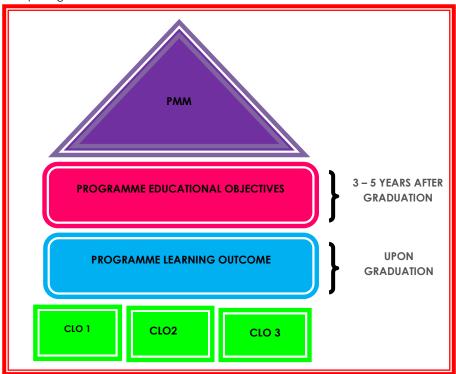
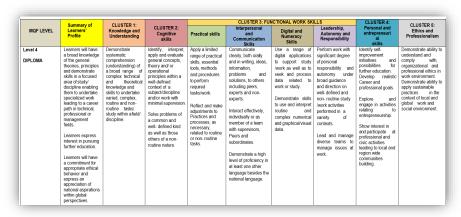


Figure 5.3: OBE Educational Framework

## **OUTCOME BASED EDUCATION (OBE)**

### **FORMATION OF LEARNING OUTCOMES**

The achievement of students is measured by learning outcomes. These learning outcomes should specify the competencies acquired by students upon completion of their studies. The Learning outcome consist of 8 domains that have been clustered into 5 clusters. The diagram Malaysian Qualifications Framework 2nd Edition: Level Descriptors below shows the cluster;



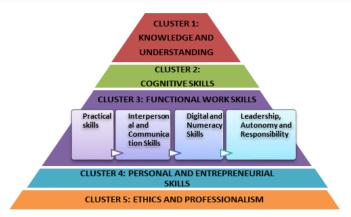


Figure 5.4: Competency Domain to be applied in MQA Outcomes (Learning Outcomes, LO)

## **OUTCOME BASED EDUCATION (OBE)**

#### THREE MAIN STAGES IN TEACHING AND LEARNING PROCESS

In general, OBE concept divides teaching and learning activities into three parts, namely:

- i. Planning,
- ii. Implementation and
- iii. Assessment

At the planning stage, learning outcomes should be determined in advance by taking into account what students can do after attending a teaching process.

At the implementation stage, the teaching and learning activities should be designed to achieve the specified learning outcomes.

Finally, the assessment is to be determined where it measures how far students have achieved the specified learning outcomes and assessment provides input to continuously improve the teaching and learning process.

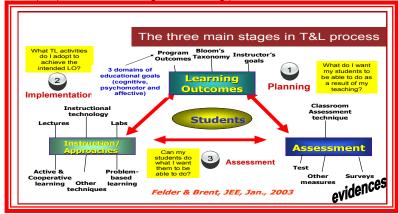


Figure 5.5: Three Main Stage in Learning and Teaching Process

### Towards the future of OBE:

- Courses will help students to want, passionately, to do things, rather than just 'be able to' do things.
- Assessment will assess whether students actually and spontaneously achieve the outcomes, rather than just 'being able to'
- 3. Outcomes will include values and principles and purposes as well as abilities.

In conclusion, the call for accountability is inevitably one of the reasons that lead to the introduction of OBE in Politeknik Merlimau. All parties need to make necessary changes, modifications, and improvements in the light of the changes aimed. The roles of curriculum, lecturers or instructors and assessment must gear the students towards the intended outcomes.

## UNIT OF E-LEARNING

#### Introduction

CeLT (Center for e-Learning & Teaching) is a special name for Digital Learning Unit under the Instructional and Digital Learning Division, Polytechnic Education Department, Ministry of Higher Education Malaysia. CeLT is created to help empower the special National e-Learning agenda for all Malaysian Polytechnic.

### **VISION**

Transforming Politeknik Merlimau towards global competitiveness through e-learning.

### **MISSION**

Build a competitive, creative and sustainable e-learning framework.

### **OBJECTIVE**

- 1. Encourage quality, fair and equitable education opportunities through e-learning (open, neutral and active)
- 2. Provide appropriate infrastructure and e-learning friendly
- 3. Creating a variety of creativity to strengthen the 21st century learning and teaching process
- 4. Improve staff and student skills through e-learning in the 21st century

### The roles and responsibility of the e-Learning Unit are to:

- 1. Coordinate, support and monitor the implementation of e-Learning through the CIDOS platform.
- Develop and improve CIDOS functionality to meet the effective R & D requirements and suit the rapid development of ICT (including Mobileready).
- 3. Improve literacy and training and mentoring on e-Learning.
- 4. Plan training and mentoring and support e-Content development support for academic and student staff.
- 5. Designing strategies and coordinating the EDOLA competition organized by CELT's Department of Polytechnic Education such as TVET Tunes, Poli TV, EMCC, VR 360 and Augmented Reality (AR).

## UNIT OF E-LEARNING









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## **FACILITIES**



Electrical Principle & Technolgy Laboratary



Instrumentation Laboratary



Wiring Laboratary



Project Laboratary



**Power System Laboratary** 



**Advanced Telecommunication Laboratary** 



**Electronic Repair Laboratary** 



**Electronic Laboratary** 

## **FACILITIES**



**Telecommunication Laboratary** 



**Computer Repair Laboratary** 



Computer Hardware Laboratary



**Computer Programming Laboratary** 



Power Electronic Laboratary



**Electrical Machine Laboratary** 



**Measurement Laboratary** 



**Data Communication Laboratary** 

## **FACILITIES**



Computer Aided Design Laboratary



**Entrepreneurship Incubator Room** 



Meeting Room



Server Room



**Lecture Hall** 



TECC Room



Classroom



Student Corner

## **Programme Overview**

### Introduction

Electrical engineering is the field of study which generally deals with the application of electrical and electronics towards designing, testing and development of circuitry and equipment for well-defined engineering activities. It requires the application of scientific and engineering knowledge and methods combined with practical skills in supporting well-defined engineering activities to prepare students for their future role in the industry.

The electrical engineering diploma graduates of the Polytechnic's Ministry of Higher Education are exposed to a comprehensive curriculum consisting of courses in personal development, mathematics, science, electrical disciplines and workplace competencies requirements. Graduates of the electrical engineering diploma programme will be equipped with specialized knowledge and skills which include power engineering, green technology, energy efficiency, computer technology, communication, medical electronics, optoelectronic and industrial automation. The Diploma in Electronic Engineering (Communication) is a three-year full-time programme comprising of five semesters coursework with one full semester of industrial training

### **Synopsis**

The Diploma in Electronic Engineering (Communication) covers broad discipline of electronics engineering, with specialization in communication technology which includes, electrical and electronic fundamentals, computer fundamentals and programming, communication system fundamentals, semiconductor devices, and computer aided design, while emphasizing the area of specialization. The specialization courses include telecommunication network, fibre optic communication system, data communication and networking, wireless communication and microwave devices.

#### Diploma in Electronic Engineering (COMMUNICATION)

### **Job Prospects**

This programme provides the knowledge and skills in communication engineering that can be applied to a broad range of careers in most electronic communication field. The knowledge and skills that the students acquire from the programme will enable them to participate in the job market as:

- a. Assistant Engineer
- b. Assistant Radio Frequency Engineer
- c. Technical Executive
- d. Marketing Executive
- e. Technical Supervisor
- f. Assistant Technical Designer
- g. Assistant Network Engineer
- h. Assistant Network Administrator
- i. Assistant Drive Test Engineer
- j. Assistant Drive Test Analyser Engineer
- k. Network planner
- I. Electrical/Electronic Technician

### Vision

To be the Leading-Edge TVET Institution

### Mission

- a. To provide wide access to quality and recognized TVET programmes
- b. To empower communities through lifelong learning
- c. To develop holistic, entrepreneurial and balanced graduates
- d. To capitalise on smart partnership with stakeholders

### **Educational Goal**

To produce holistic and competent TVET graduates capable of contributing to the nation development.

### **Programme Aims**

This programme believes that all individuals have potential to be a resourceful and adaptable technician to support the nation aspiration in providing engineering talent.

### Programme Educational Objectives (PEO)

The engineering programme should produce balanced TVET graduates who are:

- PEO1: Practicing technician in electrical engineering related field.
- PEO2: Contributing to society with professional ethic and responsibilities.
- PEO3: Engaging in enterprising activities that apply engineering knowledge and technical skills.
- PEO4: Engaging in activities to enhance knowledge for successful career advance ment

### **Programme Learning Outcomes (PLO)**

Upon completion of this programme, students should be able to:

- PLO1: Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices.
- PLO2: Identify and analyse well-defined engineering problems reaching substantiat ed conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4).
- PLO3: Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropri ate consideration for public health and safety, cultural, societal, and environ mental considerations (DK5).
- PLO4: Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements.
- PLO5: Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limita tions (DK6).
- PLO6: Demonstrate knowledge of the societal, health, safety, legal and cultural is sues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems (DK7).
- PLO7: Understand and evaluate the sustainability and impact of engineering techni cian work in the solution of well-defined engineering problems in societal and environmental contexts (DK7).

#### DIPLOMA IN ELECTRONIC ENGINEERING (COMMUNICATION)

- PLO6: Demonstrate knowledge of the societal, health, safety, legal and cultural is sues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems (DK7).
- PLO7: Understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7).
- PLO8: Understand and commit to professional ethics and responsibilities and norms of technician practice.
- PLO9: Function effectively as an individual, and as a member in diverse technical teams
- PLO10: Communicate effectively on well-defined engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear in structions.
- PLO11: Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments.
- PLO12: Recognise the need for, and have the ability to engage in independent up dating in the context of specialised technical knowledge.

### Notes:

- DK 1: A descriptive, formula-based understanding of the natural sciences applica ble in a sub-discipline.
- DK 2: Procedural mathematics, numerical analysis, statistics applicable in a subdisci pline.
- DK 3: A coherent procedural formulation of engineering fundamentals required in an accepted sub-discipline.
- DK 4: Engineering specialist knowledge that provides the body of knowledge for an accepted sub-discipline.
- DK 5: Knowledge that supports engineering design based on the techniques and procedures of a practice area.
- DK 6: Codified practical engineering knowledge in recognised practice area.
- DK 7: Knowledge of issues and approaches in engineering technician practice: ethics, financial, cultural, environmental and sustainability impacts.

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		Engineering Science	2	1	0	0		1				√									
Discipline		Electrical Technology	2	2	0	0	-	1				V					V				
Core	DET10022	Electrical Wiring	1	3	0	0	2	V				V				V					
	DEE10013	Measurement Devices	2	2	0	0	3	V				V						√			
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CLASSIFICATION	COURSE CODE	COURSE NAME	L				CREDIT VALUES	Knowledge PLO1	Problem Analysis PLO2	Design/Development of PLO3	Investigation PLO4		Modern 1001 Usage PLOS	The Engineer and Society PLO6	Environment and Sustainability PLO7	Ethics PLO8	Individual and Teamwork PLO9	Communications PLO10	Project Management and Finance	Life Long Learning PLO12	PREREQUISITE / CO-REQUISITE
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Common Core	DBM30043	Electrical Engineering Mathematics	2	0	2	0	3	1					V					$\checkmark$			DBM20023
	DEE30043	Electronic Circuits	2	2	0	0	3	V				<b>V</b>						4			
Discipline	DEE30052	Electronic Equipment Repair	1	3	0	0	2		<b>√</b>			√	V	1							DEE20023
Core	DEE30071	Electronic Computer Aided Design	0	2	0	0	1	<b>V</b>				4	V								
	DEP30013	Communication System Fundamentals	2	2	0	0	3	V				<b>V</b>	V				V				
Specialisation	DEP30083	Telecommunication Network	2	2	0	0	3	V				√.						V			
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Compulsory  Discipline	DUE50032 MPU22012	Communicative English 3 Entrepreneurship	1 1	<b>P</b>	S: 2	EM 2 0 0 0 0 0	2 2 3	CLS1 Knowledge	Problem Analysis	CLS2 Design/Development of Solutions	CLS2 Investigation	CLS3a	CLS3c Modern 1 oot Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	CLS3b Communications	CLS4 Project Management and	CLS4 Life Long Learning	DUE30022
Compulsory  Discipline	DUE50032 MPU22012 DEC40053	Communicative English 3 Entrepreneurship Embedded System Application	1 1 2	P 0 0 2	S: 2	EM 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 3	CLS1 Knowledge	Problem Analysis	CLS2 Design/Development of	CLS2 Investigation	CLS3a	CLS3c Modern 1 oot Usage	The Engineer and Society	CLS5 Environment and	Ethics	Individual and Teamwork	CLS3b Communications	CLS4 Project Management and	CLS4 Life Long Learning	DUE30022
Compulsory  Discipline  Core	DUE50032 MPU22012 DEC40053 DEP40053 DEE40113	Communicative English 3 Entrepreneurship Embedded System Application Fibre Optic Communication System	1 1 2 2	P 0 0 2 2 2	S: 2 2 0 0	EM 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 3 3	CLS1 Knowledge	CLS2 Problem Analysis	CLS2 Design/Development of	CLS2 Investigation	CLS3a	CLS3c Modern 1 001 Usage	The Engineer and Society	CLS5 Environment and	Ethics	Individual and Teamwork	CLS3b Communications	CLS4 Project Management and	CLS4 Life Long Learning	DUE30022 DEC20012
Compulsory  Discipline  Core	DUE50032 MPU22012 DEC40053 DEP40053 DEE40113	Communicative English 3 Entrepreneurship Embedded System Application Fibre Optic Communication System Signal and System	1 1 2 2	P 0 0 2 2 2 2	S. S. 2	EM 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 3 3 3 2	CLS1 Knowledge	CLS2 Problem Analysis	CLS2 Design/Development of	CLS2 Investigation	CLS3a	CLS3c Modern 1 001 Usage	CLS3b The Engineer and Society	CLS5 Environment and	Ethics	Individual and Teamwork	CLS3b Communications	CLS4 Project Management and	CLS4 Life Long Learning	DUE30022 DEC20012
Compulsory Discipline Core Specialisation	DUE50032 MPU22012 DEC40053 DEP40053 DEE40113	Communicative English 3  Entrepreneurship  Embedded System Application  Fibre Optic Communication System  Signal and System  Project 1	1 1 2 2 2 1	P 0 0 2 2 2 2 0	S: 22 2 0 0 0 0 0	EM 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 3 3 3 2	CLS1 Knowledge	CLS2 Problem Analysis	CLS2 Design/Development of	CLS2 Investigation	CLS3a	CLS3c Modern 1 001 Usage	CLS3b The Engineer and Society	CLS5 Environment and	Ethics	Individual and Teamwork	CLS3b Communications	CLS4 Project Management and	CLS4 Life Long Learning	DUE30022 DEC20012

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CLASSIFICATION	COURSE CODE	COURSE NAME	L	P	Т	o	CREDIT VALUES	S1 Knowledge		S2 Design/Development of Solutions		33a		33b The Engineer and Society	SS Environment and Sustainability		CLS3d Individual and Teamwork		S4 Project Management and Finance	Life I	PREREQUISITE / CO-REQUISITE
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	MPU23052	Sains Teknologi dan Kejuruteraan Islam*		Г	T		T	ER 5											-	- 1	
Compulsory	MPU23042	Nilai Masyarakat Malaysia**	1	0	2	0	2									V				1	
Discipline Core	DEE30061	Computer Aided Electrical Drawing	0	2	0	0	1	<b>V</b>				٧	<b>V</b>			٧					
	DEP50033	Data Communication and Networking	2	2	0	0	3		٧			V	1			1					DEP30013
	DEP50043	Microwave Devices	2	2	0	0	3				1	٧	1	V							
Specialisation -	DEP50063	Wireless Communication	2	2	0	0	3				1	V	1		1						
	DEE50102	Project 2	0	3	0	0	2			V	V	1	<b>V</b>		1			V	1		DEE40082
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CLASSIFICATION	COURSE CODE	COURSE NAME	L	P	Т	o	CREDIT VALUES	Knowledge	Problem Analysis	Design/Development of Solutions	Investigation		Modern 1 001 C	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	REREQUISITE / C
CLASSIFICATIO		COURSE NAME	L	P	T	О	CREDIT	CLS1 Knowledge	CLS2 Problem Analy		CLS2 Investigation				CLS5 Environment Sustainabili	CLS5 Ethics	3.77			CLS4 Life Long Lear	PREREQUISITE / CO-REQUISITE
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CLASSIFICATIO	CODE	COURSE NAME Visual Basic Programming			ECT		EC	CLSI	CLS2								3.77				PREREQUISITE / C
	CODE DEC40062			EL	0	riv	2 2	CLSI	CLS2	CLS2		CLS3a	CLS3c				3.77		CLS4		PREREQUISITE / C
1	DEC40062 DEC40073	Visual Basic Programming	1	EL 2	0 0	riv o	2 3	CLSI	CLS2	CLS2	CLS2	< CLS3a	CLS3c				3.77		V CLS4		PREREQUISITE / C
1 2	DEC40062 DEC40082	Visual Basic Programming Database System	1 2	EL 2 2	0 0 0	0 0	2 3 2	CLSI	CLS2	CLS2	CLS2	CLS3a	CLS3c				3.77	CLS3b	V CLS4		PREREQUISITE
1 2 3	DEC40062 DEC40082	Visual Basic Programming  Database System  Interactive Multimedia Application	1 2 1	2 2 2	0 0 0	0 0	2 3 2	CLSI	CLS2	CLS2	CLS2	CLS3a	CLS3c				3.77	CLS3b	V CLS4	tSTD CITS#	PREREQUISITE /
1 2 3 4	DEC40062 DEC40073 DEC40082 DEC40092	Visual Basic Programming  Database System  Interactive Multimedia Application  Computer Vision Programming	1 2 1 1	2 2 2	0 0 0	0 0 0	2 3 2 2	OUR	CLS2	CLS2	CLS2	CLS3a	CLS3c				3.77	CLS3b	V CLS4	∨ CLS4	DEG30013
1 2 3 4 5 5	DEC40062 DEC40073 DEC40082 DEC40092	Visual Basic Programming  Database System  Interactive Multimedia Application  Computer Vision Programming  Audio Video Systems and Production	1 2 1 1 1	2 2 2 2	0 0 0 0	0 0 0	2 3 2 2 2 3	OUR	ZSTO SES	CLS2	CLS2	CLS3a	CLS3c	CLS3b			3.77	CLS3b	V CLS4	∨ CLS4	
1 2 3 4 5 6	DEC40062 DEC40082 DEC40092 DEE40092 DEG40023	Visual Basic Programming  Database System  Interactive Multimedia Application  Computer Vision Programming  Audio Video Systems and Production  Renewable Energy System  Programmable Logic Controller (PLC) and	1 1 1 1 2	2 2 2 2 2	0 0 0 0	0 0 0 0	2 2 2 2 2 3 3	OUR	SES CISS	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLSS		3.77	CLS3b	V CLS4	∨ CLS4	
1 2 3 4 5 6 6 7	DEC40062 DEC40073 DEC40082 DEC40092 DEE40092 DEG40023 DEJ40033	Visual Basic Programming  Database System  Interactive Multimedia Application  Computer Vision Programming  Audio Video Systems and Production  Renewable Energy System  Programmable Logic Controller (PLC) and Automation	1 1 1 2 2 2	2 2 2 2 2	0 0 0 0 0	0 0 0 0 0	2 3 2 2 2 3 3 3	OUR	ZSID > >	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLSS		3.77	CLS3b	V CLS4	∨ CLS4	DEG30013

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CLASSIFICATION	COURSE CODE	COURSE NAME	L	P	т	o	CREDIT VALUES	Knowledge		Design/Development of P	Investigation			The Engineer and Society P	Environment and P		Individual and Teamwork P		Project Management and Pl	rning	PREREQUISITE / CO-REQUISITE
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			7	ELI	ECT	IV	E C	OUR									_				
11	DEQ40023	Energy Management System and Energy Auditing	2	2	0	0	3		√			V	<b>√</b>			V					
12	DEQ40032	Energy Efficiency Engineering 1	2	0	0	0	2				V			V							
13	DET40073	Power Electronics	2	2	0	0	3				V	4	V				V				
14	DEU40032	Biomedical Signal Measurement	1	2	0	0	2		V			V					V				
15	DEC50103	Operating Systems	2	2	0	0	3				V	V	V			V					
16	DEC50113	Computer System Diagnosis and Maintenance	2	2	0	0	3		V			V	V	V							
17	DEC50122	Embedded Robotic	1	2	0	0	2			V	V	V	V						V		DEC20012
18	DEC50132	Internet Based Controller	1	2	0	0	2	V				√	V		V						
19	DEC50143	CMOS Integrated Circuit Design and Fabrication	2	2	0	0	3			V		V	V		V						DEE20023 & DEE20033
20	DEC50152	CMOS VLSI Layout Design	1	2	0	0	2			V		V	V		V						
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CLASSIFICATION	COURSE CODE	COURSE NAME					CREDIT VALUES	Knowledge	Problem Analysis	Oesign/Development of Solutions	Investigation				Environment and Sustainability	Ethics	Individual and Teamwork	Communications	roject Management and Finance	Life Long Learning	PREREQUISITE / CO-REQUISITE
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								CLSI	CLS2	CLS2 Design/De	CLS2 Inve	CLS3a	CLS3c Model	CLS3b The Engin	CLS5 Environ	CLS5 E	CLS3d Individuals	CLS3b Comm	CLS4 Project Ma	CLS4 Life Lo	PREREQUIST
21	DEE50122	Circuit Analysis							CLS2	_							20-0	_	_		PREREQUIST
	DEE50122 DEG50032	Circuit Analysis Energy Efficiency And Management	1	ELI	ECT	rivi	E C	CLSI	CLS2	_							CLS3d	_	_		PREREQUIST
21			2	ELI 0	ECT 1	0	E C	CLSI	CLS2	_	CLS2			CLS3b			CLS3d	_	_		PREREQUIST
21 22	DEG50032	Energy Efficiency And Management	2 2	0	1 0	0 0	2 2	CLSI	SES	_	CLS2	CLS3a	CLS3e	CLS3b			CLS3d	_	_	CLS4	PREREQUIST
21 22 23	DEG50032 DEG50043	Energy Efficiency And Management  Green Energy System Integration	2 2 2	0 0 2	1 0 0	0 0 0	2 2 3	OUR	SES	_	CLS2	CLS3a	CLS3e	CLS3b			CLS3d	_	_	CLS4	DE040023
21 22 23 24	DEG50032 DEG50043 DEJ50063	Energy Efficiency And Management Green Energy System Integration Process Measurement	2 2 2	0 0 2 2	1 0 0	0 0 0	2 2 3	OUR	SES	_	CLS2	CLS3a	CLS3e	CLS3b	CLSS		CLS3d	_	_	CLS4	
21 22 23 24 25	DEG50032 DEG50043 DEJ50063 DEO50033 DEP50072	Energy Efficiency And Management Green Energy System Integration Process Measurement Optosemiconductor	2 2 2 1 3	0 0 2 2	1 0 0	0 0 0 0	2 2 3 3	OUR	SES	_	CLS2	CLS3a	CLS3e	CLS3b	CLSS		CLS3d	_	_	√ CLS4	
21 22 23 24 25 26	DEG50032 DEG50043 DEJ50063 DEO50033 DEP50072	Energy Efficiency And Management Green Energy System Integration Process Measurement Optosemic onductor Satellite and Radar Communication Systems	2 2 2 1 3 2	0 0 2 2 0	1 0 0 0	0 0 0 0	2 2 3 3 3 2	OUR	SES CLS2	_	CLS2	CLS3a	CLS3e	CLS3b	CLSS		CLS3d	_	_	√ CLS4	DEO40023
21 22 23 24 25 26 27	DEG50032 DEG50043 DEJ50063 DEO50033 DEP50072 DEQ50043 DET50063	Energy Efficiency And Management Green Energy System Integration Process Measurement Optosemiconductor Satellite and Radar Communication Systems Energy Efficiency Engineering 2	2 2 1 3 2 2	0 0 2 2 0 0	1 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 2 3 3 3 2 3	OUR	SSES V	_	CLS2	CLS3a	CLS3e	CLS3b	CLSS		CLS3d	CLS3b	_	√ CLS4	DEO40023

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CLASSIFICATION	COURSE CODE	COURSE NAME	L	P	т	o	CREDIT VALUES	Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Medam Tanillians	Modern 1001 Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	PREREQUISITE / CO-REQUISITE
								CLSI	CLS2	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	Ā
				ELI	EC1	riv	EC	OUR	SES												
31	DEU50013	Medical System Practice	2	2	0	0	3		V			V			V						
32	DEU50043	Medical Imaging	2	2	0	0	3				V	V			V						
33	DEU50053	Biomedical Instrumentation	2	2	0	0	3				V	V		V							

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1	DUD10012	Design Thinking	1	0	0		1 2	2		V					V		7

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
1	DUW 10022 OCCUPATIONAL SAFETY AND HEALTH FOR ENGINEERING	2	OCCUPATIONAL SAFETY AND HEALTH FOR ENGINEERING course is designed to impart understanding of the self-regulatory concepts and provisions under the Occupational Safety & Health Act (OSHA). This course presents the responsibilities of workers in implementing and complying with the safety procedures at work.	Upon completion of this course, student should be able to:  1. Explain briefly Occupational Safety and Health (OSH) procedures, regulation and its compliance in Malaysia. (C2, PLO 1)  2. Initiates incident hazards, risks and safe work practices in order to maintain health and safe work environment. (A3, PLO 8)  3. Demonstrate communication skill in group to explain the factor that can lead to accident in workplace. (A3, PLO 10)
	DET 10013 ELECTRICAL TECHNOLOGY	3	ELECTRICAL TECHNOLOGY course will introduce students to the principles related to DC electrical circuits. It covers the fundamental laws, theorems and circuit techniques of the electrical technology basic fundamental. This course also covers inductor, capacitor, magnetic and electromagnetic circuits.	Upon completion of this course students should be able to:-  1. Apply the concept and principles of the related electrical circuit theorems and law to solve DC electrical circuit using various method and approach (C3, PLO1)  2. Construct DC circuit and measure related electrical parameters using appropriate electrical equipments (P4, PLO5)  3. Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3, PLO9)

SEMESTER	COURSE	CREDIT	synopsis	CIO
1	DET 10022 ELECTRICAL WIRING	2	ELECTRICAL WIRING course exposes students to the various aspects of wiring installation according to the MS IEC 60364 standard. Students will be able to relate theoretical aspect in practical work on electrical wiring during workshop sessions. This course also provides students with the knowledge and skill in doing different types of wiring installation, wiring protection, wiring inspection, wiring testing and sustainable energy practices in electrical wiring.	Upon completion of this course, student should be able to:  1. Apply the concept and principle of electrical safety and regulation in performing electrical wiring according to MS IEC 60364. (C3, PLO 1)  2. Construct single phase domestic wiring according to MS IEC 60364. (P4, PLO 5)  3. Demonstrate an understanding and commit to professional ethics and responsibilities of engineering norms during performing single phase domestic wiring task. (A3, PLO 8)
	DEE 10013 MEASUREMENT DEVICES	2	MEASUREMENT DEVICES introduces students to the basic concept of electrical instrument and measurement. It covers the basic principles of measurement, safety precautions and meter calibration. Students will also use measurement devices such as analogue meters, DC meters, analogue and digital multimeters, oscilloscopes, signal generators and power meters during practical session. This course also covers the basic concept and simple application of DC Bridge.	Upon completion of this course, students should be able to:  1. Apply the concept of measurement in electrical and electronic-equipment using appropriate theorem (C3, PLO1).  2. Perform meter calibrating and measuring technique using the correct measuring equipment (P4, PLO5)  3. Demonstrate good communication skill in oral presentation within a stipulated time frame (A3, PLO10)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
2	DET 20033 ELECTRICAL CIRCUITS	3	ELECTRICAL CIRCUITS is designed to provide students with the knowledge related to AC of electrical circuits. It emphasized on the principles of an alternating current AC waveform and sinusoidal steady state circuit analysis. This course also covers the applications of three phase system and operation of various types of transformers.	Upon completion of this course, student should be able to:  1. Apply the concept and principle in solving problems of electrical circuits using the appropriate AC electrical laws and theorem (C3, PLO 1)  2. Construct of an AC electrical circuit and measured related electrical parameter using appropriate electrical equipments (P4, PLO 5)  3. Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3, PLO 9)
	DEE 20023 SEMICONDUCTOR DEVICES	3	SEMICONDUCTOR DEVICES introduces students to the basic electronic theories and devices. It covers the fundamentals of electronic devices which includes diodes, bipolar junction transistors and field effect transistors. The content encompasses devices structure to biasing basic applications.	Upon completion of this course, students should be able to:  1. Apply the theoretical characteristics and electrical properties of semiconductor by using appropriate measuring operations and theorem (C3, PLO1)  2. Construct the various applications of semiconductor devices circuit by using schematic diagrams (P4, PLO5)  3. Demonstrate good communication skill in oral presentation within a stipulated time frame (A3, PLO10)

SEMESTER	COURSE	CREDIT	synopsis	CLO
2	DEE 20033 DIGITAL ELECTRONICS	3	DIGITAL ELECTRONICS introduces the theories on the basic of digital systems. This course emphasizes on the digital system fundamentals and applications. This course mainly covers number systems, code systems, logic gates, Boolean operations, flip-flops, counters and registers.	Upon completion of this course, student should be able to:  1. Apply the knowledge of logic operations using Boolean Algebra or Karnaugh Map in digital logic circuit (C3, PLO 1)  2. Construct the logic diagrams, truth tables and timing diagrams using logic gates and flip-flop (P4, PLO 5)  3. Demonstrate ability to work in team to complete assigned task during practical work sessions (A3, PLO 9)
	DEC 20012 PROGRAMMING FUNDAMENTALS	2	PROGRAMMING FUNDAMENTALS course provides the skills necessary for the effective of application of computation and computer programming in engineering applications. Students will develop their programming skills through a variety of assignments and labs and by reviewing case studies and example programs. The learning outcome is proficiency in writing small to medium programs in a procedural programming language.	Upon completion of this course, students should be able to:  1. Apply knowledge of basic concepts and fundamentals of structured programming in solving a variety of engineering and scientific problems using a high level programming language (C3, PLO1)  2. Build programs written in C language for assigned mini project during practical work sessions (P4, PLO5)  3. Demonstrate continuous learning skill in independent acquisition of new knowledge and skill in deveoping a mini project (A3, PLO12)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
	DEE 30043 ELECTRONIC CIRCUITS	3	ELECTRONIC CIRCUITS emphasizes the concept of electronic device applications. The course covers the fundamental of electronic circuit application which include power supply unit, oscillator, operational amplifier, timer, filters and AD/DA converters. The content cover circuit configurations, operation and application of the electronic circuits.	Upon completion of this course, student should be able to:  1. Apply the principles of electronic circuits devices by using block diagram or circuit diagram. (C3, PLO 1)  2. Construct the various applications of electronic circuits based on the theory and principle operation of the circuits (P4, PLO 5)  3. Demonstrate good written communication skill through essay writing in group within a stipulated time frame (A3, PLO 10)
3	DEE 30052 ELECTRONIC EQUIPMENT REPAIR	2	ELECTRONIC EQUIPMENT REPAIR provides the knowledge and skills on troubleshooting and repairing the electronics equipment. This course focuses on the identification of faults in regulated dc power supply, audio equipment and television system. This course also provides knowledge and skills on troubleshooting and repairing broken cell phones	Upon completion of this course, students should be able to:  1. Diagnose fault of electronic equipment related to electronic-equipment repair using the correct diagnosis technique and tool (C4, PLO2)  2. Fix the post-consumer's electronic equipment fault using the correct diagnosis technique (P4, PLO5)  3. Demonstrate good social responsibility in solving well defined engineering problems during performing electronic system and appliances maintenance tas (A3, PLO6)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CIO
3	DEE 30071 ELECTRONIC COMPUTER AIDED DESIGN	1	ELECTRONIC COMPUTER AIDED DESIGN covers the basic concept and fundamentals of electronic circuit simulation. It also covers the applications of electronic packages for electronic circuit simulation at the circuit level and the logic level. Emphasis is given to the simulation for analogue, digital logic and mixed-signal circuits using various types of simulation analysis.	Upon completion of this course, student should be able to:  1. Apply the simulation results for the various types of simulation analysis based on the electronic circuit theory and operations (C3, PLO 1)  2. Construct the simulation and the PCB layout for digital and analogue circuits using a schematic capture software (P4, PLO 5)
	DEP 30013 COMMUNICATION SYSTEM FUNDAMEN- TALS	3	COMMUNICATION SYSTEM FUNDAMENTALS introduces the students to the concepts of communication system. This course covers the principles of communications, analog and digital modulation techniques, multiplexing and transmission medium. It also exposes the students to the basic of data communication system.	Upon completion of this course, students should be able to:  1. Apply the concept of electronic communication system by using appropriate diagram and standard formula (C3, PLO 1)  2. Assemble the related communication equipment systematically in performing the measurement of appropriate signals parameter (P4, PLO 5)  3. Demonstrate the ability to work in a team to complete the assigned tasks during practical work sessions (A3, PLO 9)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
3	DEP 30083 TELECOMMUNICATION NETWORK	3	TELECOMMUNICATION NETWORK provides students with the basic knowledge of telecommunication network of Next Generation Networks (NGN). This course focuses on NGN architectures, protocols and services, including technologies and regulation. Students are also expose to NGN convergence between the traditional telecommunications and the internet to facilitate voice and data communications.	Upon completion of this course, student should be able to:  1. Apply the basic concept of telecommunication network by using appropriate block diagram and designated formula (C3, PLO 1)  2. Assemble the related telecommunication equipment in performing the measurement of appropriate signal parameter (P4, PLO 5)  3. Demonstrate good communication skill in oral presentation on assigned assignments (A3, PLO 10)
4	DEC 40053 EMBENDDED SYSTEM APPLICATIONS	3	EMBEDDED SYSTEM APPLICA-TIONS cover the basic concept and application of microcontroller system based on Peripheral Interface Controller (PIC) microcontroller. Students will learn software and hardware development on PIC16F/PIC18F microcontroller development system and understand how to do interfacing with external devices using suitable internal chip features. Students are exposed to the new Microcontroller Unit (MCU) simulation software such as Proteus.	Upon completion of this course, students should be able to:  1. Investigate internal features of PIC16F/PIC18F to interface properly with external devices (C4, PLO 4)  2. Design embedded system application based on PIC16F/PIC18F microcontroller effectively (C6, PLO 3)  3. Construct and simulate real-time embedded system application based on PIC16F/PIC18F microcontroller effectively (P4, PLO 5)  4. Demonstrate knowledge of engineering project management principles through a written report on an assigned mini project (A3, PLO 11)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
4	DEP 40053 FIBER OPTIC COMMUNICATION SYSTEM	3	FIBER OPTIC COMMUNICATION SYSTEM introduces students to the basic concept of fiber optic in communication systems with environmental sustainability. This course covers fiber optic characteristics, components in fiber optic system, losses in fiber optic cable and the fundamental concept of optical measurement. This course also provides knowledge in splicing techniques with safety awareness, multiplexing techniques and design consideration in fiber optic communication link.	Upon completion of this course, student should be able to:  1. Investigate the fiber optic communication system by implementing the knowledge of the element and component that established the link and aspect that influence the performance of fiber optic link (C4, PLO 4)  2. Design a fiber optic link using mathematical concept and design tool by considering the properties and elements of fiber optic link (C6, PLO 3)  3. Assemble the related fiber optic communication equipment in performing the measurement of appropriate signals parameter (P4, PLO 5)  4. Demonstrate contribution of fiber optic in communication system towards environment and sustainability through End of Chapter Question (A3, PLO 7)
	DEE 40113 SIGNAL AND SYSTEM	3	SIGNAL AND SYSTEM provides knowledge on the signals and systems, the Linear Time-Invariant (LTI) systems, the Laplace transform the Z-transform and Fourier analysis. The course focuses on the mathematical description of signals and systems, the input-output relationship for Linear Time-Invariant (LTI) systems, the Laplace transform and Z-transform and their application techniques for analyzing the systems and Fourier analysis of signals and systems.	Upon completion of this course, students should be able to:  1. Evaluate continuous-time and discrete-time signal and system problems (C5, PLO2)  2. Manipulate software to analyse the signals and systems correctly based on the given procedure (P4, PLO5)  3. Display good oral communication during presentation of end of chapter assignment (A3, PLO10)

SEMESTER	COURSE	CREDIT	SYNOPSIS	ClO
20				Upon completion of this course,
4	DEE 40082 PROJECT 1	2	PROJECT 1 provides knowledge regarding the implementation and development methods of a project based on hardware or software or a combination of hardware and software. This course provides exposure to the project management and finance, techniques to develop project and proposal preparation. The students are allowed to do an individual or group project but will be assessed individually through the project assessment tasks throughout the course.	Upon completion of this course, student should be able to:  1. Investigate well defined problem in order to make improvements on a chosen project (C4, PLO 4)  2. Evaluate engineering problem and conduct research in order to make improvements on a chosen project whether the project is on the hardware, software or hardware-software interface type (C5, PLO 2)  3. Perform project construction procedures (hardware project) or produce flowchart and draft algorithm for system programme (software project) and record the progress systematically in a logbook (P4, PLO 5)  4. Display good project management and finance through a Gantt Chart (milestone) and final proposal (A3, PLO 11)  5. Demonstrate continuous learning, information management and independent acquisition of new knowledge and skill to support the development of the project through the final proposal (A3, PLO 12)  6. Display written communication skill through a final proposal (A3, PLO 10)  7. Describe the impact of the proposed project to the society in the final proposal (A3, PLO 6)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cıo
4	DEC 40082 INTERACTIVE MULTIMEDIA APPLICATION	2	INTERACTIVE MULTIMEDIA APPLICATION exposes students to the process of creating interactive multimedia presentation including the role and design of multimedia systems which incorporate digital audio, graphics and video, underlying concepts and representations of sound, pictures and video, data compression and transmission, integration of media, multimedia authoring, and delivery of multimedia. Students will produce a final digital interactive multimedia.	Upon completion of this course, student should be able to:  1. Investigate suitable latest software and techniques to effectively produce interactive multimedia project (C4, PLO 4)  2. Design a multimedia interactive presentation incorporating motion graphics or animation, with typography, sound, and special effects to produce interactive multimedia project using the four primary stages (C6, PLO 3)  3. Produce multimedia elements like typography, graphic, sound, video and animation for efficient delivery methods in a ready to use files using multimedia authoring software (P4, PLO 5)  4. Demonstrate good oral communication skill in presentation for assigned mini project within a stipulated time frame (A3, PLO 10)
4	DEJ 40052 OPERATION MANAGEMENT	3	OPERATIONS MANAGEMENT provides knowledge in manufacturing organizations, involved the application of production process, planning, assuring product quality and deciding on the production hardware. Students will be exposed to the various techniques of controlling material and learn the new techniques to optimize production technology in manufacturing.	Upon completion of this course, student should be able to:  1. Aapply the field of operation management in manufacturing organization correctly (C3, PLO 1)  2. Distinguish the process of selection and process layout, JIT andmaintenance in manufacturing operation (P1, PLO 5)  3. Demonstrate understanding professional ethics in manufacturing practice management (A3, PLO 8)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
5	DEP 50063 WIRELESS COMMUNICATION	3	WIRELESS COMMUNICATION introduces student to the basic of wireless communication includes several specialized topics. Students are expose to wireless networking, evolution of mobile communication, cellular network channels, techniques used to enhance capacity and speed, interferences, radio wave propagation and multiple access techniques. This course also exposes the student to the awareness of wireless technology to the health and environmental.	Upon completion of this course, student should be able to:  1. Investigate the principle of wireless in implementing the concept and system of wireless communication using appropriate technique and designated formula (C4,PLO4)  2. Assemble the related wireless communication equipments systematically in performing the assigned practical work (P4,PLO5)  3. Express the awareness of wireless technology in environment and sustainability on assigned essay questions (A3,PLO7)
	DEE 30061 COMPUTER AIDED ELECTRICAL DRAWING	1	COMPUTER AIDED ELECTRICAL DRAWING provides knowledge and exposure on the usage of AutoCAD software. The course focuses on the application of the software to produce drawings of graphics, electrical / electronic component symbols, circuit schematics and electrical wiring layout diagram. The skills acquired from this course will also equip students with the ability to learn and use other similar software.	Upon completion of this course, students should be able to:  1. Apply computer aided design concept, applications and capabilities in electrical engineering environment (C3, PLO1)  2. Construct simple and complex electrical wiring diagrams and electronic schematics using Auto-CAD software and based on American/British technical symbol standard (P4, PLO5)  3. Adhere to professionalism and ethics in drawing electrical consumer wiring diagram in practical work according to Energy Commission (EC) and MS IEC 60364 standard (A3, PLO8)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CIO
5	DEE 50102 PROJECT 2	3	PROJECT 2 is the continuation of DEE40082 PROJECT 1 course. The course focuses on methods of circuit construction, testing, troubleshooting, debugging, repair and also completion of the project which was planned during the previous semester. This course also requires students to manage an economical engineering based project, prepare a project report in a given format and deliver a project presentation at the end of the semester. The students are allowed to do an individual or group project but will be assessed individually through the project assessment tasks throughout the course.	Upon completion of this course, student should be able to:  1. Investigate the various alternative preliminary design and software programming for the previous chosen project (C4, PLO4)  2. Design project prototype (for hardware and interfacing project) with suitable and attractive casing or complete system programme (for software project) with user interface (C6, PLO3)  3. Perform systematically the relevant test and measurement to determine circuit fault and functionality and construct project casing (hardware project) or test run, debug and execute system programme (software project) using modern tools (P4, PLO5)  4. Display element of environment and sustainability awareness in project implementation (A3, PLO7)  5. Display effective communication skill in report writing and during presentation (A3, PLO10)  6. Display good ability in project management and finance using a Gantt Chart (milestone chart) and an effective costing respectively (A3, PLO11)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CIO
5	DEP 50033 DATA COMMUNICATION AND NET- WORKING	3	DATA COMMUNICATION AND NETWORKING exposes the student to the principle of data communication and networking. This course covers basic concept of data communication and networking fundamental for a quality data transmission. Students are expose to Open Systems Interconnection (OSI) Model and Network Protocol. Students are also introduced to Local Area Network and public digital network	Upon completion of this course, student should be able to:  1. Evaluate the performance of data and computer networks while implementing the knowledge, concepts, technology and terms related to data communication and networking (C5, PLO2)  2. Construct a simple LAN and WLAN in accordance to IEEE or TIA/EIA-568-A/B and the related data communication and networking equipment systematically in performing data transmission (P4, PLO5)  3. Demonstrate awareness of data communication and networking standard during practical work sessions (A3, PLO8)
5	DEP 50043 MICROWAVE DEVICES	3	MICROWAVE DEVICES introduces the existence, characteristic and the effect of electromagnetic wave to the surrounding. This course also focuses on the devices used in microwave communication system such as waveguide (transmission lines), basic accessories, sources, microwave antennas as well as the techniques of measurement used in microwave system.	Upon completion of this course, students should be able to:  1. Investigate microwave propagation problems using mathematical concept and design tools by implementing the knowledge of electromagnetic field to the operation of devices used in microwave system (C4, PLO 4)  2. Assemble the related microwave communication equipment in performing the measurement of appropriate output variable (P4, PLO 5)  3. Demonstrate appropriate good social interaction and responsibility while handling microwave equipment or transmission system (A3, PLO 6)

SEMESTER	COURSE	CREDIT	synopsis	clo
	DEP 50072 SATELLITE AND RADAR COMMUNICATION SYSTEM	2	SATELLITE AND RADAR COMMUNICATION SYSTEM introduces to students the concept of satellite and radar, satellite orbits, space satellite subsystem, satellite communication system, radar fundamentals and different types of radar system. It also covers end to end satellite and radar communication system in various generations and latest technologies	Upon completion of this course, student should be able to:  1. Investigate the performance of satellite and radar in communication system by using designated concept and formula (C4, PLO4)  2. Demonstrate continuous learning ability while engaging new technical knowledge on assigned essay questions (A3, PLO 12)
5	DEC50122 EMBEDDED ROBOTIC	3	EMBEDDED ROBOTIC presents the combination of mobile robots and embedded systems, from introductory to intermediate level. It is structured in three parts, which are embedded systems, mobile robot, and mobile robot applications. These parts are essential to students in mastering the crucial steps of building a complete working robotic system. They will help them to develop robots that not only can move, but intelligent as well	Upon completion of this course, students should be able to:  1. Investigate the concept and fundamentals of mobile robotic, embedded controller, sensors and actuators based on land mobile robot design (C4, PLO4)  2. Design the concept of robot positioning, identification and communication in mobile robot control according to a standard robot organization regulation (C6, PLO3)  3. Manipulate the application of sensor and actuator, robot identification and communication during practical work based on land mobile robot design (P4, PLO5)  4. Demonstrate good ability in managing a well-defined engineering-based project in a cost effective manner (A3, PLO11)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
6	DUT 60019 INDUSTRIAL TRAINING	9	INDUSTRIAL TRAINING prepares students with employability skills and current industrial technologies in actual working environment. This course allows students to experience the work culture of the workplace as well as provides a platform for students to put into practice the skills and knowledge learnt. The desired attributes include organizational orientation and professional ethics, effective communication, leadership and teamwork, continuous learning and information management, as well as self-management and entrepreneurial mind at the workplace	Upon completion of this course, student should be able to:  1. Perform duties in accordance with job requirements at the workplace (P4, CLS 3a)  2. Display effective communication and social skills at the workplace (A5, CLS 3b)  3. Integrate values, attitudes and professionalism effectively at the workplace (A4, CLS 5)  4. Develop responsibility of leadership and teamwork at the workplace (A4, CLS 3d)  5. Organize information management appropriately at the workplace (P4, CLS 3c)  6. Integrate lifelong learning skills and entrepreneurial mind at the workplace (A4, CLS 4)

## HIGHER ACADEMIC PATH-

### CAREER PATHWAYS FOR POLYTECHNIC STUDENTS.

Graduates of polytechnics in general are able to advance their studies through these three academic career pathways;

### Institution of Higher Learning (Public/Private)

This pathway allows polytechnic students to advance their studies in other public universities, as well as other private learning institutions. Apart from this, students are also able to pursue other non-technical paths, should they desire.

LIST OF UNIVERSITY	PROGRAMME	INFORMATION
UNIVERSITI TEKNOLOGI MALAYSIA	Bachelor Of Engineering (Electrical )      Bachelor Of Engineering (Electrical -Electronics)	Universiti Teknologi Malaysia, UTM Skudai, 81310 Johor, Malaysia. Tel: (6)07 - 5530370 Fax: (6)07 - 5530388 www.utm.my
Universiti Teknologi Mara	Bachelor Of Electrical Engineering With Honours      Bachelor Of Electronics Engineering With Honours      Bachelor Of Electrical and Electronics Engineering With Honours	Universiti Teknologi MARA (UITM) 40450 Shah Alam, Selangor Darul Ehsan, Malaysia Tel: (6)03-55442000 www.uitm.edu.my

## HIGHER ACADEMIC PATH-

LIST OF UNIVERSITY	PROGRAMME	INFORMATION
EIST OF ONLY EKSTIT	T KOOKAMINE	INIOMIATION
UTEM او نودرستي تب المراد السياماد المداهم ال	Bachelor Of Electronic Engineering With Honours      Bachelor Of Electrical Engineering With Honours      Bachelor Of Information Technology      Bachelor Of Electrical Engineering Technology With Honours      Bachelor Of Electronics Engineering Technology With Honours	Universiti Teknikal Malaysia Melaka (UTeM)  Hang Tuah Jaya,  Durian Tunggal 76100 Durian Tunggal Melaka  Tel: (6)06-270 1000  www.utem.edu.my
Universit Ten Hansein Onn Malaysta	Bachelor Of Electrical Engineering With Honours      Bachelor Of Electronics Engineering With Honours      Bachelor of Vocational Education (Electrical and Electronic ) with Honours	Universiti Tun Hussein Onn (UTHM) Parit Raja, 86400 Batu Pahat Johor Tel: (6)07-4537689 www.uthm.edu.my
UNIVERSITI MALAYSIA UMAP PERLIS	Bachelor of Electrical Engineering Technology (Hons)      Bachelor of Electronic Engineering Technology (Hons)	Universiti Malaysia Perlis (UniMAP)  Kampung Kubang Gajah  02600 Arau  Perlis  Tel: (6)04 979 8008  www.unimap.edu.my
Universiti Malaysia PAHANG Egressey - Statrology - Ostably	Bachelor of Electrical Engineering	Universiti Malaysia Pahang (UMP) Lebuhraya Tun Razak, 26300 Gambang Kuantan, Pahang Darul Makmur Tel : (6)09-424 5000 www.ump.edu.my

### DEPT. OF MATHEMATICS, SCIENCE

#### Introduction

The Department of Mathematics, Science & Computer which is also known as JMSK is an academic supporting department. It is responsible for the B code courses in three different fields that are Mathematics, Science and Computer. Besides, it also performs the academic supporting tasks (administration) in PMM.

This department was set up in November 2002 and is currently running with 31 lecturers, one laboratory assistant, one computer technician and one operational assistant.

JMSK is managed by the head of department; supported by three (3) head of courses of Mathematics, Science and Computer. These head of courses are responsible in monitoring staffs under their supervisions in order to ensure the learning and teaching implementations run effectively. Besides, JMSK also managed a Pre Diploma Science programme which is supervised by a Head of Programme.

This department is equipped with computer laboratories, science laboratories, Technology Enabled Collaborative Classroom (TECC), meeting room, discussion room, prayer room and R & R corner.



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## **FACILITIES**



TECC



**Computer Laboratory** 



Classroom



**Science Laboratory** 



**Discussion Room** 



**Lecturer Meeting Room** 



**Prayer Room** 



Gazebo

SEMESTER	COURSE	CREDIT	SYNOPSIS	CſO
1	DBM 1001	2	ENGINEERING MATHEMATICS I exposes students to the basic algebra including resolve partial fractions. This course also covers the concept of trigonometry and the method to solve trigonometry problems by using basic identities, compound angle and double angle formulae. Students will be introduced to the theory of complex number and concept of vector and scalar. Students will explore advanced matrices involving 3x3 matrix.	Upon completion of this course, students should be able to:  CLO1: Use mathematical statement to describe relationship between various physical phenomena.  (C3, CLS1)  CLO2: Show mathematical solutions using the appropriate techniques in mathematics. (C3, CLS 3c)  CLO3: Use mathematical expression in describing real engineering problems precisely, concisely and logically.  (A3, CLS 3b)
1	DBS10012 Engineering Science	2	ENGINEERING SCIENCE course introduces the physical concepts required in engineering disciplines. Students will learn the knowledge of fundamental physics in order to identify and solve engineering physics problems. Students will be able to perform experiments and activities to mastery physics concepts.	Upon completion of this course, students should be able to:  CLO1: Use basic physics concept to solve engineering physics problems (C3, CLS 1)  CLO2: Apply knowledge of fundamental physics in activities to mastery physics concept. (C3, CLS 1)  CLO3: Perform appropriate activities related to physics concept (P3, CLS 3a)

SEMESTER	COURSE	CREDIT	synopsis	CLO
2	DBM20023	3	ENGINEERING MATHEMATICS 2 exposes students to the basic laws of indices and logarithms. This course introduces the basic rules of differentiation concepts to solve problems that relates maximum, minimum and calculate the rates of changes. This course discusses integration concepts in order to strengthen student's knowledge for solving area and volume bounded region problems. In addition, students will learn application of both techniques of differentiation and integration.	Upon completion of this course, students should be able to:  CLO1: Use algebra and calculus knowledge to describe relationship between various physical phenomena. (C3, CLS1)  CLO2: Solve the mathematical problems by using appropriate and relevant fundamental calculus techniques. (C3, CLS3c)  CLO3: Use mathematical language to express mathematical ideas and arguments precisely, concisely and logically in calculus. (A3, CLS3b)
3	DBM30043 Electrical Engineering Mathematics	3	ELECTRICAL ENGINEERING MATHE-MATICS exposes students to the statistical and probability concepts and their applications in interpreting data. The course also introduces numerical methods concept to solve simultaneous equations by using Gaussian Elimination method, LU Decomposition using Doolittle and Crout methods, polynomial problems using Simple Fixed Point Iteration method. In additional, the course also discuss Ordinary Differential Equation (ODE). In order to strengthen the students in solving engineering problems, Laplace Transform by using the Table of Laplace is also included. It is designed to build students' teamwork and problems	Upon completion of this course, students should be able to:  CLO1: Demonstrate an understanding of the common body of knowledge in mathematics (C3, CLS1)  CLO2: Demonstrate problems solving skills in engineering problems. (C3, CLS3c)  CLO3: Use mathematical expression in describing real engineering problems precisely, concisely and logically. (A3, CLS3b)

SEMESTER	COURSE	CREDIT	SYNOPSIS	cro
4	DBM3023	3	ELECTRICAL ENGINEERING MATHE-MATICS exposes students to the statistical and probability concepts and their applications in interpreting data. The course also introduces numerical methods concept to solve simultaneous equations by using Gaussian Elimination method, LU Decomposition using Doolittle and Crout methods, polynomial problems using Simple Fixed Point Iteration methods and Newton Raphson method. In additional, the course also discuss Laplace Transform by using the Table of Laplace. In order to strengthen the students in solving advanced engineering	solve the mathematical problems by using appropriate mathematical technique and solution. (C3, LD1)     show the solution for statistical and probability problems and Laplace Transformation by using related mathematical methods. (C3, LD1)     practice mathematical knowledge and skills in different mathematical problem. (C3, LD1)

## DEPARTMENT OF GENERAL

### Introduction

The General Studies Department strives to produce excellent students in both cognitive and spiritual faculties. For that end, the department provides courses that complement the programmes offered by the main departments.

The English courses prepare the students with the essential knowledge and skills in communication to meet the challenges in their future workplace. Apart from that, students are also nurtured with the teachings of Islam, moral values and the knowledge of Islamic civilization. In addition, Arabic Language and Mandarin courses are currently offered as an elective subject for the Tourism and Hospitality Department's students.

This department comprises the Head of Department, together with two Heads of Course and also lecturers from the English Language Unit and the Islamic Education and Moral Studies Unit. The English Language Unit consists of 22 lecturers while the Islamic Education and Moral Studies unit has a total number of 20 lecturers. Furthermore, the department has two language laboratories that are equipped with the necessary peripherals to enhance the languages learning and teaching sessions.

Lastly, it is with high expectation that this Programme Handbook will enlighten the students regarding the courses offered by the Department of General Studies, Politeknik Merlimau.



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SEMESTER	COURSE	CREDIT	SYNOPSIS	CIO
1	MPU21032	2	PENGHAYATAN ETIKA DAN PERADABAN ini menjelaskan tentang konsep etika daripada perspektif peradaban yang berbeza. Ia bertujuan bagi mengenal pasti sistem, tahap perkembangan, kemajuan dan kebudayaan merentas bangsa dalam mengukuhkan kesepaduan sosial. Selain itu, perbincangan dan perbahasan berkaitan isu-isu kontemporari dalam aspek ekonomi, politik, sosial, budaya dan alam sekitar daripada perspektif etika dan peradaban dapat melahirkan pelajar yang bermoral dan profesional. Penerapan amalan pendidikan berimpak tinggi (HIEPs) yang bersesuaian digunakan dalam penyampaian kursus	CLO1: membentangkan konsep etika dan peradaban dalam kepelbagaian tamadun.  (A2, CLS 5)  CLO2: menerangkan sistem, tahap perkembangan, kesepaduan sosial dan kebudayaan merentas bangsa di Malaysia.  (A2, CLS 5)  CLO3: mencadangkan sikap yang positif terhadap isu dan cabaran kontemporari dari perspektif etika dan peradaban. (A3, CLS 4)
	DUE10012	2	COMMUNICATIVE ENGLISH 1 focuses on developing students' speaking skills to enable them to communicate effectively and confidently in group discussions and in a variety of social interactions. It is designed to provide students with appropriate reading skills to comprehend a variety of texts. The students are equipped with effective presentation skills as a preparation for academic and work purposes.	CLO1: Participate in a discussion using effective communication and social skills to reach an amicable conclusion by accommodating differing views and opinions (A3, CLS 3b)  CLO2: Demonstrate awareness of values and opinions embedded in texts on current issues (A3, CLS 3b)  CLO3: Present a topic of interest that carries identifiable values coherently using effective verbal and nonverbal communication skills (A2, CLS 4)

SEMESTER	COURSE	CREDIT	synopsis	CTO
	MPU23052 Sains, Teknologi dan Kejuruteraan dalam Islam*	2	SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM memberi pengetahuan tentang konsep Islam sebagai al-Din dan seterusnya membincangkan konsep sains, teknologi dan kejuruteraan dalam Islam serta impaknya, pencapaiannya dalam tamadun Islam, prinsip serta peranan syariah dan etika Islam, peranan kaedah fiqh serta aplikasinya	CLO1: Melaksanakan dengan yakin amalan Islam dalam kehidupan seharian (A2, CLS 4)  CLO2: Menerangkan etika dan profesionalisme berkaitan sains teknologi dan kejuruteraan dalam Islam (A3, CLS 5)  CLO3: Menghubungkait minda ingin tahu dengan prinsip syariah, etika dan kaedah fiqh dalam bidang sains, teknologi dan kejuruteraan menurut perspektif Islam (A4, CLS 4)
2	MPU23042 Nilai Masyarakat Malaysia**	2	NILAI MASYARAKAT MALAYSIA membincangkan aspek sejarah pembentukan masyarakat, nilai-nilai agama, adat resam dan budaya masyarakat di Malaysia. Selain itu, pelajar dapat mempelajari tanggungjawab sebagai individu dan nilai perpaduan dalam kehidupan di samping cabaran- cabaran dalam membentuk masyarakat Malaysia	CLO1: Membincangkan sejarah dan nilai dalam pembentukan masyarakat di Malaysia (A2, CLS 4)  CLO2: Menerangkan etika dan profesionalisme terhadap konsep perpaduan bagi meningkatkan semangat patriotisme masyarakat Malaysia (A3, CLS 5)  CLO3: Menghubungkait minda in gin tahu dengan cabarancabaran dalam membentuk masyarakat Malaysia (A4, CLS 4)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CIO
3	DUE30022 Communicative English 2	2	COMMUNICATIVE ENGLISH 2 emphasises the skills required at the workplace to describe products or services as well as processes or procedures. This course will also enable students to make and reply to enquiries and complaints.	CLO1: Describe a product or service effectively by highlighting its features and characteristics that appeal to a specific audience (A3, CLS 3b)  CLO2: Describe processes, procedures and instructions clearly by highlighting information of concern (A3, CLS 4)  CLO3: Demonstrate effective communication and social skills in handling enquiries and complaints amicably and professionally (A3, CLS 3b)
4	DUE50032	2	COMMUNICATIVE ENGLISH 3 aims to develop the necessary skills in students to analyse and interpret graphs and charts from data collected as well as to apply the job hunting mechanics effectively in their related fields. Students will learn to gather data and present them through the use of graphs and charts. Students will also learn basics of job hunting mechanics which include using various job search strategies, making enquiries, and preparing relevant resumes and cover letters. The students will develop communication skills to introduce themselves, highlight their strengths and abilities, present ideas, express opinions and respond appropriately during job	CLO1: Present gathered data in graphs and charts effectively using appropriate language forms and functions (A2, CLS 3b)  CLO2: Prepare a high impact resume and a cover letter, highlighting competencies and strengths that meet employer's expectations (A4, CLS 4)  CLO3: Demonstrate effective communication and social skills in handling job interviews confidently (A3, CLS 3b)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
1	MPU22042	2	BAHASA KEBANGSAAN A menawarkan kemahiran berbahasa dari aspek mendengar, bertutur, membaca dan menulis sesuai dengan tahap intelek pelajar, serta meningkatkan kecekapan berbahasa dalam konteks rasmi dan tidak rasmi	CLO1: Menunjukkan cara berinteraksi yang baik dalam pelbagai situasi (A3, CLS 3b)  CLO2: Menulis pelbagai jenis bentuk penulisan dengan jelas dan bersistematik (A2, CLS 3b)  CLO3: Menunjukkan kaedah bertutur dalam komunikasi lisan dengan sebutan dan intonasi yang betul (A3, CLS 4)

### UNIT OF SPORTS, CO CURRICULUM &

### Introduction

Unit of Sports, Co-curriculum and Cultural (USKK) Politeknik Merlimau is responsible for the planning, management and implementation of all activities regarding sports, co curriculum and cultural events in PMM. This unit comprises of three sub-unit, the sports, co-curriculum and also cultural. The activities are designed for every semester based on given schedule and academic calendar.

The sports sub unit is responsible for planning the implementation of sports activities for PMM students. In PMM the sporst sub-unit is directly involved with the Polytechnic Sports Council (MSP) in conducting sports competitions among polytechnics students in other polytechnics in Malaysia.

For the learning and teaching activities, the Co-curriculum sub-unit plays an important role in coordinating, supervising, and monitoring the co-curriculum courses. The co-curriculum sub-unit offers 3 types of courses, the DRB1000, DRS2001 and DRK3002 that is compulsory for every student to enrol.

The cultural and heritage sub-unit is responsible for the management and organization of the implementation of arts and cultural programmes in PMM. This sub-unit also helps students and polytechnics in particular in the handling of protocol and etiquette such as convocation ceremony.

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## UNIT OF SPORTS, CO CURRICULUM



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#### CARTA ORGANISASI UNIT SUKAN, KOKURIKULUM DAN KEBUDAYAAN POLITEKNIK MERLIMAU MELAKA 2020



# **FACILITIES**



Basketball Court



Takraw Court



Tennis Court



Futsal Court



Rugby Field



Football Field



Petanque Field



Volleyball Court

## **FACILITIES**



Music Studio



Music set



Squash Court



Table Tennis



Multi Purpose Court (Indoor)



Golf Green



Sport Centre



Multipurpose Court

### DEPT. OF STUDENT AFFAIR AND DEVELOP-

#### Introduction

Department of Student Affair is entrusted for the students' activities and governance under two main sub-officers pertaining to Recruitment & Data and Welfare & Discipline. Thus, this department deals with managing students' registration, updating students' records, managing financial support for students, and also monitoring students' discipline and welfare.

#### **Activities of the Department:**

#### Recruitment & Data

- Managing students' registration
- Managing students' card (smartcard)
- Managing the record and statistic of student
- Managing recruitment please log to <u>www.politeknik.edu.my</u>

### Welfare & Discipline:-

- Managing students' welfare
- Managing financial aid and support such as students' study loans
- Managing vehicle pass for students
- Monitoring students discipline
- Managing Student representative committee

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### UNIT OF EXAMINATION

#### Introduction

Examination Unit is responsible to coordinate and to handle activities regarding final examination and certification. The unit is fully supported by all departments to fulfil the responsibilities given. Examination Officer is responsible to monitor the whole examination process of polytechnic while Examination Coordinator is to manage things regarding examination for their respective departments. Other than that, Examination Unit also cooperate in organising workshops related to examination such as Assessments and Vetting Workshop which is organised every semester in order to produce high quality examination questions to be applied in the Final Examination of Politeknik KPT.

The unit is led by the Head of Unit who is responsible to coordinate and facilitate the management of the process of assessment and examination. The Head of Unit is supported by two Examination Officers whom one is in charge of the Records, Data and Certifications and the other is in charge in Management, Assessment and Bank Rate question:-

Activities carried out by the Examination Unit

- Preparing examination papers
- Conducting the final examination
- Processing the results of assessments
- Certification and Student Excellence Award
- Enforcement of assessment rules
- Administrating the Examination Unit

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### **UNIT OF TRAINING & CONTINUING**

#### Introduction

The Unit of Training and Continuing Education (ULPL) is a unit under the office of Deputy Director of Academic Support, Politeknik Merlimau. The unit is responsible for the re-skilling and up-skilling of human capital of Politeknik Merlimau and also for private sector or other government departments / agencies.

The main activities of this unit are to:

- 1. manage training or courses for staffs.
- 2. manage part-time programme (Kursus Secara Sambilan KSS) as to provide opportunities for those who want to pursue their diploma whilst working.
- implement live long training program. The program offers opportunities for private sector or other government departments / agencies to develop their human capital through training and education resources in polytechnic with affordable rates.
- 4. manage and coordinate the use of polytechnic training facilities for private sector or other government departments / agencies.

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## UNIT OF LIBRARY

### Introduction

The Library Unit has been established since 2002. The objectives are to:

- 1. Become the centre of excellence for information and referral centre
- 2. Support PMM in producing semi-professional, knowledgeable workforce
- 3. Develop, document and maintain the information sources for the requirements of teaching and learning by:
  - a. using the world standard cataloguing classification (Library of Congress Classification Outlines)
  - b. using the new technology of cataloguing system (WEBOPAC) and electronic resources
  - c. digitizing the documents related to learning such as examination paper, bulletin etc.
- 4. Provide and manage information services and conducive library facilities such as:
  - a. Open shelf Collection
  - b. Reference Collection
  - c. Serial Collections
  - d. Examination paper Collection

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## UNIT OF PSYCHOLOGY

#### Introduction

Psychology Management Unit Politeknik Merlimau, Melaka is an academic support unit which works in the development and soft skills for both students and staff.

Currently, Management Psychology comprises 3 Psychology Officer and is one unit under the supervision of Head of the Student Affairs Department and the Deputy Director (Academic Support).

The goal of this unit is to help the student progress toward academic excellence, social, personal, spiritual and career;

planning, implementation, evaluation and control of Psychology and Counseling Services Program effectively at the Polytechnic.

What Is Counseling? Counseling is a face to face relationship between normal individuals to understand themselves and the situation, using potential by utilizing the self, family, religion, society and religion also learn how to deal with problems in meeting their needs today and tomorrow.

Counseling Ethics Code is to respect client privacy and confidentiality of information.



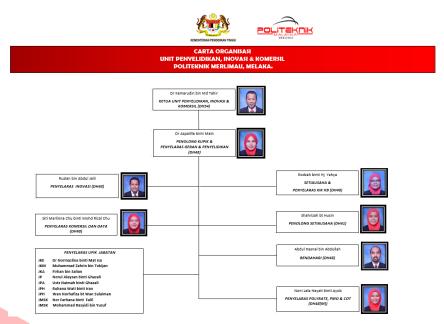
## UNIT OF RESEARCH AND IN-

#### Introduction

Research Unit, Innovation and Commercial (UPIK) created by the system of Polytechnic Education Department, Ministry of Higher Education to inculcate the culture of research at the polytechnic. UPIK plan an important role as a centre of coordination of research, innovation and commercial lecturers and staff. UPIK also serves as a central collection and scientific writing reference material, material innovations and research institutions, zones, national and international.

The objectives of the unit are to;

- 1. become the centre of research, innovation and commercialization activities.
- 2. coordinate and collaborate with industries and agencies the affairs pertaining to Research & Development (R&D), commercialization and innovation.
- 3. become the centre of information and data management related to the students' as well as lecturers' products/projects, innovations and commercialisation at polytechnic level.
- 4. plan, manage and monitor the implementation and data gathering with regard to R&D, educational research and publication.



### UNIT OF INDUSTRIAL LIAISON &

### Introduction

Industry Training is a major component of the learning curriculum at polytechnic. Students at diploma level must go through 20 weeks of internship training prior to graduation. The course covers a total of 10 credit hours inclusive of hands work, presentation, oral feedback session and report writing. During the training, students will have the opportunity to gain knowledge and experience on multiple discipline which include engineering, management, account and safety procedure.

Industrial training provides an avenue for students to practice and apply both their knowledge and skills in real working environments. Thus the internship, student should be able to achieve the following objective;

- Perform hands-n task, usage of tools and equipment, adapt a variety of technologies, apply the knowledge gained to perform task, show development in knowledge and skills and think creatively and critically.
- Ability to acquire and understand information, carry out instruction, analyze linear and non-linear information, shows appropriate non-verbal communication, communicate with employees at all levels and have basic negotiation skills.
- Show positive personality traits, participate actively as a members of the team, carry out task in appropriate situation and build and maintain good relationship.
- Comply with the policies and rules of the organization, job procedures and safety and health regulations.
- Report handed-in on time and verified by the supervisor, work independent with minimum supervision, attendance, punctuality and solve problem by taking right action.
- Present ideas and views and task reporting.



## UNIT OF QUALITY ASSUR-

#### Introduction

Quality Assurance Unit is responsible for planning, implementing and monitoring the effectiveness of the programs related to the quality management system, in addition to being a coordinator (the coordinator) to officials in the department and the quality of the unit. This unit is under the responsibility of the Quality Manager and Deputy Director (Academic).

To further enhance the quality management system in PMM, it's run by two (2) weight of the Working Committee on Quality (JKKQ) chaired by the Quality Manager and comprises all Heads of Department and Head of Unit, while the Secretariat Quality (UQ), chaired by the Chief Executive Officer quality acting as the coordinator of the quality Officer and Administration Department. Both the operator is responsible for applying the values of quality to all citizens PMM through activities that have been planned.

The objective of this unit is to coordinate and implement a quality management system to strengthen the role of citizens PMM is more committed to the continuation of organizational excellence. The main task of the unit is to plan, implement and monitor the effectiveness of programs related to quality management for the excellent work culture and implement continuous improvement practices towards realizing the vision, mission and quality policy PMM. In addition, it is also responsible for coordinating the implementation of quality systems in PMM.



## UNIT OF CISEC

### Introduction

Establishment of the Corporate Industrial Services & Employability Center (CISEC) in polytechnics as an initiative towards stronger polytechnic and industrial relations. CISEC will be the one-stop center in meeting the needs of the industry interested in working with Polytechnic especially for commercialization projects and the management of facilities or consultancy services. Through CISEC, the process of matching workforce needs in the industry with the job search of polytechnic graduates is expected to be implemented more efficiently and systematically.

The CISEC was set up in July 2010 to support one of the Polytechnic Transformation agenda that enhances the marketability of polytechnic graduates. Therefore, CISEC will be the intermediary of polytechnics and industry in coordinating career development and graduate marketing programs through joint ownership and accountability, governance, student industrial training or training needs.

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### UNIT OF KAMSIS

### Introduction

Unit Kamsis role is to manage the placement of students. This unit is placed under the Student Affair Department. It is headed by a Assistant Manager Hostels, Senior Supervisor, four Hostel Supervisor and thirteen Warden (total of warden should be twenty eight).

Merlimau Polytechnic Hostel has six blocks of four-storey building that can accommodate a total of 1404 student with each building about 234 students. The capacity of each blocks for male and female student may change following application for each sessions.

#### **FACILITIES PROVIDED**

Kamsis provide complete facilities such as mattresses, pillows, beds, wardrobes, tables and chairs, curtains, bookshelves and so on. Other facilities include:

- a) Study room;
- b) Common Room is equipped with television broadcasts Njoi;
- c) In-room ironing;
- d) washing machine in every level;
- e) Field and playground;
- f) The cafeteria operates from 7 am to 11 pm;
- g) Islamic Center;
- h) Internet (wifi); and
- i) Ease of filter machine hot / cold water in every block.

#### APPLICATION CONDITIONS KAMSIS RANKED

- 1) Applications can be made online via the Student Information Management System (SPMP) in PMM portal.
- 2) Completed forms that have been submitted online must also be printed and sent to the Office of Management Kamsis before the closing date, together with other supporting documents such as:
  - i. salary slip / income verification letter that was approved by the headman or officer of the Management and Professional Group;
  - ii. health report that was confirmed by a physician for students who have serious health problems; and
  - iii. Death Certificate for orphans.

## UNIT OF KAMSIS

#### SELECTION CRITERIA FOR STUDENTS OF KAMSIS POLITEKNIK MERLIMAU

Here are the selection criteria's for the Kamsis application:

- Salary and dependents of parents / guardians;
- Orphans;
- Discipline;
- Activities participated in Kamsis / Department;
- Distance home to the Polytechnic;
- Health problems;
- Form complete and the information is correct; and
- On availability



### UNIT OF ENTREPRENEURIAL

### Introduction

The entrepreneurship unit supports students, alumni, small business and researchers to promote the creation of new businesses in industrial, technological, and social services.

The unit aims to promote the created businesses to be innovative, technology-based, with capacity to grow and commitment to create high-quality jobs in the region. It also promotes self-employment of young graduates and educate them in starting a new business with a proper management.

The Entrepreneurship Unit of Politeknik Merlimau is located at Ground Floor of Commerce Department and open to public every working days from 8.30am to 5.30pm. The main objectives of the entrepreneurship unit are:

- Cultivate entrepreneurial attitudes and skills among students from any field of education:
- Organize entrepreneurship activities among students accordingly;
- Coordinate the creation of start-up business among students
- Provide entrepreneurship facilities for students;
- Build networking with industries and agencies for student's business matching
- Involve professionals, entrepreneurs and agencies in the transmission of the entrepreneurial experience and as sponsors of activities that take place.



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