KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
MERLIMAU

PROGRAMME HANDBOOK

ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA IN ELECTRONIC ENGINEERING (COMMUNICATION)

(DEP)

POLITEKNIK MERLIMAU
Kementerian Pendidikan Tinggi
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https://www.pmm.edu.my

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06 - 263 6678

Seventh 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,

Norizam bin Sekak
Director
Politeknik Merlimau

Preface

Assalamualaikum w.b.t .

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

Electrical Engineering Department 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 Electrical Engineering Department 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 Electrical Engineering Department . Thank You.

Adib Ridhwan bin Adenan
The Head of Electrical Engineering Department

Introduction

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

Established in 2002, PMM started in Politeknik Melaka (formerly known as 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 an 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 the institution, technology and cohort-targeted diploma graduate students. Thus, PMM provides a wide range of facilities and spaces that can be utilized by both the staffs and students, such as the CIDOS e-learning tools that serves as the Learning Management System. It is developed for the purpose of continuous improvement of the teaching and learning processes .

PMM provides a broad-based curriculum that is underscored by the multi-disciplinary courses that are coupled together with the ancillary department's courses that 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 measures are in place for the nurturing of well-rounded graduates that are characterised by innovative thinking and relevant skills to thrive in a knowledge economy.

All in all, PMM provides students with 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 the practicality, entrepreneurship, and the pursuit of academic and management excellence aspects in PMM. It is hoped that the well-rounded graduates enveloped with outstanding leadership qualities will enable them to make valuable contributions for the betterment of the society and country as a whole.

Vision & Mission

To be the Leading-Edge
TVET Instituition

VISION

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

1

To capitalise on smart partnership with stakeholders

2

MISSION

To empower communities through life-long learning

3

TAG LINE

Expertise for
Excellence, X4X

Management Organisational Chart

Outcome Based Education (OBE)

The Ministry of Higher Education, Malaysian Qualification Agency (MQA) and related professional bodies require all programs offered by Institutions of Higher Learning 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 the students should acquire upon completion of their educational program. 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 the students 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.

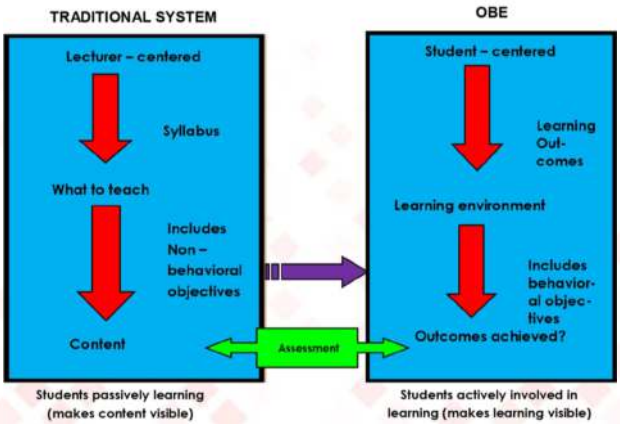


Figure 5.1: A Paradigm Shift for Educational System

DELIVERY MODES

The diversity of teaching and learning methodologies can be adapted by lecturers in order to cater for the heterogeneous 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.

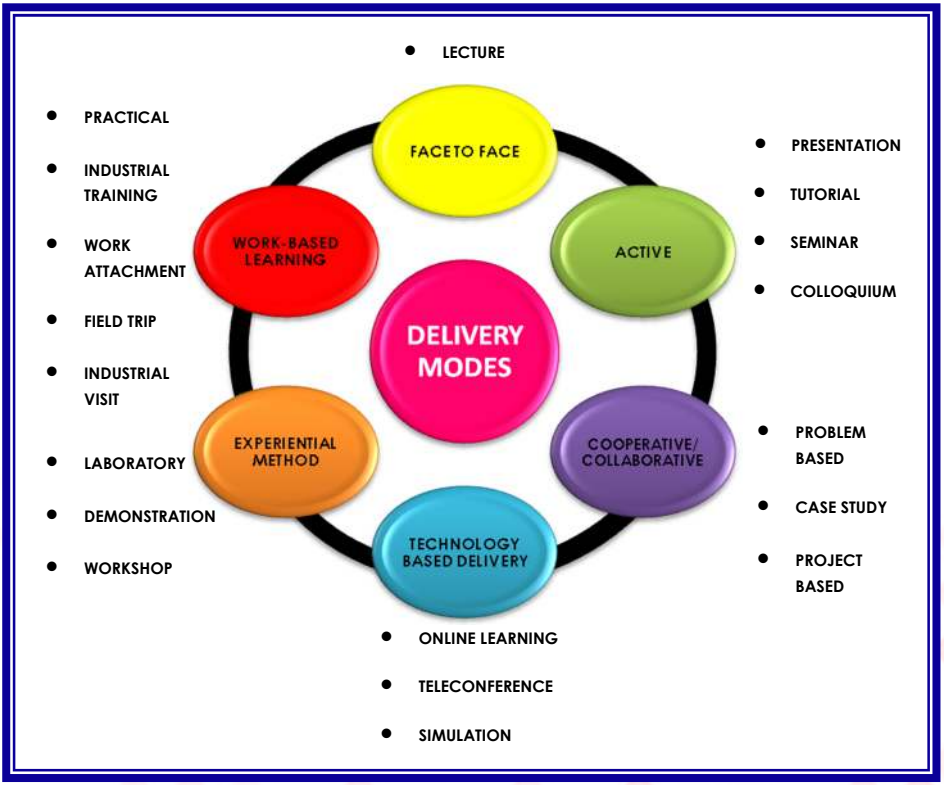


Figure 5.2 : Modes of Delivery

Outcome Based Education (OBE)

OBE EDUCATIONAL FRAMEWORK

Programme Educational Objectives (PEO):

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

Programme Learning Outcomes (PLO):

The statements that describe what the 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 .

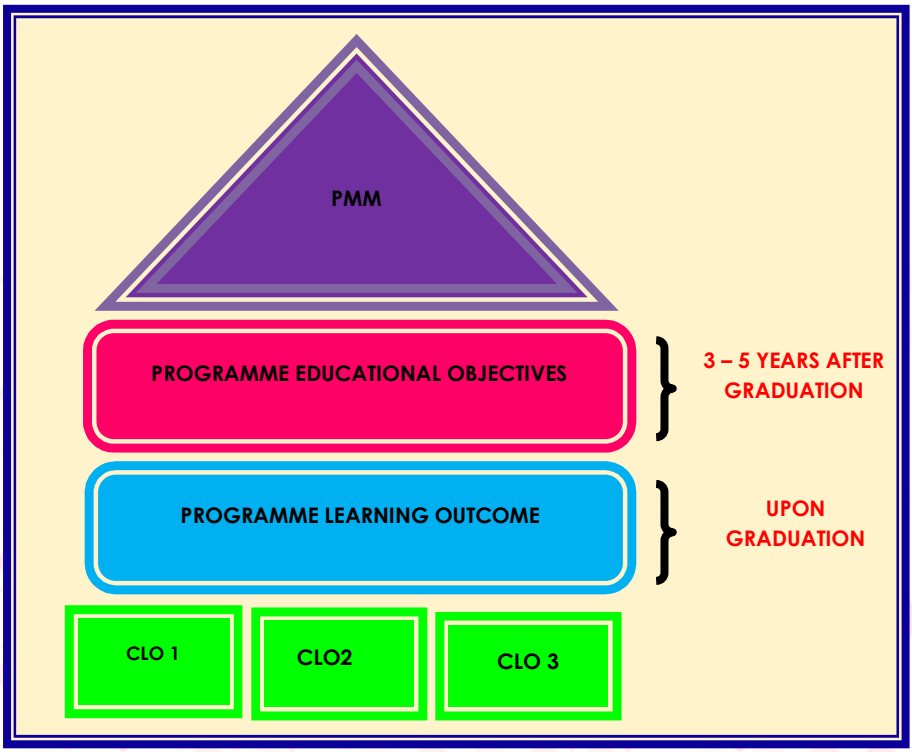
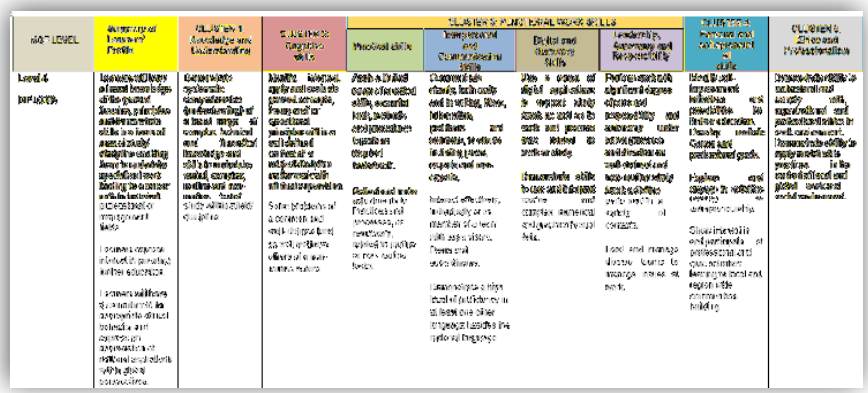


Figure 5.3 : OBE Educational Framework

Outcome Based Education (OBE)

FORMATION OF LEARNING OUTCOMES

The achievement of students is measured by its 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 diagram below shows the cluster ;



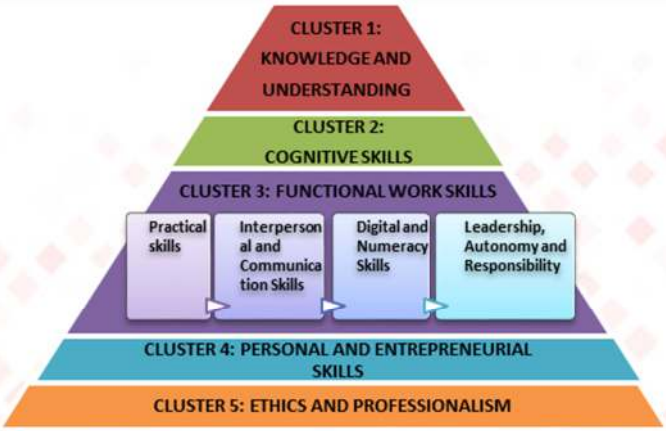


Figure 5.4 :Competency Domain to be applied in MQA Outcomes (Learning Outcomes, LO)

THREE MAIN STAGES IN TEACHING AND LEARNING PROCESS

In general, the 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 the 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 measure how far the students have achieved the specified learning outcomes. In additional, the assessment provides input for continuously improve the teaching and learning process.

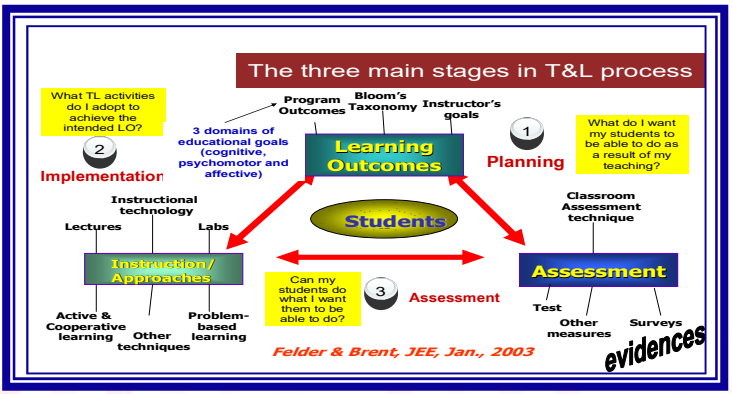


Figure 5.5 : Three Main Stages in Learning and Teaching Process

Towards the future of OBE:

1. Courses will help the students to want, passionately, to do things, rather than just 'be able to' do things.
2. Assessment will assess whether the students are able to 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 the 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.

E-Learning Unit

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 staffs and students skills through e-learning in the 21st century.

The roles and responsibilities of the e-Learning Unit are:

1. Coordinating, supporting and monitoring the implementation of e-Learning through the CIDOS platform.
2. Developing and improving CIDOS functionality to meet the effective R & D requirements and suiting the rapid development of ICT (including Mobile-ready).
3. Improving literacy and training and mentoring on e-Learning.
4. Planning of training and mentoring and supporting e-Content development for academic staffs and students.
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).

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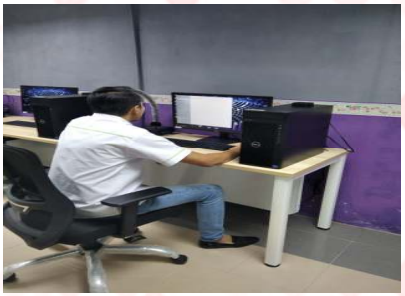
E-Learning Unit

Facilities







Electrical Engineering Department

Indroduction

The Electrical Engineering Department offers three diploma programmes, namely Diploma in Electrical engineering (DET), Diploma in Electronic Engineering (Communication) (DEP), and Diploma in Electronic Engineering (Computer) (DTK).

The department is headed by Mr Adib Ridhwan Bin Adenan as the Head of Department, and he is assisted by Mr Mohd Asmadi Bin Idris, Head of DET Program, Mrs Nur Diyana binti Ismail, Head of DEP program, and lastly Mrs Siti Zulia binti Pirin, Head of DTK program.

The department has a staff complement of 52, from which 48 are academic staffs with grades ranging from DH34 up to DH54, and also 4 operational support staffs. The department's 3 programs averages around 800 students at any given academic session.

PROGRAMME	DURATION	ACREDITATION NUMBER
Diploma in Electrical Engineering (DET)	**3 Tahun (6 semester)**	MQA/FA3080
Diploma in Electronic Engineering (Computer) (DTK)	**3 Tahun (6 semester)**	MQA/FA3081
Diploma in Electronic Engineering (Communication) (DEP)	**3 Tahun (6 semester)**	MQA/FA3082

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Electrical Engineering Department

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Computer Repair Laboratary

Computer Hardware Laboratary

Computer Programming Laboratary

Power Electronic Laboratary

Electrical Machine Laboratary

Electrical Engineering Department

Computer Aided Design Laboratary

Entrepreneurship Incubator Room

Measurement Laboratary

Data Communication Laboratary

Electronic Repair Laboratary

Electronic Laboratary

Electrical Engineering Department

Electrical Principle & Technolgy Laboratary

Instrumentation Laboratary

Wiring Laboratary

Project Laboratary

Power System Laboratary

Advanced Telecommunication Laboratary

Electrical Engineering Department

Meeting Room

Server Room

Lecture Hall

TECC Room

Classroom

Student Corner

Diploma in Electronic Engineering (COMMUNICATION)

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, fiber 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
l. 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

Diploma in Electronic Engineering (COMMUNICATION)

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: Demonstrate positive character, entrepreneurship skills and lifelong learning skills for career advancement

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 substantiated 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 appropriate consideration for public health and safety, cultural, societal, and environmental 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 limitations (DK6)

PLO6: Demonstrate knowledge of the societal, health, safety, legal and cultural issues 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 instructions

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 updating in the context of specialised technical knowledge

Notes

DK 1: A descriptive, formula-based understanding of the natural sciences applicable in a sub-discipline.

DK 2: Procedural mathematics, numerical analysis, statistics applicable in a subdiscipline.

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.

Diploma in Electronic Engineering (COMMUNICATION)

Programme Structure

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5		PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								CLS1 Knowledge	CLS2 Problem Analysis	CLS2 Design/Development of Solutions	CLS2 Investigation	CLS3a Modern Tool Usage	CLS3c	CLS3b The Engineer and Society	CLS5 Environment and Sustainability	CLS5 Ethics	CLS3d Individual and Teamwork	CLS3b Communications	CLS4 Project Management and Finance	CLS4 Life Long Learning	
SEMESTER 1																					
Compulsory	DUE10012	Communicative English 1	1	0	2	0	2											√		√	
	MPU24XX1 MPU24XX1	Sukan Unit Beruniform 1	0	2	0	0	1	√									√			√	
Common Core	DUW10022	Occupational, Safety and Health for Engineering	2	0	0	0	2	√								√		√			
	DBM10013	Engineering Mathematics 1	2	0	2	0	3	√					√					√			
	DBS10012	Engineering Science	2	1	0	0	2	√				√									
Discipline Core	DET10013	Electrical Technology	2	2	0	0	3	√				√					√				
	DET10022	Electrical Wiring	1	3	0	0	2	√				√				√					
	DEE10013	Measurement Devices	2	2	0	0	3	√				√						√			
TOTAL			**26**				**18**														

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5		PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								CLS1 Knowledge	CLS2 Problem Analysis	CLS2 Design/Development of Solutions	CLS2 Investigation	CLS3a Modern Tool Usage	CLS3c	CLS3b The Engineer and Society	CLS5 Environment and Sustainability	CLS5 Ethics	CLS3d Individual and Teamwork	CLS3b Communications	CLS4 Project Management and Finance	CLS4 Life Long Learning	
SEMESTER 2																					
Compulsory	MPU21032	Penghayatan Etika dan Peradaban	1	0	2	0	2									√				√	
	MPU24XX1	Kelab/Persatuan	0	2	0	0	1										√			√	
	MPU24XX1	Unit Beruniform 2																			MPU24XX1
Common Core	DBM20023	Engineering Mathematics 2	2	0	2	0	3	√					√					√			DBM10013
Discipline Core	DET20033	Electrical Circuits	2	2	0	0	3	√				√					√				DET10013
	DEE20023	Semiconductor Devices	2	2	0	0	3	√				√						√			
	DEE20033	Digital Electronics	2	2	0	0	3	√				√	√				√				
	DEC20012	Programming Fundamentals	1	2	0	0	2	√				√	√							√	
TOTAL			**24**				**17**														

Diploma in Electronic Engineering (COMMUNICATION)

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								CLS1	CLS2	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	
SEMESTER 3																				
Compulsory	DUE30022	Communicative English 2	1	0	2	0	2										√		√	DUE10012
Common Core	DBM30043	Electrical Engineering Mathematics	2	0	2	0	3	√					√				√			DBM20023
Discipline Core	DEE30043	Electronic Circuits	2	2	0	0	3	√				√					√			
	DEE30052	Electronic Equipment Repair	1	3	0	0	2		√			√	√	√						DEE20023
	DEE30071	Electronic Computer Aided Design	0	2	0	0	1	√				√	√							
	DEP30013	Communication System Fundamentals	2	2	0	0	3	√				√	√			√				
Specialisation	DEP30083	Telecommunication Network	2	2	0	0	3	√				√					√			
TOTAL			25				17													

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								CLS1	CLS2	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	
SEMESTER 4																				
Compulsory	DUE50032	Communicative English 3	1	0	2	0	2										√		√	DUE30022
	MPU22012	Entrepreneurship	1	0	2	0	2										√	√		
Discipline Core	DEC40053	Embedded System Application	2	2	0	0	3			√	√	√	√					√		DEC20012
Specialisation	DEP40053	Fibre Optic Communication System	2	2	0	0	3			√	√	√		√						
	DEE40113	Signal and System	2	2	0	0	3		√			√	√				√			DBM20023
	DEE40082	Project 1	1	2	0	0	2		√		√	√	√	√			√	√	√	
Electives		Elective 1	0	0	0	0	2													
TOTAL			21				17													

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CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								CLS1	CLS2	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	
SEMESTER 5																				
Compulsory	MPU23052 MPU23042	Sains Teknologi dan Kejuruteraan Islam* Nilai Masyarakat Malaysia**	1	0	2	0	2								√				√	
Discipline Core	DEE30061	Computer Aided Electrical Drawing	0	2	0	0	1	√				√	√		√					
Specialisation	DEP50033	Data Communication and Networking	2	2	0	0	3		√			√	√		√					DEP30013
	DEP50043	Microwave Devices	2	2	0	0	3				√	√	√	√						
	DEP50063	Wireless Communication	2	2	0	0	3				√	√	√		√					
	DEE50102	Project 2	0	3	0	0	2			√	√	√	√		√		√	√		DEE40082
Electives		Elective 2	0	0	0	0	2													
TOTAL			**20**				**16**													
SEMESTER 6																				
Industrial Training	DUT600610	Engineering Industrial Training	0	0	0	0	10					√		√		√	√	√		√	
TOTAL			**0**				**10**													
TOTAL CREDIT VALUE							**95**													

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								CLS1	CLS2	CLS2	CLS2	CLS3a	CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	
ELECTIVE COURSES																				
1	DEC40062	Visual Basic Programming	1	2	0	0	2			√		√	√					√		
2	DEC40073	Database System	2	2	0	0	3				√	√	√					√		
3	DEC40082	Interactive Multimedia Application	1	2	0	0	2			√	√	√	√				√			
4	DEC40092	Computer Vision Programming	1	2	0	0	2				√	√	√						√	
5	DEE40092	Audio Video Systems and Production	1	2	0	0	2	√				√	√						√	
6	DEG40023	Renewable Energy System	2	2	0	0	3			√		√		√						DEG30013
7	DEJ40033	Programmable Logic Controller (PLC) and Automation	2	2	0	0	3			√		√			√					
8	DEJ40043	Control Systems	2	2	0	0	3			√		√		√						DEJ30013
9	DEJ40052	Operations Management	1	2	0	0	2	√				√			√					
10	DEO40023	Optoelectronic	3	0	0	0	3			√				√						
11	DEQ40023	Energy Management System and Energy Auditing	2	2	0	0	3			√		√	√		√					

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CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								CLS1	CLS2	CLS2	CLS2	CLS3a / CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	
ELECTIVE COURSES																				
12	DEQ40032	Energy Efficiency Engineering 1	2	0	0	0	2				√		√							
13	DET40073	Power Electronics	2	2	0	0	3				√	√ / √				√				
14	DEU40032	Biomedical Signal Measurement	1	2	0	0	2		√			√				√				
15	DEC50103	Operating Systems	2	2	0	0	3				√	√ / √			√					
16	DEC50113	Computer System Diagnosis and Maintenance	2	2	0	0	3		√			√ / √	√							
17	DEC50122	Embedded Robotic	1	2	0	0	2			√	√	√ / √						√		DEC20012
18	DEC50132	Internet Based Controller	1	2	0	0	2	√				√ / √		√						
19	DEC50143	CMOS Integrated Circuit Design and Fabrication	2	2	0	0	3			√		√ / √		√						DEE20023 & DEE20033
20	DEC50152	CMOS VLSI Layout Design	1	2	0	0	2			√		√ / √		√						
21	DEE50122	Circuit Analysis	2	0	1	0	2		√							√				DET20033
22	DEG50032	Energy Efficiency And Management	2	0	0	0	2				√		√							

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage	The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								CLS1	CLS2	CLS2	CLS2	CLS3a / CLS3c	CLS3b	CLS5	CLS5	CLS3d	CLS3b	CLS4	CLS4	
ELECTIVE COURSES																				
23	DEG50043	Green Energy System Integration	2	2	0	0	3		√			√ / √							√	DEG40023
24	DEJ50063	Process Measurement	2	2	0	0	3	√				√				√				
25	DEO50033	Optosemiconductor	3	0	0	0	3				√			√						DEO40023
26	DEP50072	Satellite and Radar Communication Systems	2	0	0	0	2				√								√	
27	DEQ50043	Energy Efficiency Engineering 2	2	0	0	0	3		√			√ / √	√	√						DEQ40032
28	DET50063	Motor Control and Drives	2	2	0	0	3		√			√						√		DET40073
29	DET50083	Power System Protection	2	2	0	0	3				√	√		√						DET30053
30	DET50093	Electrical Maintenance and Repair	2	2	0	0	3		√			√		√						
31	DEU50013	Medical System Practice	2	2	0	0	3		√			√			√					
32	DEU50043	Medical Imaging	2	2	0	0	3				√	√			√					
33	DEU50053	Biomedical Instrumentation	2	2	0	0	3				√	√		√						

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CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PROGRAMME LEARNING OUTCOME (PLO)												PREREQUISITE / CO-REQUISITE
			L	P	T	O		PLO1	PLO2	PLO3	PLO4	PLO5		PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	
								Knowledge	Problem Analysis	Design/Development of Solutions	Investigation	Modern Tool Usage		The Engineer and Society	Environment and Sustainability	Ethics	Individual and Teamwork	Communications	Project Management and Finance	Life Long Learning	
								C1.S1	C1.S2	C1.S2	C1.S2	C1.S3a	C1.S3c	C1.S3b	C1.S5	C1.S5	C1.S3d	C1.S3b	C1.S4	C1.S4	
FREE ELECTIVES*																					
1	DUD10012	Design Thinking	1	0	0	1	2		√									√			

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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. Understanding of notifications of accidents, dangerous occurrence, poisoning and diseases and liability for offences will be imparted upon students. This course will also provide an understanding of the key issues in OSH management, incident prevention, Emergency Preparedness and Response (EPR), fire safety, Hazard Identification, Risk Control and Risk Assessment (HIRARC) and guide the students gradually into this multi-disciplinary science.	Upon completion of this course, students should be able to: 1. Explain briefly Occupational Safety and Health (OSH) procedures, regulation and its compliance in Malaysia (C2, PLO1) 2. Initiates incident hazards, risks and safe work practices in order to maintain health and safe work environment (A3, PLO8) 3. Forms communication skills in a team to respond for an accident action at workplace (A3, PLO10)
	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 equipment's (P4, PLO5) 3. Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame(A3, PLO9)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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, PLO1) 2. Construct single phase domestic wiring according to MS IEC 60364 (P4, PLO5) 3. Demonstrate an understanding and commit to professional ethics and responsibilities of engineering norms during performing single phase domestic wiring task (A3, PLO8)
	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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
2	DET20033 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, students 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, PLO1) 2. Construct of an AC electrical circuit and measured related electrical parameter using appropriate electrical equipment (P4, PLO5) 3. Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3, PLO9)
	DEE20023 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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
2	DEE20033 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 students should be able to: 1. Apply the knowledge of logic operations using Boolean Algebra or Karnaugh Map in digital logic circuit (C3, PLO1) 2. Construct the logic diagrams, truth tables and timing diagrams using logic gates and flip-flop (P4, PLO5) 3. Demonstrate ability to work in team to complete assigned task during practical work sessions (A3, PLO9) 4. Propose design project through presentation drawings, models and verbal communication (A3, PLO3)
	DEC20012 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 developing a mini project (A3, PLO12)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
3	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, PLO1) 2. Construct the various applications of electronic circuits based on the theory and principle operation of the circuits (P4, PLO5) 3. Demonstrate good written communication skill through essay writing in group within a stipulated time frame (A3, PLO10)
	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 task (A3, PLO6)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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. Printed Circuit Board (PCB) layout is then produced for the circuits. The simulation and the PCB layout are done using electronic software package such as Protel / Altium Designer, ORCAD, PSpice, Circuit Maker or Electronic Workbench.	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, PLO1) 2. Construct the simulation and the PCB layout for digital and analogue circuits using a schematic capture software (P4, PLO5)
	DEP 30013 COMMUNICATION SYSTEM FUNDAMENTALS	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, PLO1) 2. Assemble the related communication equipment systematically in performing the measurement of appropriate signals parameter (P4, PLO5) 3. Demonstrate the ability to work in a team to complete the assigned tasks during practical work sessions (A3, PLO9)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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, PLO1) 2. Assemble the related telecommunication equipment in performing the measurement of appropriate signal parameter (P4, PLO5) 3. Demonstrate good communication skill in oral presentation on assigned assignments (A3, PLO10)
4	DEC 40053 EMBENDDED SYSTEM APPLICATIONS	3	**EMBEDDED SYSTEM APPLICATIONS** 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, PLO4) 2. Design embedded system application based on PIC16F/PIC18F microcontroller effectively (C6, PLO3) 3. Construct and simulate real-time embedded system application based on PIC16F/PIC18F microcontroller effectively (P4, PLO5) 4. Demonstrate knowledge of engineering project management principles through a written report on an assigned mini project (A3, PLO11)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
4	DEP 40053 FIBER OPTIC COMMUNICATION SYSTEM	3	**FIBER OPTIC COMMUNICATION SYSTEM** introduces students to the basic concept of fibre optic in communication systems with environmental sustainability. This course covers fibre optic characteristics, components in fibre optic system, losses in fibre 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 fibre optic communication link.	Upon completion of this course, student should be able to: 1. Investigate the fibre optic communication system by implementing the knowledge of the element and component that established the link and aspect that influence the performance of fibre optic link (C4, PLO4) 2. Design a fibre optic link using mathematical concept and design tool by considering the properties and elements of fibre optic link (C6, PLO3) 3. Assemble the related fibre optic communication equipment in performing the measurement of appropriate signals parameter (P4, PLO5) 4. Demonstrate contribution of fibre optic in communication system towards environment and sustainability through End of Chapter Question (A3, PLO7)
	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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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, PLO4) 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, PLO2) 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, PLO5) 4. Display good project management and finance through a Gantt Chart (milestone) and final proposal (A3, PLO11) 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, PLO12) 6. Display written communication skill through a final proposal (A3, PLO10) 7. Describe the impact of the proposed project to the society in the final proposal (A3, PLO6)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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 multi-media.	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) 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, PLO3) 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, PLO5) 4. Demonstrate good oral communication skill in presentation for assigned mini project within a stipulated time frame (A3, PLO10)
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. Apply the field of operation management in manufacturing organization correctly (C3, PLO1) 2. Distinguish the process of selection and process layout, JIT and maintenance in manufacturing operation (P1, PLO5) 3. Demonstrate understanding professional ethics in manufacturing practice management (A3, PLO8)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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 equipment's 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 AutoCAD 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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
5	DEP 50033 DATA COMMUNICATION AND NETWORKING	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, PLO4) 2. Assemble the related microwave communication equipment in performing the measurement of appropriate output variable (P4, PLO5) 3. Demonstrate appropriate good social interaction and responsibility while handling microwave equipment or transmission system (A3, PLO6)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
5	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, PLO12)
	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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
6	DUT 600610 INDUSTRIAL TRAINING	9	**ENGINEERING INDUSTRIAL TRAINING** course will provide student with first-hand experience in an engineering-practice environment outside the polytechnic. Student will practice their knowledge and skill based on knowledge learned in polytechnic through industry supervision to acquire the craft skill and essential. Student also need to demonstrate their responsibilities and professional ethic, communication, teamwork and inter-personal and life-long learning skills at the workplace.	Upon completion of this course, student should be able to: 1. Perform the assigned task accordingly based on job scope requirement (P4, PLO5) 2. Initiate responsibilities as an engineering technician while dealing with societal, health, safety, legal, cultural and other issues (A3, PLO6) 3. Practice professional ethics and responsibilities as an engineering technician (A5, PLO8) 4. Display ability to work in a team or independently base on the given task (P4, PLO9) 5. Explain the task by using effective verbal/visual communication skill in performing job requirement (A4, PLO10) 6. Write a report based on given task accordingly to technical practice (C3, PLO10) 7. Display life long learning skill in completing the given task (P4, PLO12)

Higher Academic Pathway

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
UTM 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
Universiti Malaysia PAHANG	• 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

Higher Academic Pathway

LIST OF UNIVERSITY	PROGRAMME	INFORMATION
	• 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** Jalan Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia Tel : (6)06 270 1000 Fax: (6)06 270 1022 www.utem.edu.my
	• 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
	• 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

Higher Academic Pathway

LIST OF UNIVERSITY	PROGRAMME	INFORMATION
	• Bachelor of Mechanical Engineering with Honours • Bachelor of Electronic Engineering with Honours • Bachelor of Electrical and Electronic Engineering with Honours	**Universiti Kebangsaan Malaysia (UKM)** 43600 Bangi, Selangor Malaysia Tel : (6)03-89118173/8027/8024 Fax: (6)07-5537646 www.ukm.my
	• Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours	**Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA)** Persiaran Usahawan, Seksyen U1 40150 Shah Alam Selangor Tel : (6)03-51634000 Fax: (6)03-55691903 https://psa.mypolycc.edu.my/

Mathematics, Science & Computer Department

Introduction

The Mathematics, Science & Computer Department, which is also known as JMSK is an ancillary academic department. It is responsible for the B code courses in three different fields, namely 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 and supported by three (3) heads of course of Mathematics, Science and Computer. These heads of course are responsible in monitoring staffs under their supervisions in order to ensure the learning and teaching implementations are run effectively. Besides, JMSK also managed a Pre Diploma Science programme that 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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Mathematics, Science & Computer Department

Facilities

TECC

Computer Laboratory

Classroom

Science Laboratory

Discussion Room

Lecturer Meeting Room

Prayer Room

Gazebo

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
1	DBM 10013 ENGINEERING MATHEMATICS 1	3	**ENGINEERING MATHEMATICS 1** 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, CLS3c) CLO3: Use mathematical expression in describing real engineering problems precisely, concisely and logically (A3, CLS3b)
1	DBM10102 ELEMENTARY MATHEMATICS	2	**ELEMENTARY MATHEMATICS** exposes students to basic algebra which focuses on expressions and fraction used in solving linear and quadratic equations. This course also covers the concept of measurement and geometry which focuses on calculating areas and properties of angles in a circle including angular problems. Students will be introduced to the basic concept of trigonometric and its functions in solving problems.	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, CLS3c) CLO3: Demonstrate awareness to social needs and active learning through geometrical approaches (A3, CLS3b)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	Synopsis	CLO
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, CLS1) CLO2: Apply knowledge of fundamental physics in activities to mastery physics concept (C3, CLS1) CLO3: Perform appropriate activities related to physics concept (P3, CLS3a)
2	DBM20023 ENGINEERING MATHEMATICS 2	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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
3	DBM30033ENGINEERING MATHEMATICS 3	3	**ENGINEERING MATHEMATICS 3** 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 and Newton-Raphson methods. In order to strengthen the students in solving engineering problems, Ordinary Differential Equation (ODE) is also included. In additional, the course also discusses optimization problems by using Linear Programming. It is designed to build students' teamwork and problems solving skill.	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)
3	DBM30043ELECTRICAL ENGINEERING MATHEMATICS	3	**ELECTRICAL ENGINEERING MATHEMATICS** 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 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 solving skill.	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)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	Synopsis	CLO
1 / 3	DBC20012 COMPUTER APPLICATIONS	2	**COMPUTER APPLICATION** exposes students to different packages of applications software such as word processor, spreadsheet, presentation, project management, internet security and digital etiquette. This course mainly emphasize on the practical aspects of using applications software and awareness in digital world activity. Students will develop teamwork and leadership skills to present ideas and organize project. Students are able to use the information and technology skill attained in future. Upon completion of this course,	Upon completion of this course, students should be able to: CLO1 : Display the ability to apply application software in office environment (P3 , CLS4) CLO2 : Perform inquisitive mind to develop lifelong learning skills in information and technology skills (A5 , CLS3c) CLO3 : Apply information and technology skills in office environment (C3 , CLS3b)

General Studies Department

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.

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 12 lecturers while the Islamic Education and Moral Studies unit has a total number of 12 lecturers. Furthermore, the department has two language laboratories and one technology enable classroom (TEC) 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 General Studies, Politeknik Merlimau Department.

General Studies Department

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Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
1	MPU21032 PENGHAYATAN ETIKA DAN PERADABAN	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 ini.	CLO1: membentangkan konsep etika dan peradaban dalam kepelbagaian tamadun (A2, CLS5) CLO2: menerangkan sistem, tahap perkembangan, kesepaduan sosial dan kebudayaan merentas bangsa di Malaysia (A2, CLS5) CLO3: mencadangkan sikap yang positif terhadap isu dan cabaran kontemporari dari perspektif etika dan peradaban (A3, CLS4)
	DUE10012 COMMUNICATIVE ENGLISH 1	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, CLS3b) CLO2: Demonstrate awareness of values and opinions embedded in texts on current issues. (A3, CLS3b) CLO3: Present a topic of interest that carries identifiable values coherently using effective verbal and nonverbal communication skills (A2, CLS4)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
2	MPU23052 SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM*	2	**SAINS, TEKNOLOGI DAN KEJURU-TERAAN 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, CLS4) 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)
	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, CLS4) CLO2: Menerangkan etika dan profesionalisme terhadap konsep perpaduan bagi meningkatkan semangat patriotisme masyarakat Malaysia (A3, CLS5) CLO3: Menghubungkait minda ingin tahu dengan cabarancabaran dalam membentuk masyarakat Malaysia (A4, CLS4)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
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, CLS3b) CLO2: Describe processes, procedures and instructions clearly by highlighting information of concern (A3, CLS4) CLO3: Demonstrate effective communication and social skills in handling enquiries and complaints amicably and professionally (A3, CLS3b)
4	DUE50032 COMMUNICATIVE ENGLISH 3	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 interviews.	CLO1: Present gathered data in graphs and charts effectively using appropriate language forms and functions (A2, CLS3b) CLO2: Prepare a high impact resume and a cover letter, highlighting competencies and strengths that meet employer's expectations (A4, CLS4) CLO3: Demonstrate effective communication and social skills in handling job interviews confidently (A3, CLS3b)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
1	MPU22042 BAHASA KEANGSAAN A	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 ber-interaksi yang baik dalam pelbagai situasi (A3, CLS3b) CLO2: Menulis pelbagai jenis bentuk penulisan dengan jelas dan bersistematik (A2, CLS3b) CLO3: Menunjukkan kaedah bertutur dalam komunikasi lisan dengan sebutan dan intonasi yang betul (A3, CLS4)

Sports, Co Curriculum & Cultural Unit

Introduction

Sports, Co-curriculum and Cultural Unit (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-units; 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. The sports 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 enroll.

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 handling of protocol and etiquette such as convocation ceremony.

Sports, Co Curriculum & Cultural Unit

Sports Co Curriculum & Cultural Unit Staffs

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Facilities

Basketball Court

Takraw Court

Tennis Court

Futsal Court

Rugby Field

Football Field

Petanque Field

Volleyball Court

Sports, Co Curriculum & Cultural Unit

Music Studio

Music set

Squash Court

Table Tennis

Multi Purpose Court (Indoor)

Golf Green

Sport Centre

Multipurpose Court

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	Synopsis	CLO
2	MPU24761 PENGAKAP KELANA 2	1	**PENGAKAP KELANA 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)
2	MPU24791 RELASIS 2	1	**BRIGED RELA SISWA SISWI (RELASIS) 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
1	MPU24661 PENGAKAP KELANA 1	1	**PENGAKAP KELANA 1** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)
1	MPU24691 RELASIS 1	1	**BRIGED RELA SISWA SISWI (RELASIS) 1** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
1	MPU24701 PANDU PUTERI 1	1	**PANDU PUTERI 1** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)
1	MPU24611 ASKAR WATANIAH 1	1	**ASKAR WATANIAH 1** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
2	MPU24021 KELAB / PERSATUAN	1	**KELAB / PERSATUAN** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)
2	MPU24651 PISPA 2	1	**PASUKAN INSTITUSI PERTAHANAN AWAM (PISPA) 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
2	MPU24761 PENGAKAP KELANA 2	1	**PENGAKAP KELANA 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)
2	MPU24791 RELASIS 2	1	**BRIGED RELA SISWA SISWI (RELASIS) 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)

Synopsis & Course Learning Outcomes (CLO)

SEMESTER	COURSE	CREDIT	SYNOPSIS	CLO
2	MPU24801 PANDU PUTERI 2	1	**PANDU PUTERI 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students.	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)
2	MPU24711 ASKAR WATANIAH 2	1	**ASKAR WATANIAH 2** focuses on mastering specific knowledge and skills holistically to strengthen the formation of positive soft skills of students	Upon completion of this course, students should be able to: CLO1: demonstrate specific skills for related courses (P2, CLS4) CLO2: demonstrate leadership and teamwork based on mastery of skills and positive practices (A3, CLS3D)

Student Affair and Development Department

Introduction

The Student Affair and Development Department 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.

Services Offered

Recruitment & Data :

- Student registration
- Student ID card (smartcard)
- Student record and statistics
- For recruitment, please visit http://ambilan.mypolycc.edu.my/

Welfare & Discipline :

- Student welfare
- Student sponsorship and financial loan
- Student vehicle pass
- Student discipline monitoring and enforcement
- Student Representative Body (MPP)

Student Affair and Development Department

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Facilities


E-PENCAPAIAN
Aktiviti Pelajar
Panduan Markah Merit
Log Masuk
POLITEKNIK
MALAYSIA
MERLIMAU
E-PENCAPAIAN


FOOD BANK SISWA
POLITEKNIK MERLIMAU
PROGRAM
FOOD
BANK
SISWA


Jabatan Hal Ehwal
& Pembangunan Pelajar
POLITEKNIK MERLIMAU
eZy MOHON
Kini, pelajar boleh memohon secara online:
Kad Pelajar
Surat Pengesahan Pelajar
Surat KWSP
Surat Rawatan
Bantuan Kewangan
Berhenti Pengajian
Tangguh Pengajian
Tukar Politeknik
Login

Examination Unit

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. The Examination Officer is responsible to monitor the whole examination process of polytechnic while the Examination Coordinator is to manage things regarding examination for their respective departments. Apart from that, the 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 for the Final Examination of Politeknik KPT.

The unit is led by the Head of Unit who is responsible for coordinating and facilitating the process of assessment and examination for the management. The Head of Unit is supported by two Examination Officers, in which one of them is in charge of the Records, Data and Certifications, and the other is in charge of the 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
- Enforcing the assessment rules and regulations
- Administrating the Examination Unit

Examination Unit

Examination Unit Staffs

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Examination Unit

Facilities

Examination Office

Waiting area & Service counter

Examination Vault

Examination KPPJ Office

Training & Continuing Education Unit

Introduction

The Training and Continuing Education Unit (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.
3. 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.

Training & Continuing Education Unit

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Training & Continuing Education Unit

Facilities

Seminar room

Meeting room

Lecture hall

Tun Teja Suite

Library Unit

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
   e. Audiovisual Collection
5. Provide IT Corners and Wi-Fi Zone
6. Collaborate with agencies such as:
   a. Perpustakaan Negara Malaysia *(Pinjaman Berkelompok)*
   b. Interlibrary Loan
   c. UiTM Melaka Kampus Bandaraya
   d. Politeknik Melaka
   e. Kolej Vokasional Muar

Library Unit

Library Unit Staffs

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Library Unit

Facilities

Library building

Reference book

Study area

Psychology Management Unit

Introduction

Psychology Management Unit Politeknik Merlimau, Melaka is an academic support unit that works in character development and soft skills for both students and staffs.

Currently, the unit consists of 3 Psychology Officers and is one unit under the purview of both the Head of the Student Affairs Department and the Deputy Director (Academic Support).

The goal of this unit is to help the students to progress towards academic excellence, social, personal, spiritual and career. Towards these ends, the unit will be planning, implementing, evaluating and controlling the Psychology and Counselling Services Program effectively at the Polytechnic. .

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

The Counselling Ethics Code is to respect client's privacy and confidentiality of information. This is done by maintaining physical and psychological well-being of clients and perform professional skills, while allowing self-determination and respecting the decision made by the client.

Psychology Management Unit

Psychology Management Unit Staffs

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Psychology Management Unit

Facilities

Research and Innovation Unit

Introduction

The Research, Innovation and Commercial Unit (UPIK) is created by the Polytechnic Education Department, Ministry of Higher Education system to inculcate the culture of research at the polytechnic. UPIK plays an important role as a centre of coordination of research, innovation and commercialisation among academic staffs. UPIK also serves as a central collection for scientific writing reference material, material innovations and research, in which it will be presented for submission as research paper or presentation at institutional, zonal, national and international levels.

The objectives of the unit are:

1. becoming the centre of research, innovation and commercialization activities.
2. coordinating and collaborating with industries and agencies on the affairs pertaining to Research & Development (R&D), commercialization and innovation.
3. becoming the centre of information and data management related to the students' as well as lecturers' products/projects, innovations and commercialisation at polytechnic level.
4. planning, managing and monitoring the implementation and data gathering with regards to R&D, educational research and publication.

Research and Innovation Unit

Research And Innovation Unit Staffs

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Industrial Liaison & Training Unit

Introduction

Industry Training is a major component of the learning curriculum in the polytechnic system. The diploma level students must undergo 20 weeks of internship training prior to graduation. The course covers a total of 10 credit hours inclusive of hands-on work, presentation, oral feedback session and report writing. During the training, students will have the opportunity to gain knowledge and experience on multiple discipline that includes 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 environment. Thus for the internship, students should be able to achieve the following objectives;

- Perform hands-on 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, analyse linear and non-linear information, show appropriate non-verbal communication, communicate with employees at all levels and have basic negotiation skills.
- Show positive personality traits, participate actively as a member of the team, carry out tasks 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.
- The report is submitted on time and verified by the supervisor, work independent with minimum supervision, attendance, punctuality and solve problem by taking the right action.
- Present ideas and views and task reporting.

Industrial Liaison & Training Unit

Industrial Liaison & Training Unit

Industrial Liaison & Training Unit Staffs

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Facilities

Quality Assurance Unit

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, the unit is run on two fronts of the Working Committee on Quality (JKKQ); the first one is the Quality Manager and comprises all Heads of Department and Heads of Unit, while the Quality Secretariat (UQ) is chaired by the Chief Executive Officer quality acting as the coordinator of the quality Officer and Administration Department. Both of the operators are responsible for applying the values of quality to all PMM citizens 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 PMM citizens to be more committed to the continuation of organizational excellence. In that respect, the main task of the unit is to plan, implement and monitor the effectiveness of programs related to quality management for the an excellent work culture and for the implementation of continuous improvement practices toward realising the vision, mission and quality policy of PMM. In addition, it is also responsible for coordinating the implementation of quality systems in PMM.

Quality Assurance Unit

Quality Assurance Unit

Quality Assurance Unit Staffs

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Corporate, Industrial Services & Employability Centre Unit

Introduction

Establishment of the Corporate Industrial Services & Employability Centre (CISEC) in polytechnics as an initiative towards stronger polytechnic and industrial relations. CISEC will be the one-stop centre 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.

Corporate, Industrial Services & Employability Centre Unit

Corporate, Industrial Services & Employability Centre Unit Staffs

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Kamsis Unit

Introduction

Kamsis Unit role is to manage the placement of students. This unit is placed under the Student Affairs Department. It is headed by a Assistant Hostel Manager, Senior Supervisor, five Hostel Supervisor and thirteen Wardens (the total number of wardens should be twenty eight).

The Merlimau Polytechnic Hostel has six blocks of four-storeyed buildings that can accommodate a total of 1404 students, with each building around 234 students. The capacity of each blocks for male and female student may change subject to the application for each sessions.

Facilities Provided

Kamsis provides 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 7.00 am to 11.00 pm;
g) Islamic Centre;
h) Internet (Wi-Fi); and
i) Hot / cold water filter machine in every block.

Application for Kamsis Registration

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 Kamsis Office of Management before the closing date, together with other supporting documents such as:
   i. salary slip / income verification letter that was approved by the village headman or any government 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.

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

Kamsis Unit

Kamsis Unit Staffs

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Facilities


UNIT PENGURUSAN KAMSIS
POLITEKNIK MERLIMAU


UNIT PENGURUSAN KAMSIS
POLITEKNIK MERLIMAU


V5
V6

Entrepreneurial Unit

Introduction

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

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

The Entrepreneurship Unit of Politeknik Merlimau is located at Ground Floor of Commerce Department and is open to public during office hours 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.

Entrepreneurial Unit

Entrepreneurial Unit Staff

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Facilities

Editorial Board

JAWATANKUASA AKREDITASI POLITEKNIK MERLIMAU