STUDENT HANDBOOK

JABATAN
KEJURUTERAAN ELEKTRIK
THIRD EDITION

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1.0 INTRODUCTION

Politeknik Tuanku Syed Sirajuddin is a comprehensive, learner centered higher education institution that serves its local and regional learners and their communities through high-quality and flexible education and training. It is aimed to develop student's employability skills to meet the needs of a more dynamic economy, which values innovation and productivity. Programs include a global perspective that will enable graduates to make a valuable contribution to the wider society as it changes in response to regional and international competition and demand.

PTSS programs include a variety of Outcome-Based Education teaching approaches, adding value to PTSS teaching and learning which cater to students seeking a quality polytechnic education and training.

The PTSS Student Handbook provides students with information on many facets of college life such as policies, procedures, and services. It is written for every student enrolled in one or more courses at PTSS.

This Handbook is aimed to guide students through the various procedural steps that lead to a Diploma study. It also provides graduate program descriptions, the requirements needed to obtain a graduate Diploma, and a clear outline of the procedural steps that students need to follow. Students are also provided with information on matters related to general administration such as student services and facilities, campus disciplinary measures, student organizations and other relevant matters.

This book serves as a preliminary guide and does not purport to completely address every policy, procedure and regulation. In addition, no claim is made that this document covers all the rules and regulations in effect now at PTSS. Students must refer to the relevant PTSS Department programs and services publications and other Departments and Units Policies for further information.

2.0 VISION & MISSION POLYTECHNIC

VISI

MENJADI PENERAJU INSTITUSI TVET YANG UNGGUL

MISI

MENYEDIAKAN AKSES YANG MELUAS KEPADA PROGRAM
TVET BERKUALITI DAN DIIKTIRAF

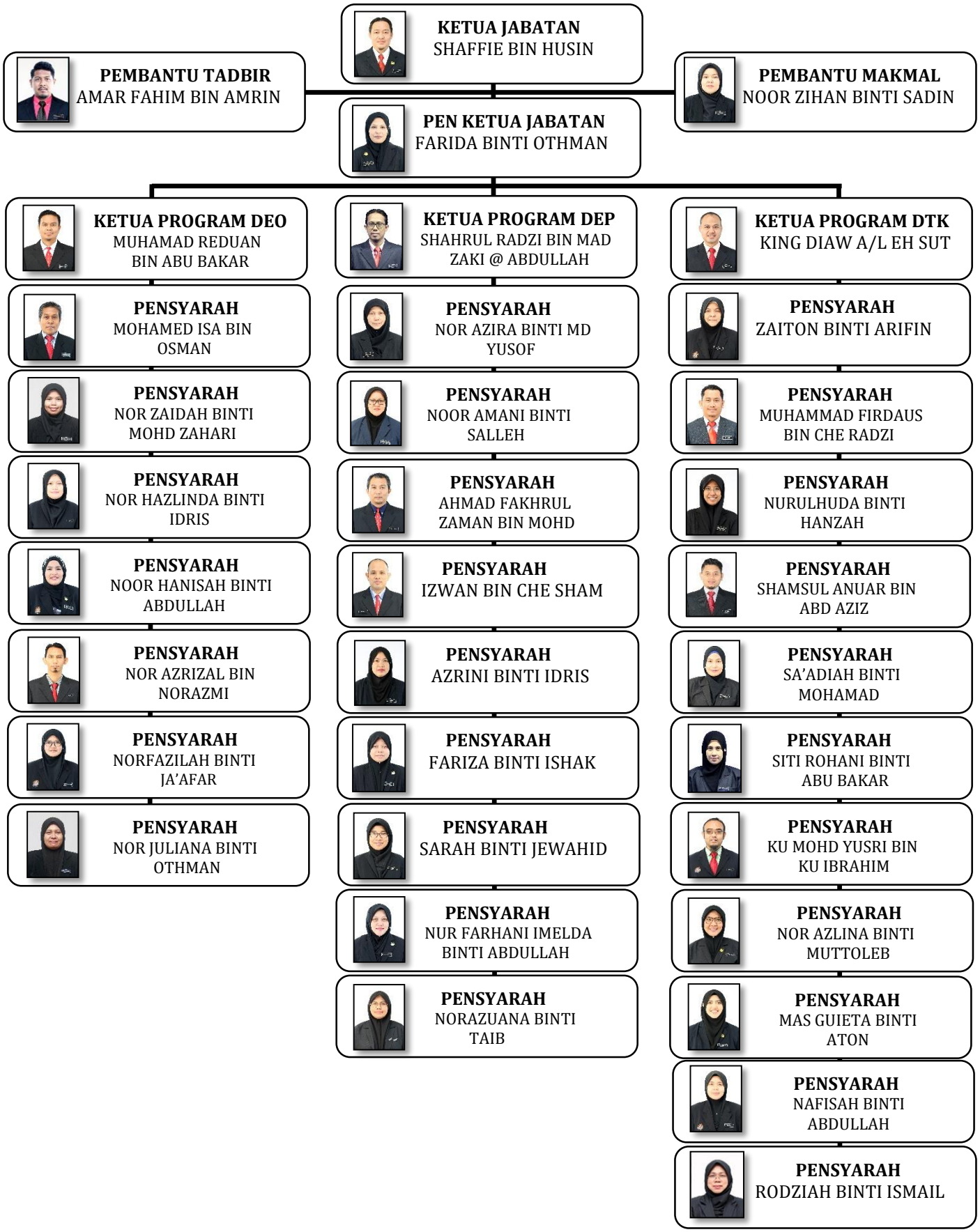
MEMPERKASA KOMUNITI MELALUI PEMBELAJARAN SEPANJANG HAYAT

MELAHIRKAN GRADUAN HOLISTIK, BERCIRI KEUSAHAWANAN DAN SEIMBANG

MEMANFAATKAN SEPENUHNYA PERKONGSIAN PINTAR
DENGAN PIHAK BERKEPENTINGAN

3.0 ELECTRICAL ENGINEERING DEPARTMENT

3.1 DEPARTMENT ORGANISATION CHART



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3.3 DIPLOMA IN ELECTRONIC ENGINEERING (OPTOELECTRONIC)

3.3.1 PROGRAM INFORMATION

INTRODUCTION

Electrical engineering is the field of study which generally deals with the application of electricity 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 with the engineering activities to prepared 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 (Optoelectronic) is a three-year full-time programme comprising of five semesters coursework with one full semester of industrial training.

3.3.2 SYPNOSIS

The Diploma in Electronic Engineering (Optoelectronic) covers broad discipline of electronic engineering, with specialization in optical 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 specification towards the end of the programme. The specialization courses included optical fundamental, optoelectronic, optosemiconductor, fiber optic communication system, data communication and networking, and CMOS IC design and fabrication. The green technology

elements are also incorporate in the curriculum to provide awareness toward the importance of the sustainable energy.

3.3.3 JOB PROSPECT

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

a. Optoelectronic Assistant Engineer / Technician
b. Electronic Lab Technician
c. Fiber Optic Splicing Technician
d. Product Technologies Assistant Engineer
e. Process Assistant Engineer
f. IC Product Engineer Assistant

3.3.4 PROGRAMME AIM

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

3.3.5 PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The engineering programme should produce balanced TVET graduates who are:

- PEO1: practicing technician in electrical engineering related field
- PEO2: contributing to society with professional ethic and responsibilities
- PEO3: engaging in enterprising activities that apply engineering knowledge and technical skills
- PEO4: engaging in activities to enhance knowledge for successful career advancement

3.3.6 PROGRAMME LEARNING OUTCOMES (PLO)

Upon completion of the 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

3.3.7 SYPNOSIS AND COURSE LEARNING OUTCOME (DEO)

SEMESTER	COURSE	SYPNOSIS	COURSE LEARNING OUTCOME (CLO)
1	DET10013 ELECTRICAL TECHNOLOGY	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : 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) CLO2 : Construct DC circuit and measure related electrical parameters using appropriate electrical equipment (P4 , PLO5) CLO3 : Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3,PLO9)
1	DET10022 ELECTRICAL WIRING	**ELECTRICAL WIRING** course exposes students to the various aspects of wiring installation according to the MSIEC 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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the concept and principle of electrical safety and regulation in performing electrical wiring according to MS IEC 60364 (C3, PLO1) CLO2 : Construct single phase domestic wiring according to MS IEC 60364 (P4,PLO5) CLO3 : Demonstrate an understanding and commit to professional ethics and responsibilities of engineering norms during performing single phase domestic wiring task (A3,PLO8)
1	DEE10013 MEASUREMENT	**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	Upon completion of this course, students should be able to: CLO1 : apply the concept of measurement in electrical and electronic equipment using appropriate theorem (C3,PLO1) CLO2 : perform meter calibrating and measuring technique using the correct measuring equipment (P4,PLO5)

		generators and power meters during practical session. This course also covers the basic concept and simple application of DC Bridge. **Credit Value : 3** **Prerequisite : None**	CLO3 : demonstrate good communication skill in oral presentation within a stipulated time frame (A3,PLO10)
2	**DET20033 ELECTRICAL CIRCUITS**	**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. **Credit Value : 3** **Prerequisite : DET10013**	Upon completion of this course, students should be able to: CLO1 : Apply the concept and principle in solving problems of electrical circuits using the appropriate AC electrical laws and theorem (C3,PLO1) CLO2 : Construct of an AC electrical circuit and measured related electrical parameter using appropriate electrical equipments (P4,PLO5) CLO3 : Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3,PLO9)
2	**DEE20023 SEMICONDUCTOR DEVICES**	**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 **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the theoretical characteristics and electrical properties of semiconductor by using appropriate measuring operations and theorem (C3,PLO1) CLO2 : construct the various applications of semiconductor devices circuit by using schematic diagrams (P4,PLO5) CLO3 : demonstrate good communication skill in oral presentation within a stipulated time frame (A ,PLO10)
2	**DEE20033 DIGITAL ELECTRONICS**	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the knowledge of logic operations using Boolean Algebra or Karnaugh Map in digital logic circuit (C ,PLO1) CLO2 : construct the logic diagrams, truth tables and timing diagrams using logic gates and flip-flop (P4,PLO5) CLO3 : demonstrate ability to work in team to complete assigned task during practical work sessions (A ,PLO9)

2	**DEC20012 PROGRAMMING FUNDAMENTALS**	**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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : 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) CLO2 : build programs written in C language for assigned mini project during practical work sessions (P4 ,PLO5) CLO3 : demonstrate continuous learning skill in independent acquisition of new knowledge and skill in developing a mini project (A3,PLO12)
3	**DEP30013 COMMUNICATION SYSTEM FUNDAMENTALS**	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the concept of electronic communication system by using appropriate diagram and standard formula (C3,PLO1) CLO2 : assemble the related communication equipment systematically in performing the measurement of appropriate signals parameter (P4,PLO5) CLO3 : demonstrate the ability to work in a team to complete the assigned tasks during practical work sessions (A3,PLO9)
3	**DEE30043 ELECTRONIC CIRCUITS**	**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 **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the principles of electronic circuits devices by using block diagram or circuit diagram (C ,PLO1) CLO2 : construct the various applications of electronic circuits based on the theory and principle operation of the circuits (P4,PLO5) CLO3 : demonstrate good written communication skill through essay writing in group within a stipulated time frame (A3,PLO10)
		ELECTRONIC EQUIPMENT REPAIR provides the knowledge and skills on troubleshooting and repairing the electronics equipment.	Upon completion of this course, students should be able to: CLO1 : diagnose fault of electronic equipment related to electronic equipment repair using the correct diagnosis technique and tools (C4,PLO2)

3	**DEE30052** **ELECTRONIC EQUIPMENT REPAIR**	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 **Credit Value : 2** **Prerequisite : None**	CLO2 : fix the post-consumer's electronic equipment fault using the correct diagnosis technique (P4,PLO5) CLO3 : demonstrate good social responsibility in solving well defined engineering problems during performing electronic system and appliances maintenance task (A3,PLO6)
3	**DEE30071** **ELECTRONIC COMPUTER AIDED DESIGN**	**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 mixedsignal 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. **Credit Value : 1** **Prerequisite : Non**	Upon completion of this course, students should be able to: CLO1 : apply the simulation results for the various types of simulation analysis based on the electronic circuit theory and operations (C3,PLO1) CLO2 : construct the simulation and the PCB layout for digital and analogue circuits using a schematic capture software (P4,PLO5)
3	**DEE30061** **COMPUTER AIDED ELECTRICAL DRAWING**	**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 **Credit Value : 1** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply computer aided design concept, applications and capabilities in electrical engineering environment (C3,PLO1) CLO2 : construct simple and complex electrical wiring diagrams and electronic schematics using AutoCAD software and based on American/British technical symbol standard (P4,PLO5) CLO3 : 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)

3	**DEO30013 OPTICAL FUNDAMENTALS**	**OPTICAL FUNDAMENTAL** covers the basic concepts of photonics and optical physics. Students will learn the fundamental theories of light produced by electromagnetism and photonics. This course emphasizes the geometrical optic through the phenomena of reflection, refraction and dispersion, system of lens and optical aberrations. Besides, this course also covers wave optic through the phenomena of diffraction, interference and polarization **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the concept and principal of optical physics to solve the optical problems by using different methods and approaches. (C3,PLO1) CLO2 : measure the optical properties by using appropriate optical tools correctly. (P4 ,PLO5) CLO3 : demonstrate good communication skill in oral presentation in group, on assigned topics within a stipulated time frame. (A3,PLO10)
4	**DEC40053 EMBEDDED SYSTEM APPLICATIONS**	**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 **Credit Value : 3** **Prerequisite : DEC20012**	Upon completion of this course, students should be able to: CLO1 : investigate internal features of PIC16F/PIC18F to interface properly with external devices (C4,PLO4) CLO2 : design embedded system application based on PIC16F/PIC18F microcontroller effectively (C6,PLO3) CLO3 : construct and simulate real-time embedded system application based on PIC16F/PIC18F microcontroller effectively (P4,PLO5) CLO4 : demonstrate knowledge of engineering project management principles through a written report on an assigned mini project (A3,PLO11)
4	**DEP40053 FIBER OPTIC COMMUNICATION SYSTEM**	**FIBER OPTIC COMMUNICATION SYSTEM** introduces students to the basic concept of fiber optic in communication systems with environmental sustainability. This course covers fiber optic characteristics, components in fiber optic system, losses in fiber optic cable and the fundamental concept of optical measurement. This course also provides knowledge in splicing techniques with safety awareness, multiplexing techniques and design consideration in fiber optic communication link.	Upon completion of this course, students should be able to: CLO1 : investigate the fiber optic communication system by implementing the knowledge of the element and component that established the link and aspect that influence the performance of fiber optic link (C4,PLO4) CLO2 : design a fiber optic link using mathematical concept and design tool by considering the properties and elements of fiber optic link (C6,PLO) CLO3 : assemble the related fiber optic communication equipment in performing the measurement of appropriate signals parameter (P4,PLO5)

		Credit Value : 3 **Prerequisite : None**	CLO4 : demonstrate contribution of fiber optic in communication system towards environment and sustainability through End of Chapter Question (A3,PLO7)
4	**DEO40023 OPTOELECTRONIC**	**OPTOELECTRONIC** emphasizes the components of optoelectronic devices. Students will learn the fundamental theory of semiconductor physics. This course includes the light source and optical detector **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : evaluate optoelectronic components based on semiconductor physics theory (C5,PLO2) CLO2 : demonstrate social safety and health practices in laser safety procedure through case study (A3,PLO6)
4	**DEE40082 PROJECT 1**	**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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Investigate well defined problem in order to make improvements on a chosen project (C4,PLO4) CLO2 : 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) CLO3 : 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) CLO4 : Display good project management and finance through a Gantt Chart (milestone) and final proposal (A3,PLO11) CLO5 : Demonstrate continuous learning, information management and independent acquisition of new knowledge and skill to support the development of the project through the final proposal (A ,PLO12) CLO6 : Display written communication skill through a final proposal (A3,PLO10) CLO7 Describe the impact of the proposed project to the society in the final proposal (A3,PLO6)
		CMOS INTEGRATED CIRCUIT DESIGN AND FABRICATION course exposes the students to the basic integrated circuit (IC) and CMOS IC fabrication processes which include oxidation,	Upon completion of this course, students should be able to: CLO1 : design the basic logic gates, digital circuits from Boolean function and integrated circuit layout based on the knowledge of

5	**DEC50143 CMOS INTEGRATED CIRCUIT DESIGN AND FABRICATION**	doping, photolithography, metallization and etching.This course also covers IC testing, reliability and failure analysis. The students will be equipped with the knowledge of inverter design and simple to complex CMOS logic gates. The students will experience developing the physical layout of integrated circuit based on specific transistor feature size and using CAD tools while adhering to specific design rules. Finally, this course also covers the topic on design methodology used in designing integrated circuits **Credit Value : 3** **Prerequisite : DEE20023 & DEE20033**	integrated circuit design methodology (C6,PLO3) CLO2 : construct the layout design of CMOS circuits using layout design software based on specific CMOS layout design rules (P4,PLO5) CLO3 : demonstrate elements of environmental sustainability in implementing reduce and reuse techniques in design parameters and design consideration through practical work (A3,PLO7)
5	**DEP50033 DATA COMMUNICATION & NETWORKING**	**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. **Credit Value : 3** **Prerequisite : DEP30013**	Upon completion of this course, students should be able to: CLO1 : evaluate the performance of data and computer networks while implementing the knowledge, concepts, technology and terms related to data communication and networking (C5,PLO2) CLO2 : 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) CLO3 : demonstrate awareness of data communication and networking standard during practical work sessions (A3,PLO8)
5	**DEO50033 OPTOSEMICONDUCTOR**	**OPTOSEMICONDUCTOR** covers the theory of semiconductors in light emitting diode (LED) designing. Students will learn the electrical and optical properties of LED. This course emphasizes the design of LED based on radiative recombination theory **Credit Value : 3** **Prerequisite : DEO40023**	Upon completion of this course, students should be able to: CLO1 : investigate requirements of LED design based on electrical and optical properties by applying theory of semiconductor and recombination process. (C4,PLO4) CLO2 : demonstrate the environment and sustainability in LED design technology towards energy efficiency. (A3,PLO7)

5	**DEE50102 PROJECT 2**	**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. **Credit Value : 2** **Prerequisite : DEE40082**	Upon completion of this course, students should be able to: CLO1 : investigate the various alternative preliminary design and software programming for the previous chosen project (C4,PLO4) CLO2 : 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) CLO3 : 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) CLO4 : display element of environment and sustainability awareness in project implementation (A3,PLO7) CLO5 : display effective communication skill in report writing and during presentation (A3,PLO10) CLO6 : display good ability in project management and finance using a Gantt Chart (milestone chart) and an effective costing respectively (A3,PLO11)

ELECTIVE			
SEMESTER	**COURSE**	**SYPNOSIS**	**COURSE LEARNING OUTCOME (CLO)**
5	**DEC50122 EMBEDDED ROBOTIC**	**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 **Credit Value : 2** **Prerequisite : DEC20012**	Upon completion of this course, students should be able to: CLO1 : investigate the concept and fundamentals of mobile robotic, embedded controller, sensors and actuators based on land mobile robot design (C4,PLO4) CLO2 : design the concept of robot positioning, identification and communication in mobile robot control according to a standard robot organization regulation (C6,PLO3) CLO3 : manipulate the application of sensor and actuator, robot identification and communication during practical work based on land mobile robot design (P4, PLO5) CLO4 : demonstrate good ability in managing a well-defined engineering-based project in a cost effective manner (A3, PLO 11)
5	**DEJ40033 PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION**	**PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION** provides knowledge regarding the concept and principle of automation system. This course emphasizes the relationship between conventional/hardwired/relay ladder logic (RLL) and PLC system, application of various industrial input and output devices of PLC, designing process, programming, constructing and PLC maintenance method. This course also provides knowledge and skills in designing environmentally friendly of automation control system based on conventional/hardwired/relay ladder logic (RLL) and PLC **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : evaluate environmentally-friendly automation control system using electromechanical devices and PLC (C5,PLO2) CLO2 : display the ability to construct, troubleshoot and do maintenance of hardwired and PLC systems using appropriate equipment (P4,PLO5) CLO3 : demonstrate an understanding of PLC environmentally-friendly automation system norm by following PLC IEC standard during practical work session (A3,PLO7)

	DEC40082 INTERACTIVE MULTIMEDIA APPLICATION	**INTERACTIVE MULTIMEDIA APPLICATION** exposes students to the process of creating interactive multimedia presentation including the role and design of multimedia systems which incorporate digital audio, graphics and video, underlying concepts and representations of sound, pictures and video, data compression and transmission, integration of media, multimedia authoring, and delivery of multimedia. Students will produce a final digital interactive multimedia. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : investigate suitable latest software and techniques to effectively produce interactive multimedia project (C4,PLO4) CLO2 : 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) CLO3 : 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) CLO4 : demonstrate good oral communication skill in presentation for assigned mini project within a stipulated time frame (A3,PLO10)
	DEC50132 INTERNET BASED CONTROLLER	**INTERNET BASED CONTROLLER** provides knowledge and exposure in advanced technology. The course focuses on the basic knowledge of hardware component, wireless communication technologies and wireless sensor network. Green network in Internet of Things will help student to exploits on environmental conservation and surveillance to minimize the cost and power consumption in development of project. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply knowledge of basic concept, structure and component of Internet of Things in electrical and electronic engineering field (C3,PLO1) CLO2 : manipulate various types of input/output application, data acquisition and communication during practical work using embedded system platform/board (P4,PLO5) CLO3 : demonstrate social responsibility in making our environment more sustainable through mini project development theme-based (A3,PLO7)
		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.	Upon completion of this course, students should be able to: CLO1 : investigate the performance of satellite and radar in communication system by using designated concept and formula (C4,PLO4)

	DEP50072 SATELLITE AND RADAR COMMUNICATION SYSTEM	It also covers end to end satellite and radar communication system in various generations and latest technologies. **Credit Value : 2** **Prerequisite : None**	CLO2 : demonstrate continuous learning ability while engaging new technical knowledge on assigned essay questions (A3,PLO12)

3.3.8 PROGRAMME STRUCTURE (DEO)

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUE
			L	P	T	O	
SEMESTER 1							
COMPULSORY	DUE10012	COMMUNICATIVE ENGLISH 1	1	0	2	0	2
	MPU24XX1	SUKAN	0	2	0	0	1
	MPU24XX1	UNIT BERUNIFORM 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**
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					
COMMON CORE	DBM20023	ENGINEERING MATHEMATICS 2	2	0	2	0	3
DISCIPLINE CORE	DET20033	ELECTRICAL CIRCUIT	2	2	0	0	3
	DEE20023	SEMICONDUCTOR DEVICES	2	2	0	0	3
	DEE20033	DIGITAL ELECTRONICS	2	2	0	0	3
	DEC20012	PROGRAMMING FUNDAMENTAL	1	2	0	0	2
TOTAL			**24**				**17**
SEMESTER 3							
COMPULSORY	DUE30022	COMMUNICATIVE ENGLISH 2	1	0	2	0	2
COMMON CORE	DBM30043	ELECTRICAL ENGINEERING MATHEMATICS	2	0	2	0	3
DISCIPLINE CORE	DEP30013	COMMUNICATION SYSTEM FUNDAMENTALS	2	2	0	0	3
	DEE30043	ELECTRONIC CIRCUITS	2	2	0-	0	3
	DEE30052	ELECTRONIC EQUIPMENT REPAIR	1	3	0	0	2
	DEE30071	ELECTRONIC COMPUTER AIDED DESIGN	0	2	0	0	1

	DEE30061	COMPUTER AIDED ELECTRICAL DRAWING	0	2	0	0	1
SPECIALISATION	DEO30013	OPTICAL FUNDAMENTALS	2	2	0	0	3
		TOTAL	**27**				**18**
SEMESTER 4							
COMPULSORY	DUE50032	COMMUNICATIVE ENGLISH 3	1	0	2	0	2
	MPU22012	ENTERPRENEURSHIP	1	0	2	0	2
DISCIPLINE CORE	DEC40053	EMBEDDED SYSTEM APPLICATION	2	2	0	0	3
SPECIALISATION	DEP40053	FIBRE OPTIC COMMUNICATION SYSTEM	2	2	0	0	3
	DEO40023	OPTOELECTRONIC	3	0	0	0	3
	DEE40082	PROJECT 1	1	2	0	0	2
ELECTIVES		ELECTIVE 1	0	0	0	0	2
		TOTAL	**20**				**17**
SEMESTER 5							
COMPULSORY	MPU23052	SAINS TEKNOLOGI & KEJURUTERAAN ISLAM*	1	0	2	0	2
	MPU23042	NILAI MASYARAKAT MALAYSIA**					
SPECIALISATION	DEC50143	CMOS INTEGRATED CIRCUIT DESIGN AND FABRICATION	2	2	0	0	3
	DEP50033	DATA COMMUNICATION AND NETWORKING	2	2	0	0	3
	DEO50033	OPTOSEMICONDUCTOR	3	0	0	0	3
	DEE50102	PROJECT 2	0	3	0	0	2
ELECTIVES		ELECTIVE 2	0	0	0	0	2
		TOTAL	**17**				**15**
SEMESTER 6							
COMPULSORY	DUT600610	ENGINEERING INDUSTRIAL TRAINING	0	0	0	0	10
		TOTAL	**114**				**10**
		TOTAL CREDIT VALUE					**95**

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUE
			L	P	T	O	
ELECTIVE COURSES							
1	DEJ40033	PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION	2	2	0	0	3
2	DEC50122	EMBEDDED ROBOTIC	1	2	0	0	2
3	DEC40082	INTERACTIVE MULTIMEDIA APPLICATION	1	2	0	0	2
4	DEC50132	INTERNET BASED CONTROLLER	1	2	0	0	2
5	DEP50072	SATELLITE AND RADAR COMMUNICATION SYSTEMS	2	0	0	0	2
FREE ELECTIVES							
1	DUD10012	DESIGN THINKING	1	0	0	1	2

3.4 DIPLOMA IN ELECTRONIC ENGINEERING (COMMUNICATION)

3.4.1 PROGRAM INFORMATION

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.

3.4.2 SYPNOSIS

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

3.4.3 JOB PROSPECT

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

3.4.4 PROGRAMME AIM

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

3.4.5 PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The engineering programme should produce balanced TVET graduates who are:

- PEO1: practicing technician in electrical engineering related field
- PEO2: contributing to society with professional ethic and responsibilities
- PEO3: engaging in enterprising activities that apply engineering knowledge and technical skills
- PEO4: engaging in activities to enhance knowledge for successful career advancement

3.4.6 PROGRAMME LEARNING OUTCOMES (PLO)

Upon completion of the 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

3.4.7 SYPNOSIS AND COURSE LEARNING OUTCOME (DEP)

SEMESTER	COURSE	SYPNOSIS	COURSE LEARNING OUTCOME (CLO)
1	DET10013 ELECTRICAL TECHNOLOGY	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : 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) CLO2 : Construct DC circuit and measure related electrical parameters using appropriate electrical equipment (P4 , PLO5) CLO3 : Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3,PLO9)
1	DET10022 ELECTRICAL WIRING	**ELECTRICAL WIRING** course exposes students to the various aspects of wiring installation according to the MSIEC 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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the concept and principle of electrical safety and regulation in performing electrical wiring according to MS IEC 60364 (C3, PLO1) CLO2 : Construct single phase domestic wiring according to MS IEC 60364 (P4,PLO5) CLO3 : Demonstrate an understanding and commit to professional ethics and responsibilities of engineering norms during performing single phase domestic wiring task (A3,PLO8)
1	DEE10013 MEASUREMENT DEVICES	**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.	Upon completion of this course, students should be able to: CLO1 : Apply the concept of measurement in electrical and electronic equipment using appropriate theorem (C3,PLO1) CLO2 : Perform meter calibrating and measuring technique using the correct measuring equipment (P4,PLO5)

		This course also covers the basic concept and simple application of DC Bridge. **Credit Value : 3** **Prerequisite : None**	CLO3 : Demonstrate good communication skill in oral presentation within a stipulated time frame (A3,PLO10)
2	**DET20033 ELECTRICAL CIRCUITS**	**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. **Credit Value : 3** **Prerequisite : DET10013**	Upon completion of this course, students should be able to: CLO1 : Apply the concept and principle in solving problems of electrical circuits using the appropriate AC electrical laws and theorem (C3,PLO1) CLO2 : Construct of an AC electrical circuit and measured related electrical parameter using appropriate electrical equipments (P4,PLO5) CLO3 : Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3,PLO9)
2	**DEE20023 SEMICONDUCTOR DEVICES**	**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 **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the theoretical characteristics and electrical properties of semiconductor by using appropriate measuring operations and theorem (C3,PLO1) CLO2 : construct the various applications of semiconductor devices circuit by using schematic diagrams (P4,PLO5) CLO3 : demonstrate good communication skill in oral presentation within a stipulated time frame (A ,PLO10)
2	**DEE20033 DIGITAL ELECTRONICS**	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the knowledge of logic operations using Boolean Algebra or Karnaugh Map in digital logic circuit (C , PLO1) CLO2 : Construct the logic diagrams, truth tables and timing diagrams using logic gates and flip-flop (P4,PLO5) CLO3 : Demonstrate ability to work in team to complete assigned task during practical work sessions (A ,PLO9)

2	**DEC20012 PROGRAMMING FUNDAMENTALS**	**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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : 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) CLO2 : build programs written in C language for assigned mini project during practical work sessions (P4 ,PLO5) CLO3 : demonstrate continuous learning skill in independent acquisition of new knowledge and skill in developing a mini project (A3,PLO12)
3	**DEP30013 COMMUNICATION SYSTEM FUNDAMENTALS**	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the concept of electronic communication system by using appropriate diagram and standard formula (C3,PLO1) CLO2 : Assemble the related communication equipment systematically in performing the measurement of appropriate signals parameter (P4,PLO5) CLO3 : Demonstrate the ability to work in a team to complete the assigned tasks during practical work sessions (A3,PLO9)
3	**DEE30043 ELECTRONIC CIRCUITS**	**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 **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the principles of electronic circuits devices by using block diagram or circuit diagram (C ,PLO1) CLO2 : Construct the various applications of electronic circuits based on the theory and principle operation of the circuits (P4,PLO5) CLO3 : Demonstrate good written communication skill through essay writing in group within a stipulated time frame (A3,PLO10)

3	**DEE30052 ELECTRONIC EQUIPMENT REPAIR**	**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 **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Diagnose fault of electronic equipment related to electronic equipment repair using the correct diagnosis technique and tools (C4,PLO2) CLO2 : Fix the post-consumer's electronic equipment fault using the correct diagnosis technique (P4,PLO5) CLO3 : Demonstrate good social responsibility in solving well defined engineering problems during performing electronic system and appliances maintenance task (A3,PLO6)
3	**DEE30071 ELECTRONIC COMPUTER AIDED DESIGN**	**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. **Credit Value : 1** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the simulation results for the various types of simulation analysis based on the electronic circuit theory and operations (C3,PLO1) CLO2 : Construct the simulation and the PCB layout for digital and analogue circuits using a schematic capture software (P4,PLO5)
3	**DEP30083 TELECOMMUNICATION NETWORK**	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1: Apply the basic concept of telecommunication network by using appropriate block diagram and designated formula (C3, PLO1) CLO2: Assemble the related telecommunication equipment in performing the measurement of appropriate signal parameter (P4, PLO5) CLO3: Demonstrate good communication skill in oral presentation on assigned assignments (A3, PLO10)

4	**DEC40053 EMBEDDED SYSTEM APPLICATIONS**	**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 **Credit Value : 3** **Prerequisite : DEC20012**	Upon completion of this course, students should be able to: CLO1 : Investigate internal features of PIC16F/PIC18F to interface properly with external devices (C4,PLO4) CLO2 : Design embedded system application based on PIC16F/PIC18F microcontroller effectively (C6,PLO3) CLO3 : Construct and simulate real-time embedded system application based on PIC16F/PIC18F microcontroller effectively (P4,PLO5) CLO4 : Demonstrate knowledge of engineering project management principles through a written report on an assigned mini project (A3,PLO11)
4	**DEP40053 FIBER OPTIC COMMUNICATION SYSTEM**	**FIBER OPTIC COMMUNICATION SYSTEM** introduces students to the basic concept of fiber optic in communication systems with environmental sustainability. This course covers fiber optic characteristics, components in fiber optic system, losses in fiber optic cable and the fundamental concept of optical measurement. This course also provides knowledge in splicing techniques with safety awareness, multiplexing techniques and design consideration in fiber optic communication link. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Investigate the fiber optic communication system by implementing the knowledge of the element and component that established the link and aspect that influence the performance of fiber optic link (C4,PLO4) CLO2 : Design a fiber optic link using mathematical concept and design tool by considering the properties and elements of fiber optic link (C6,PLO) CLO3 : Assemble the related fiber optic communication equipment in performing the measurement of appropriate signals parameter (P4,PLO5) CLO4 : Demonstrate contribution of fiber optic in communication system towards environment and sustainability through End of Chapter Question (A3,PLO7)
4	**DEE40082 PROJECT 1**	**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.	Upon completion of this course, students should be able to: CLO1 : Investigate well defined problem in order to make improvements on a chosen project (C4,PLO4) CLO2 : Evaluate engineering problem and conduct research in order to make improvements on a chosen project whether the project is on the hardware, software or

4	**DEE40082 PROJECT 1**	The students are allowed to do an individual or group project but will be assessed individually through the project assessment tasks throughout the course. **Credit Value : 2** **Prerequisite : None**	hardware-software interface type (C5,PLO2) CLO3 : 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) CLO4 : Display good project management and finance through a Gantt Chart (milestone) and final proposal (A3,PLO11) CLO5 : Demonstrate continuous learning, information management and independent acquisition of new knowledge and skill to support the development of the project through the final proposal (A ,PLO12) CLO6 : Display written communication skill through a final proposal (A3,PLO10) CLO7 Describe the impact of the proposed project to the society in the final proposal (A3,PLO6)
4	**DEE40113 SIGNAL AND SYSTEM**	**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. **Credit Value : 3** **Prerequisite : DBM20023**	Upon completion of this course, students should be able to: CLO1: Evaluate continuous-time and discrete-time signal and system problems (C5, PLO2) CLO2: Manipulate software to analyse the signals and systems correctly based on the given procedure (P4, PLO5) CLO3: Display good oral communication during presentation of end of chapter assignment (A3, PLO10)
5	**DEE30061 COMPUTER AIDED ELECTRICAL DRAWING**	**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.	Upon completion of this course, students should be able to: CLO1 : Apply computer aided design concept, applications and capabilities in electrical engineering environment (C3,PLO1) CLO2 : Construct simple and complex electrical wiring diagrams and electronic schematics using AutoCAD software and based on American/British technical symbol standard (P4,PLO5)

		The skills acquired from this course will also equip students with the ability to learn and use other similar software **Credit Value : 1** **Prerequisite : None**	CLO3 : 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)
5	**DEP50033 DATA COMMUNICATION AND NETWORKING**	**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. **Credit Value : 3** **Prerequisite : DEP30013**	Upon completion of this course, students should be able to: CLO1 : Evaluate the performance of data and computer networks while implementing the knowledge, concepts, technology and terms related to data communication and networking (C5,PLO2) CLO2 : 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) CLO3 : Demonstrate awareness of data communication and networking standard during practical work sessions (A3,PLO8)
5	**DEP50043 MICROWAVE DEVICES**	**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**.** **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1: 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) CLO2: Assemble the related microwave communication equipment in performing the measurement of appropriate output variable (P4, PLO5) CLO3: Demonstrate appropriate good social interaction and responsibility while handling microwave equipment or transmission system (A3, PLO6)
5	**DEP50063 WIRELESS COMMUNICATION**	**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	Upon completion of this course, students should be able to: CLO1: Investigate the principle of wireless in implementing the concept and system of wireless communication using appropriate technique and designated formula (C4, PLO4)

		techniques. This course also exposes the student to the awareness of wireless technology to the health and environmental. **Credit Value : 3** **Prerequisite : None**	CLO2: Assemble the related wireless communication equipments systematically in performing the assigned practical work (P4, PLO5) CLO3: Express the awareness of wireless technology in environment and sustainability on assigned essay questions (A3, PLO7)
5	**DEE50102 PROJECT 2**	**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. **Credit Value : 2** **Prerequisite : DEE40082**	Upon completion of this course, students should be able to: CLO1 : Investigate the various alternative preliminary design and software programming for the previous chosen project (C4,PLO4) CLO2 : 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) CLO3 : 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) CLO4 : Display element of environment and sustainability awareness in project implementation (A3,PLO7) CLO5 : Display effective communication skill in report writing and during presentation (A3,PLO10) CLO6 : Display good ability in project management and finance using a Gantt Chart (milestone chart) and an effective costing respectively (A3,PLO11)

ELECTIVE			
SEMESTER	**COURSE**	**SYPNOSIS**	**COURSE LEARNING OUTCOME (CLO)**
5	**DEC50122 EMBEDDED ROBOTIC**	**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 **Credit Value : 2** **Prerequisite : DEC20012**	Upon completion of this course, students should be able to: CLO1 : Investigate the concept and fundamentals of mobile robotic, embedded controller, sensors and actuators based on land mobile robot design (C4,PLO4) CLO2 : Design the concept of robot positioning, identification and communication in mobile robot control according to a standard robot organization regulation (C6,PLO3) CLO3 : Manipulate the application of sensor and actuator, robot identification and communication during practical work based on land mobile robot design (P4, PLO5) CLO4 : Demonstrate good ability in managing a well-defined engineering-based project in a cost effective manner (A3, PLO 11)
4	**DEJ40033 PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION**	**PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION** provides knowledge regarding the concept and principle of automation system. This course emphasizes the relationship between conventional/hardwired/relay ladder logic (RLL) and PLC system, application of various industrial input and output devices of PLC, designing process, programming, constructing and PLC maintenance method. This course also provides knowledge and skills in designing environmentally friendly of automation control system based on conventional/hardwired/relay ladder logic (RLL) and PLC **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Evaluate environmentally-friendly automation control system using electromechanical devices and PLC (C5,PLO2) CLO2 : Display the ability to construct, troubleshoot and do maintenance of hardwired and PLC systems using appropriate equipment (P4,PLO5) CLO3 : Demonstrate an understanding of PLC environmentally-friendly automation system norm by following PLC IEC standard during practical work session (A3,PLO7)

4	**DEC40082 INTERACTIVE MULTIMEDIA APPLICATION**	**INTERACTIVE MULTIMEDIA APPLICATION** exposes students to the process of creating interactive multimedia presentation including the role and design of multimedia systems which incorporate digital audio, graphics and video, underlying concepts and representations of sound, pictures and video, data compression and transmission, integration of media, multimedia authoring, and delivery of multimedia. Students will produce a final digital interactive multimedia. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : investigate suitable latest software and techniques to effectively produce interactive multimedia project (C4,PLO4) CLO2 : 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) CLO3 : 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) CLO4 : demonstrate good oral communication skill in presentation for assigned mini project within a stipulated time frame (A3,PLO10)
5	**DEC50132 INTERNET BASED CONTROLLER**	**INTERNET BASED CONTROLLER** provides knowledge and exposure in advanced technology. The course focuses on the basic knowledge of hardware component, wireless communication technologies and wireless sensor network. Green network in Internet of Things will help student to exploits on environmental conservation and surveillance to minimize the cost and power consumption in development of project. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply knowledge of basic concept, structure and component of Internet of Things in electrical and electronic engineering field (C3,PLO1) CLO2 : Manipulate various types of input/output application, data acquisition and communication during practical work using embedded system platform/board (P4,PLO5) CLO3 : Demonstrate social responsibility in making our environment more sustainable through mini project development theme-based (A3,PLO7)
5	**DEP50072 SATELLITE AND RADAR COMMUNICATION SYSTEM**	**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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : investigate the performance of satellite and radar in communication system by using designated concept and formula (C4,PLO4) CLO2 : demonstrate continuous learning ability while engaging new technical knowledge on assigned essay questions (A3,PLO12)

3.4.8 PROGRAMME STRUCTURE (DEP)

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUE
			L	P	T	O	
SEMESTER 1							
Compulsory	DUE10012	COMMUNICATIVE ENGLISH 1	1	0	2	0	2
	MPU24XX1	SUKAN	0	2	0	0	1
	MPU24XX1	UNIT BERUNIFORM 1					
Common Core	DUW10012	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**
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					
Common Core	DBM20023	ENGINEERING MATHEMATICS 2	2	0	2	0	3
Discipline Core	DET20033	ELECTRICAL CIRCUITS	2	2	0	0	3
	DEE20023	SEMICONDUCTOR DEVICES	2	2	0	0	3
	DEE20033	DIGITAL ELECTRONICS	2	2	0	0	3
	DEC20012	FUNDAMENTAL PROGRAMMING	1	2	0	0	2
TOTAL			**24**				**17**
SEMESTER 3							
Compulsory	DUE30022	COMMUNICATIVE ENGLISH 2	1	0	2	0	2
Common Core	DBM30043	ELECTRICAL ENGINEERING MATHEMATICS	2	0	2	0	3
Discipline Core	DEP30013	COMMUNICATION SYSTEM FUNDAMENTALS	2	2	0	0	3
	DEE30043	ELECTRONIC CIRCUITS	2	2	0	0	3
	DEE30052	ELECTRONIC EQUIPMENT REPAIR	1	3	0	0	2
	DEE30071	ELECTRONIC COMPUTER AIDED DESIGN	0	2	0	0	1

Specialisation	DEP30081	TELECOMMUNICATION NETWORK	2	2	0	0	3
		TOTAL	**25**				**17**
SEMESTER 4							
Compulsory	DUE50032	COMMUNICATIVE ENGLISH 3	1	0	2	0	2
	MPU22012	ENTREPRENEURSHIP	1	0	2	0	2
Discipline Core	DEC40053	EMBEDDED SYSTEM APPLICATION	2	2	0	0	3
Specialisation	DEP40053	FIBRE OPTIC COMMUNICATION SYSTEM	2	2	0	0	3
	DEE40113	SIGNAL AND SYSTEM	2	2	0	0	3
	DEE40082	PROJECT 1	1	2	0	0	2
Electives		ELECTIVE 1	0	0	0	0	2
		TOTAL	**21**				**17**
SEMESTER 5							
Compulsory	MPU23052	SAINS TEKNOLOGI DAN KEJURUTERAAN ISLAM (MUSLIM)	1	0	2	0	2
	MPU23042	NILAI MASYARAKAT MALAYSIA (NON MUSLIM)					
Discipline Core	DEE30061	COMPUTER AIDED ELECTRICAL DRAWING	0	2	0	0	1
Specialisation	DEP50033	DATA COMMUNICATION AND NETWORKING	2	2	0	0	3
	DEP50043	MICROWAVE DEVICES	2	2	0	0	3
	DEP50063	WIRELESS COMMUNICATION	2	2	0	0	3
	DEE50102	PROJECT 2	0	3	0	0	2
Electives		ELECTIVE 2	0	0	0	0	2
		TOTAL	**20**				**16**
SEMESTER 6							
Compulsory	DUT600610	ENGINEERING INDUSTRIAL TRAINING	0	0	0	0	10
		TOTAL	**0**				**10**
		TOTAL CREDIT VALUE					**95**

CLASSIFICATION	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUE
			L	P	T	O	
ELECTIVE COURSES							
1	DEJ40033	PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION	2	2	0	0	3
2	DEC40082	INTERACTIVE MULTIMEDIA APPLICATIONS	1	2	0	0	2
3	DEC50122	EMBEDDED ROBOTIC	1	2	0	0	2
4	DEC50132	INTERNET BASED CONTROLLER	1	2	0	0	2
5	DEP50072	SATELLITE AND RADAR COMMUNICATION SYSTEM	2	0	0	0	2
FREE ELECTIVES							
1	DUD10012	DESIGN THINKING	1	0	0	1	2

3.5 DIPLOMA IN ELECTRONIC ENGINEERING (COMPUTER)

3.5.1 PROGRAM INFORMATION

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 (Computer) is a three-year full-time programme comprising of five semesters coursework with one full semester of industrial training.

3.5.2 SYPNOSIS

The Diploma in Electronic Engineering (Computer) covers broad discipline of electronics engineering, with specialization in computer technology which includes electrical and electronic fundamentals, computer fundamentals and programming, semiconductor devices and computer aided design while emphasizing the area of specialization. The specialization courses include microprocessor fundamental, computer architecture and organization, database system, operating system, internet based controller, computer diagnosis and maintenance, CMOS IC design and fabrication and project.

3.5.3 JOB PROSPECT

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. Electrical / Electronic Engineering Technician
b. Assistant Engineer
c. Technical Assistant
d. Maintenance technician
e. Production technician
f. Process control technician
g. Instrumentation technician
h. Assistant Technical Designer
i. Assistant Network Engineer / Administrator
j. Machine assembly technician
k. Asssistant Embedded Programmer / Developer
l. Integrated Circuit Layout Designer Technician

3.5.4 PROGRAMME AIM

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

3.5.5 PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The engineering programme should produce balanced TVET graduates who are:

- PEO1: practicing technician in electrical engineering related field
- PEO2: contributing to society with professional ethic and responsibilities
- PEO3: engaging in enterprising activities that apply engineering knowledge and technical skills
- PEO4: engaging in activities to enhance knowledge for successful career advancement

3.5.6 PROGRAMME LEARNING OUTCOMES (PLO)

Upon completion of the 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

3.5.7 SYPNOSIS AND COURSE LEARNING OUTCOME (DTK)

SEMESTER	COURSE	SYPNOSIS	COURSE LEARNING OUTCOME (CLO)
1	DET10013 ELECTRICAL TECHNOLOGY	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : 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) CLO2 : Construct DC circuit and measure related electrical parameters using appropriate electrical equipment (P4 , PLO5) CLO3 : Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3,PLO9)
1	DET10022 ELECTRICAL WIRING	**ELECTRICAL WIRING** course exposes students to the various aspects of wiring installation according to the MSIEC 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. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the concept and principle of electrical safety and regulation in performing electrical wiring according to MS IEC 60364 (C3, PLO1) CLO2 : Construct single phase domestic wiring according to MS IEC 60364 (P4,PLO5) CLO3 : Demonstrate an understanding and commit to professional ethics and responsibilities of engineering norms during performing single phase domestic wiring task (A3,PLO8)
1	DEE10013 MEASUREMENT DEVICES	**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.	Upon completion of this course, students should be able to: CLO1 : Apply the concept of measurement in electrical and electronic equipment using appropriate theorem (C3,PLO1) CLO2 : Perform meter calibrating and measuring technique using the correct measuring equipment (P4,PLO5) CLO3 : Demonstrate good communication skill in oral presentation within a stipulated time frame (A3,PLO10)

		This course also covers the basic concept and simple application of DC Bridge. **Credit Value : 3** **Prerequisite : None**	
2	**DET20033 ELECTRICAL CIRCUITS**	**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. **Credit Value : 3** **Prerequisite : DET10013**	Upon completion of this course, students should be able to: CLO1 : Apply the concept and principle in solving problems of electrical circuits using the appropriate AC electrical laws and theorem (C3,PLO1) CLO2 : Construct of an AC electrical circuit and measured related electrical parameter using appropriate electrical equipments (P4,PLO5) CLO3 : Demonstrate ability to work in team to complete assigned tasks within the stipulated time frame (A3,PLO9)
2	**DEE20023 SEMICONDUCTOR DEVICES**	**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 **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : apply the theoretical characteristics and electrical properties of semiconductor by using appropriate measuring operations and theorem (C3,PLO1) CLO2 : construct the various applications of semiconductor devices circuit by using schematic diagrams (P4,PLO5) CLO3 : demonstrate good communication skill in oral presentation within a stipulated time frame (A ,PLO10)
2	**DEE20033 DIGITAL ELECTRONICS**	**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. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1 : Apply the knowledge of logic operations using Boolean Algebra or Karnaugh Map in digital logic circuit (C , PLO1) CLO2 : Construct the logic diagrams, truth tables and timing diagrams using logic gates and flip-flop (P4,PLO5) CLO3 : Demonstrate ability to work in team to complete assigned task during practical work sessions (A ,PLO9)

3.6 LABORATARY FACILITIES IN ELECTRICAL ENGINEERING DEPARTMENT

NO	LABORATORY	LABORATORY SUPERVISOR
1	Electronic Laboratory (EEE)	Rodziah Bt Ismail
2	Electronic Equipment Repair Laboratory (EBE)	Mohamed Isa Bin Osman
3	Computer Repair Laboratory (EBK)	Nurulhuda Bt Hanzah
4	Measurement Laboratory (EMU)	Azrini Bt Idris
5	Electrical Technology Laboratory (ETE)	Nur Farhani Imelda Bt Abdullah
6	Electrical Principle Laboratory (EPE)	Sarah Bt Jewahid
7	Project Laboratory (EPR)	Ahmad Fakhrul Zaman Bin Ariffin
8	Installation and Wiring Workshop (EPP)	Izwan Bin Che Sham
9	Computer Programming Laboratory 1 (PRG 1)	Sa'adiah Bt Mohamad
10	Computer Programming Laboratory 2 (PRG 2)	Siti Rohani Bt Abu Bakar
11	ECAD Laboratory 1 (ECAD 1)	Noor Hanisah Bt Abdullah
12	ECAD Laboratory 2 (ECAD 2)	Nor Azuana Bt Taib
13	Telecommunication Laboratory (ETL)	Nor Zaidah Bt Mohd Zahari
14	Data Communication Laboratory (EPD)	Noor Amani Bt Salleh
15	Computer Hardware Laboratory 1 (EPK 1)	Shamsul Anuar Bin Abdul Aziz
16	Computer Hardware Laboratory 2 (EPK 2)	Nafisah Bt Abdullah
17	Optoelectronic Laboratory (OPTO)	Farida Bt Othman

3.7 HIGHER ACADEMIC PATHWAY

All the programmes in Electrical Engineering Department are designed in such a way that it is able to educate and equip the students with comprehensive knowledge and skills in related fields and incorporates all aspects of business studies and entrepreneurship. Therefore, the graduates can have a wide choice of higher academic pathway at the local university.

3.7.1 UNIVERSITI MALAYSIA PERLIS

- Address : Jabatan Pendaftar, Universiti Malaysia Perlis, Aras 1, Bangunan Canselori, Kampus Alam Unimap Pauh Putra, 02600 Arau, Perlis.
- Telephone No : 04-9414224
- Emel : pendaftar@unimap.edu.my
- Web : www.unimap.edu.my

3.7.2 UNIVERSITI TUN HUSSEIN ONN MALAYSIA

- Address : Timbalan Pendaftar Kanan, Pejabat Pengurusan Akademik, Universiti Tun Hussein Onn Malaysia 86400 Parit Raja, Batu Pahat Johor.
- Telephone No : 07-4537681 / 7655 / 7687 /7689 / 7694
- Fax No : 07-4536085
- Emel : pa@uthm.edu.my
- Web : www.uthm.edu.my

3.7.3 UNIVERSITI TEKNIKAL MALAYSIA MELAKA

- Address : Bahagian Pengurusan Akademik, Universiti Teknikal Malaysia Melaka, Karung Berkunci 1752, Pejabat Pos Durian Tunggal, 76109 Durian Tunggal, Melaka.

- Telephone No : 06-3316086/ 6078/ 6077/ 6073/ 6076
- Fax No : 06-3316079
- Emel : bpa@utem.edu.my
- Web : www.utem.edu.my

3.7.4 UNIVERSITI MALAYSIA PAHANG

- Address : Bahagian Pengurusan Akademik, Kompleks Perkhidmatan Siswa, Universiti Malaysia Pahang, Karung Berkunci 112, 2500 Kuantan, Pahang Darul Makmur.
- Telephone No : 09-5492550 / 2557
- Fax No : 09-5492555
- Web : www.ump.edu.my

5.1 SUPPORTING DEPARTMENTS AND UNITS

5.1 MATHEMATICS, SCIENCE AND COMPUTER DEPARTMENT

4..1 DEPARTMENT ORGANISATION CHART

4..2 MATHEMATICS, SCIENCE AND COMPUTER DEPARTMENT LECTURERS

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Nor Aidawati Binti Nor Khalim	Head of Department	04-9886399	aidawati@ptss.edu.my
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3	Mohd Awaludin Bin Mohamed Bashir	Head of Course (Science & Computer)	04-9881377	awaludin@ptss.edu.my
4	Rohayati Bt Othman	Administration	04-9886392	rohayati@ptss.edu.my
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19	Syarafun Nisa Binti Zahelem	Lecturer	04-9886395	syarafun@ptss.edu.my
20	Yap Tek Hong	Lecturer	04-9886395	yap@ptss.edu.my
21	Zahratul Laily Binti Edaris	Lecturer	04-9886395	zahratul@ptss.edu.my
22	Zakiah Bt Adzmi	Lecturer	04-9886395	zakiah@ptss.edu.my

4..3 SYPNOSIS AND COURSE LEARNING OUTCOME

SEMESTER	COURSE	SYPNOSIS	COURSE LEARNING OUTCOME (CLO)
1	DBC20012 COMPUTER APPLICATION	**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 **Credit Value : 2** **Prerequisite : None**	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)

1	**DBM10013 ENGINEERING MATHEMATICS 1**	**ENGINEERING MATHEMATICS 1** exposes students to the basic algebra including resolve partial fractions. This course also coversthe 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. **Credit Value : 3** **Prerequisite : None**	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	**DBS10012 ENGINEERINGSCIENCE**	**ENGINEERING SCIENCE** course introduces the physical concepts required in engineering disciplines. Studentswill learn the knowledge of fundamental physics in order to identifyand solve engineering physics problems. Studentswill be able to perform experimentsand activities to mastery physics concepts. **Credit Value : 2** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1:Use basic physics concept to solve engineering physics problems (C3, CLS 1) CLO2:Apply knowledge of fundamental physics in activities to mastery physics concept (C3, CLS1) CLO3:Perform appropriate activities related to physics concept(P3, CLS 3a)

1	**DBM10063 MATHEMATICAL COMPUTING**	**MATHEMATICAL COMPUTING** course introduces students to numbering system, basic algebraand complex numbers. Calculus covers the simple techniques of differentiation and integration. In addition, this course also exposesto basic concept of matrices and linear algebra to help them in solving mathematical problem in organizing data through theoretically. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1:Execute mathematical concepts in the areas of number systems, complex numbers, matrices, algebra and differentiation & integration.(C3, CLS1) CLO2:Show mathematical solutions using the appropriate techniques in mathematics. (C3, CLS1) CLO3:Explain theoretical and solutions to others in solving mathematical related problems. (P2, CLS3c)
2	**DBM20023 ENGINEERING MATHEMATICS 2**	**ENGINEERING MATHEMATICS 2** exposes students to the basic laws of indicesand logarithms. This course introducesthe basic rules of differentiation conceptsto solve problems that relatesmaximum, minimum and calculate the rates of changes. This course discussesintegration conceptsin order to strengthen student'sknowledge for solving area and volume bounded region problems. In addition, students will learnapplication of both techniques of differentiation and integration. **Credit Value : 3** **Prerequisite : DBM10013**	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)

2	**DBM20083 DISCRETE MATHEMATICS**	**DISCRETE MATHEMATICS** course introduces students to logical and mathematical thinking. This course focuses on providing basic logic, sets, relations and functions, as well as graphs and trees which integrate symbolic tools, graphical concepts and numerical calculations. This course also addresses the counting principle as well as Boolean Algebrawhich are related to the information technology programmed. **Credit Value : 3** **Prerequisite : None**	Upon completion of this course, students should be able to: CLO1:Carry out basic terminology precisely in the areas of logic, algebra, graphs theory, set theory and combinatory.(C3, CLS2) CLO2:Apply standard operations precisely in the areas of logic, algebra, graphs theory, set theory and combinatory.(C3, CLS2) CLO3:Construct mathematical problems using appropriate concepts, formulas and techniques. (P3, CLS3c)

3	**DBM30043** **ELECTRICAL ENGINEERING MATHEMATICS**	**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. **Credit Value : 3** **Prerequisite : DBM20023**	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	**DBM30033 ENGINEERING MATHEMATICS 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. **Credit Value : 3** **Prerequisite : DBM20023**	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)

4..4 LABORATARY FACILITIES IN MATHEMATICS, SCIENCE AND COMPUTER DEPARTMENT

NO	LABORATORY	LABORATORY SUPERVISOR
1	CAD Laboratory 1 (CAD 1)	Shahrull Hi-Fi Syam bin Ahmad Jamil
2	Makmal Sains Kejuruteraan	Zakiah binti Adzmi

4.2 GENERAL STUDIES DEPARTMENT

4.2.1 DEPARTMENT ORGANISATION CHART

4.2.2 GENERAL STUDIES DEPARTMENT LECTURERS

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4.2.3 SYPNOSIS AND COURSE LEARNING OUTCOME

SEMESTER	COURSE	SYPNOSIS	COURSE LEARNING OUTCOME (CLO)
1	MPU21032 PENGHAYATAN ETIKA DAN PERADABAN	**PENGHAYATAN ETIKA DAN PERADABAN ini** menjelaskan tentang konsep etika daripada perspektif peradaban yang berbeza. Ia bertujuan bagi mengenal pastisistem, 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 **Credit Value : 2** **Prerequisite : None**	CLO1 : Membentangkan konsep etika dan peradaban dalam kepelbagaian tamadun. (A2 , CLS 5) CLO2 : Menerangkan sistem, tahap perkembangan, kesepaduan sosial dan kebudayaan merentas bangsa di Malaysia. (A2 , CLS 5) CLO3 : Mencadangkan sikap yang positif terhadap isu dan cabaran kontemporari dari perspektif etika dan peradaban.(A3 , CLS 4)

1	**MPU22042** **BAHASA KEBANGSAAN A**	**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. **Credit Value : 2** **Prerequisite :** Khas untuk pelajar warganegara tidak kredit Bahasa Melayu SPM	CLO1 : Menunjukkan cara berinteraksi yang baik dalam pelbagai situasi (A3 , CLS 3b) CLO2 : Menulis pelbagai jenis bentuk penulisan dengan jelas dan bersistematik (A2 , CLS 3b) CLO3 : Menunjukkan kaedah bertutur dalam komunikasi lisan dengan sebutan dan intonasi yang betul (A3 , CLS 4)
2	**MPU23012** **PENGAJIAN ISLAM (JP)**	**PENGAJIAN ISLAM** disediakan untuk melahirkan warganegara yang faham tasawwur (konsep) Islam sebagai satu cara hidup yang bersepadu dan seimbang serta berupaya menghadapi pelbagai masalah dan cabaran. Perbincangan berasaskan kepada konsep-konsep asas Islam, Islam sebagai cara hidup, institusi Islam dan cabaran semasa **Credit Value : 2** **Prerequisite : None**	CLO1 : Melaksanakan dengan yakin amalan Islam dalam kehidupan seharian. (A2, CLS 4) CLO2 : Menerangkan etika dan profesionalisme berkaitan Syariah dan Institusi Islam dalam membentuk pembangunan ummah. (A3, CLS 5) CLO3 : Menghubungkait minda ingin tahu dengan Islam dan cabaran semasa di Malaysia. (A4 , CLS 4)
2	**MPU23032** **PENGAJIAN ISLAM (JTMK)**	**PENGAJIAN ISLAM** disediakan untuk melahirkan warganegara yang faham tasawwur (konsep) Islam sebagai satu cara hidup yang bersepadu dan seimbang serta berupaya menghadapi pelbagai masalah dan cabaran. Perbincangan berasaskan kepada konsep-konsep asas Islam, Islam sebagai cara hidup, institusi Islam dan cabaran semasa **Credit Value : 2** **Prerequisite : None**	CLO1 : Melaksanakan dengan yakin amalan Islam dalam kehidupan seharian. (A2, CLS 4) CLO2 : Menerangkan etika dan profesionalisme berkaitan Syariah dan Institusi Islam dalam membentuk pembangunan ummah. (A3, CLS 5) CLO3 : Menghubungkait minda ingin tahu dengan Islam dan cabaran semasa di Malaysia. (A4, CLS 4)

2	**MPU23142 PENDIDIKAN MORAL (JTMK)**	**PENDIDIKAN MORAL** memberi pengetahuan tentang konsep asas moral untuk diamalkan. Selain itu, kursus ini juga menjelaskan etika individu yang bermoral dan bertanggungjawab serta isu-isu moral yang mempengaruhi pembentukan negara dan masyarakat **Credit Value : 2** **Prerequisite : None**	CLO1 : Mengamalkan nilai moral yang baik dalam kehidupan seharian (A2 , CLS 4) CLO2 : Menjelaskan etika dan profesionalisme individu yang bermoral dan bertanggungjawab terhadap negara (A3 , CLS 5) CLO3 : Menghubungkait minda ingin tahu terhadap isu dan cabaran dalam membentuk negara dan masyarakat (A4 , CLS 4)
2	**MPU23042 NILAI MASYARAKAT MALAYSIA**	**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. **Credit Value : 2** **Prerequisite : None**	CLO1 : Membincangkan sejarah dan nilai dalam pembentukan masyarakat di Malaysia (A2, CLS 4) CLO2 : Menerangkan etika dan profesionalisme terhadap konsep perpaduan bagi meningkatkan semangat patriotisme masyarakat Malaysia (A3, CLS 5) CLO3 : Menghubungkait minda ingin tahu dengan cabarancabaran dalam membentuk masyarakat Malaysia (A4 , CLS 4)
2	**MPU23052SAINS TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM**	**SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM** memberi pengetahuan tentang konsep Islam sebagai al-Din dan seterusnya membincangkan konsep sains, teknologi dan kejuruteraan dalam Islam serta impaknya, pencapaiannya dalam tamadun Islam, prinsip serta peranan syariah dan etika Islam, peranan kaedah fiqh serta aplikasinya **Credit Value : 2** **Prerequisite : None**	CLO1 : Melaksanakan dengan yakin amalan Islam dalam kehidupan seharian (A2 , CLS 4) CLO2 : Menerangkan etika dan profesionalisme berkaitan sains teknologi dan kejuruteraan dalam Islam (A3 , CLS 5) CLO3 : Menghubungkait minda ingin tahu dengan prinsip syariah, etika dan kaedah fiqh dalam bidang sains, teknologi dan kejuruteraan menurut perspektif Islam (A4 , CLS 4)

2	**MPU23072 PELANCONGAN DAN HOSPITALITI DALAM ISLAM**	**PELANCONGAN DAN HOSPITALITI DALAM ISLAM** memberi pengetahuan tentang konsep Islam sebagai al-Din dan seterusnya membincangkan konsep pelancongan dan hospitaliti mengikut perspektif Islam. Ia merangkumi penyediaan rumah penginapan, makanan, layanan terhadap tetamu dan hubungan alam sekitar dalam bidang pelancongan. Seterusnya membincangkan konsep asas kaedah fiqh, nilai-nilai kebersihan dan estetika Islam dalam bidang tersebut **Credit Value : 2** **Prerequisite : None**	CLO1 : Melaksanakan dengan yakin amalan Islam dalam kehidupan seharian (A2 , CLS 4) CLO2 : Menerangkan etika dan profesionalisme berkaitan pelancongan dan hospitaliti dalam Islam (A3 , CLS 5) CLO3 : Menghubungkaitkan minda ingin tahu dengan prinsip syariah dalam bidang pelancongan dan hospitaliti menurut perspektif Islam (A4 , CLS 4)
2	**DUA2042 SENI DALAM ISLAM**	**SENI DALAM ISLAM** memberi pengetahuan tentang konsep Islam sebagai alDin dan seterusnya pandangan Islam mengenai seni Islam. Ia juga menjelaskan mengenai bidang-bidang kesenian Islam, tokoh-tokoh yang terlibat dalam kesenian serta isu-isu kontemporari yang berkaitan dengan seni Islam. **Credit Value : 2** **Prerequisite : None**	1. Menghuraikan konsep Islam sebagai cara hidup. (C2, LD1 : P2, LD2) 2. Menjelaskan konsep seni dalam Islam. (C2 : LD1) 3. Membincangkan prinsip syariah dan kaedah fiqah dalam seni menurut perspektif Islam. (C3 : LD1, A3 : LD6)

2	**DUB2012** **NILAI MASYARAKAT MALAYSIA**	**NILAI MASYARAKAT MALAYSIA** membincangkan aspek sejarah pembentukan masyarakat Malaysia, nilai-nilai agama serta adat resam dan budaya masyarakat majmuk. Selain itu, pelajar diberi kefahaman mengenai tanggungjawab individu dalam kehidupan dan cabaran-cabaran dalam membangunkan masyarakat Malaysia. **Credit Value : 2** **Prerequisite : None**	1. Menerangkan sejarah pembentukan masyarakat dan nilai agama di Malaysia. (C2 : LD1) 2. Menghubung kait tanggungjawab individu dalam kehidupan masyarakat dan negara. (C3 : LD1, A2 : LD5) 3. Membincangkan cabaran-cabaran dalam membangunkan masyarakat Malaysia. (C3 : LD1, A3 : LD6)
5	**DUA6022** **KOMUNIKASI DAN PENYIARAN ISLAM**	**KOMUNIKASI DAN PENYIARAN ISLAM** memfokuskan kepada penguasaan konsep, kemahiran komunikasi dan penyiaran islam bagi meningkatkan kefahaman pelajar secara holistik terhadap kursus ini. **Credit Value : 2** **Prerequisite : None**	1. Menjelaskan konsep, bentuk komunikasi dan hubungannya dalam Islam. (C2 : LD1) 2. Menunjukkan kemahiran pengurusan komunikasi dalam bidang penyiaran Islam. (C3, A4 : LD1, LD5) 3. Menghubung kait isu-isu semasa dalam komunikasi dan penyiaran Islam. (C3, A3 : LD1, LD6)
1	**SUA1011** **PENDIDIKAN ISLAM 1**	**PENDIDIKAN ISLAM 1** memperkenalkan kepada para pelajar tentang cara hidup Islam yang lengkap dan sempurna melalui penghayatan konsep akidah, ibadah (toharah) dan akhlak Islam. **Credit Value : 1** **Prerequisite : None**	1. Menyenaraikan Rukun Iman dan Rukun Islam dengan tepat. (C1 : PLO 1) 2. Menunjuk cara pelaksanaan toharah dengan betul. (P2 : PLO 2) 3. Membincangkan isu-isu semasa berkaitan dengan akhlak. (C2 : PLO 1)

2	**SUA2011 PENDIDIKAN ISLAM 2**	**PENDIDIKAN ISLAM 2** memperkenalkan konsep ibadah yang merangkumi adab-adab, tanggungjawab suami isteri dan pendidikan anak-anak yang perlu diamalkan dalam kehidupan seharian. Kursus ini juga mendedahkan kepada pelajar mengenai isu-isu semasa yang berkaitan dengan perkahwinan sebagai panduan hidup. **Credit Value : 1** **Prerequisite : None**	1. Menunjuk cara pelaksanaan ibadah solat dengan tertib. (P2 : PLO 2) 2. Menjelaskan adab-adab pergaulan dalam Islam. (C2 : PLO 1) 3. Membincangkan isu-isu semasa berkaitan dengan perkahwinan. (C2 : PLO 1)
1	**SUB1011 PENDIDIKAN MORAL 1**	**PENDIDIKAN MORAL 1** memberikan kefahaman kepada pelajar tentang peranan individu dalam hidup bermasyarakat. Kursus ini juga mendedahkan kepada pelajar mengenai cabaran dan isu-isu moral dalam mewujudkan masyarakat Malaysia yang harmoni. **Credit Value : 1** **Prerequisite : None**	1. Menyenaraikan peranan individu dalam masyarakat. (C1 : PLO 1) 2. Menjelaskan elemen-elemen yang mencabar nilai-nilai moral. (C2 : PLO 2) 3. Mengenalpasti isu-isu moral semasa. (C2 : P
2	**SUB2011 PENDIDIKAN MORAL 2**	**PENDIDIKAN MORAL 2** memberi pengetahuan tentang penggunaan teknologi maklumat dan kesannya ke atas generasi muda masa kini. Penekanan kursus adalah untuk memberi penerangan tentang kesan kemajuan sains dan teknologi maklumat terhadap manusia. Kursus ini juga membincangkan isu-isu moral semasa dan menyatakan budaya kerja positif serta peranan individu dalam kerjaya. **Credit Value : 1** **Prerequisite : None**	1. Menerangkan dengan jelas tentang kemajuan teknologi maklumat dengan cara yang betul .(C1 : PLO 1) 2. Menjelaskan peranan individu dalam mengamalkan budaya kerja secara positif. (C2 : PLO 2) 3. Menerangkan isu-isu semasa berkaitan dengan moral dengan jelas. (C2 :PLO 1)

1	**SUM1011 BAHASA MELAYU 1**	**BAHASA MELAYU 1** memberi pengetahuan penggunaan Bahasa Melayu yang betul. Penekanan kepada penggunaan tatabahasa yang betul mengikut situasi sebenar dan menyebarkan maklumat dengan cara yang berkesan. **Credit Value : 1** **Prerequisite : None**	1. Menulis semula dengan menggunakan tatabahasa dan struktur ayat yang betul untuk menghasilkan penulisan yang berkesan. (C2, PLO1) 2. Membina struktrur ayat pendek untuk menghasilkan penulisan- (C1, PLO1) 3. Mengenalpasti maklumat penting daripada sumber yang dibaca dan ditonton kemudian menulis semula dalam ayat yang betul (C1, PLO6
4	**SUM3011 BAHASA MELAYU 2**	**BAHASA MELAYU2** memberi pengetahuan penggunaan tatabahasa yang betul dalam situasi yang berbeza.Kursus ini juga memberi panduan kepada pelajar cara-cara melengkapkan borang dan menulis surat permohonan serta resume yang sesuai dengan alam pekerjaan. **Credit Value : 1** **Prerequisite : None**	1. Memahami bentuk-bentuk komunikasi (P2, LD2) 2. Menggunakan bahasa yang sesuai mengikut situasi sebenar (C2, LD1) 3. Mengenalpasti panduan menulis borang dan dokumen yang berkaitan dengan pekerjaan (C2, LD1)
2	**DUF10012 BAHASA ARAB 1**	**BAHASA ARAB 1** dibentuk untuk membina kemahiran mendengar dan bertutur dalam Bahasa Arab. Pelajar akan diperkenalkan dengan bunyi-bunyi vokal dan konsonan Bahasa Arab. Ganti Nama Diri akan digunakan sebagai paksi kepada 14 bentuk perubahan kata Bahasa Arab. Pendekatan komunikasi akan diterapkan melalui dialog-dialog yang memberi penekanan kepada konteks sebenar komunikasi dan gaya bahasa yang diperlukan. Pelajar akan mampu untuk menuturkan frasa-frasa mudah dalam konteks komunikasi harian. **Credit Value : 2** **Prerequisite : None**	CLO1 : Memberi respon yang sesuai kepada pelbagai stimulus dengan menggunakan intonasi dan bunyi yang betul (A2 , CLS 3b) CLO2 : Mempamerkan cara berinkteraksi yang baik dalam pelbagai situasi melalui sumbangan idea yang berkaitan dengan situasi yang berlaku dalam kehidupan seharian (A3 , CLS 3b) CLO3 : Menyumbang idea yang sesuai dan tersusun bagi menunjukkan kemampuan belajar secara berdikari dalam mengumpul maklumat (A2 , CLS 4)

1	**DUE1012 COMMUNICATIVE ENGLISH 1**	**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. It is also aimed to equip students with effective presentation skills. **CREDIT(S) : 2** **PREREQUISITE(S) : None**	1. apply appropriate language and communication skills in discussions and conversations. (C3) 2. apply effective listening skills to demonstrate comprehension of audio recordings in a variety of situations. (C3) 3. comprehend a variety of reading texts by applying effective reading skills. (C2) 4. write in response to a stimulus using appropriate language. (C3) 5. deliver an effective presentation using appropriate visual aids, verbal and non-verbal communication skills.(C3, A3)
1	**DUE10012 COMMUNICATIVE ENGLISH 1**	**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. **CREDIT VALUE : 2** **PREREQUISITE : None**	CLO1 : Participate in a discussion using effective communication and social skills to reach an amicable conclusion by accommodating differing views and opinions (A3 , CLS 3b) CLO2 : Demonstrate awareness of values and opinions embedded in texts on current issues (A3 , CLS 3b) CLO3 : Present a topic of interest that carries identifiable values coherently using effective verbal and nonverbal communication skills (A2 , CLS 4)

1	**MPU22053 ENGLISH FOR DIGITAL TECHNOLOGY**	**ENGLISH FOR DIGITAL TECHNOLOGY** emphasises the skills required at the workplace to describe products or services as well as processes or procedures related to Digital Technology. This course will also enable students to make and reply to enquiries and complaints related to the field of Digital Technology. **CREDIT VALUE : 3** **PREREQUISITE : None**	CLO1 : Describe products and services related to Digital Technology effectively through presentations by highlighting its features and characteristics that appeal to specific audience (A3 , CLS 3b) CLO2 : Describe processes, procedures and instructions related to Digital Technology clearly by highlighting information of concern (A3 , CLS 4) CLO3 : Demonstrate effective communication and social skills in handling enquiries and complaints related to Digital Technology amicably and professionally (A3 , CLS 3b)
3	**DUE3012 COMMUNICATIVE ENGLISH 2**	**COMMUNICATIVE ENGLISH 2** emphasises the skills required at the workplace to describe products or services as well as processes or procedures. It also focuses on the skills to give and respond to instructions. This course will also enable students tomake and reply to enquiries and complaints. **CREDIT(S) : 2** **PREREQUISITE(S) : DUE1012 Communicative English 1**	1. describe products or services related to their field of studies using appropriate language. (C3, A3) 2. transfer information of a process or procedure accurately from linear to nonlinear form and vice versa. (C3) 3. listen and respond to enquiries using appropriate language. (C3) 4. make and respond to complaints using appropriate language. (C3)

3	**DUE30022 COMMUNICATIVE ENGLISH 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. **CREDIT VALUE : 2** **PREREQUISITE(S) : DUE10012** **Communicative English 1**	CLO1 : Describe a product or service effectively by highlighting its features and characteristics that appeal to a specific audience (A3 , CLS 3b) CLO2 : Describe processes, procedures and instructions clearly by highlighting information of concern (A3 , CLS 4) CLO3 : Demonstrate effective communication and social skills in handling enquiries and complaints amicably and professionally (A3 , CLS 3b)
4	**DUE5012 COMMUNICATIVE ENGLISH 3**	**COMMUNICATIVE ENGLISH 3** aims to develop the necessary skills in students to analyse and interpret graphs and charts from data collected as well as job hunting mechanics. Students will learn to present data through the use of graphs and charts. Students will learn the process of job hunting which includes job search strategies and	1. Describe and analyze information contained in graphs and charts clearly and accurately based on a mini project. (C4, A3) 2. Write an effective resume and a supporting cover letter for a relevant job opening. (C3)
		making enquiries. They will also learn to write resumes and cover letters. The students will develop skills to introduce themselves, highlight their strengths and abilities, present ideas, express opinions and respond appropriately during job interviews. **CREDIT(S) : 2** **PREREQUISITE(S) : DUE3012** **Communicative English 2**	3. Handle a job interview effectively and confidently. (C3)

4	**DUE50032 COMMUNICATIVE ENGLISH 3**	**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. **CREDIT VALUE : 2** **PREREQUISITE(S) : DUE30022** **Communicative English 2**	CLO1 : Present gathered data in graphs and charts effectively using appropriate language forms and functions (A2 , CLS 3b) CLO2 : Prepare a high impact resume and a cover letter, highlighting competencies and strengths that meet employer's expectations (A4 , CLS 4) CLO3 : Demonstrate effective communication and social skills in handling job interviews confidently (A3 , CLS 3b)
4	**MPU4013 ENGLISH FOR DIGITAL TECHNOLOGY**	**ENGLISH FOR DIGITAL TECHNOLOGY** course is a necessary component in the field of Digital Technology. The course is designed to prepare students to perform effectively in their workplace as English is usually the medium of communication in the ICT world. This is also in line with the needs of the industries that need graduates who can communicate in English. **CREDIT VALUE : 3** **PREREQUISITES : None**	CLO 1 : Describe products/services and processes/procedures related to their field of studies using appropriate language. (C3, A3, PLO 1, PLO 3) CLO 2 : Listen and respond to enquiries using appropriate language (C4, A3, PLO1, PLO 3) CLO 3 : Make and respond to complaints using appropriate language (C4, A3, PLO 1, PLO 3) CLO 4 : Apply job hunting mechanics appropriately (C3, A3, PLO 1, PLO 3)

1 (PRE-DIPLOMA)	**PUE1014 ENGLISH (SCIENCE)**	**ENGLISH 1 (SCIENCE)** is designed specifically for Pre-Diploma Science students intending to pursue a Diploma programme in the polytechnic. It focuses on providing students with necessary language skills that could help them to scaffold their language ability. It also aims to provide students with ample opportunities to use the language effectively and meaningfully through various forms of tasks and activities. **CREDIT(S) : 4** **PREREQUISITE(S) : None**	1. Read and respond to questions based on reading texts (C3) 2. Carry out an oral presentation (C2, A2) 3. Listen and respond to questions based on audio texts (C2) 4. Write an opinion essay using appropriate language and structure (C3)
1 (PRE-DIPLOMA)	**PUE2014 ENGLISH (SCIENCE)**	**ENGLISH 2 (SCIENCE)** is designed specifically for pre-diploma science students intending to pursue a diploma programme in the Polytechnic. Students are taught to employ necessary language skills to listen and comprehend audio texts, describe places of interest and gadgets and provide information in a written form. Student centred activities are carried out to enable students to communicate effectively, as well as, meet the required standards of English courses at diploma level. **CREDIT(S) : 4** **PREREQUISITE(S) : PUE1014 ENGLISH 1 (SCIENCE)**	1. Listen and comprehend audio texts on healthy lifestyles (C2) 2. Describe places of interest using appropriate language (C2) 3. Produce a newsletter using appropriate language and format (C3) 4. Present a description of a gadget clearly and confidently (C3, A2)

1 (PRE-DIPLOMA)	**PUE1024 - ENGLISH (COMMERCE)**	**ENGLISH (COMMERCE)** is designed specifically for pre-diploma Commerce students intending to pursue a diploma programme in any of the polytechnics. It aims to guide and facilitate students' learning through various activities and develop their skills in listening, speaking, reading and writing. Opportunities are provided for the students to use their knowledge in speaking and writing creatively. It increases students' confidence in using the language **CREDIT(S) : 4** **PREREQUISITE(S) : None**	1. Make and respond to different types of Wh-questions using appropriate language. (C3) 2. Describe and compare characteristics of people using appropriate language structure. (C3) 3. Read and answer comprehension questions based on a variety of texts. (C3) 4. Write a short essay using appropriate structure and language. (C3) 5. Respond to topics of interest in written form. (C3)
2	**SUE2011 ENGLISH FOR COMMUNICATION 1**	**ENGLISH FOR COMMUNICATION ONE (1)** is to enhance students' abilities to read and write in the English language. In this course, students will be dealing with two types of document: notices / posters as well as emails. Exposure will be given not only on the understanding of these document but also the production of them. **Credit Value : 1** **Prerequisite : None**	1. Extract the important / desired information from the provided notices / posters. (C2, PLO3) 2. Produce attractive and informative notices / posters. (C3, PLO3) 3. Reply to and write comprehensible emails. (C3, PLO3)

3	**SUE3011 ENGLISH FOR COMMUNICATION 2**	**ENGLISH FOR COMMUNICATION TWO (2)** still stresses on reading and writing skills. Nonetheless, there is an extra element in which students are expected to carry out a demonstrative presentation. The main topic of this course is instruction. Students will be exposed to a few written instructions. They would also receive guidance in writing instructions as well as carrying out a demonstration with the help of effective visual aids. **Credit Value - 1** **Prerequisite – None**	1. Extract the salient information from written documents in regards to instructions at the workplace. (C2, PLO1) 2. Produce a simple but comprehensible manual on a selected instruction which is related to the student's discipline. (C3, PLO3) 3. Demonstrate the correct method or way of doing something based on the provided instruction manual to a target audience effectively with the help of prepared visual aids. (C3, PLO3)

4.2.4 LABORATARY FACILITIES IN GENERAL STUDIES DEPARTMENT

NO	LABORATORY	LABORATORY SUPERVISOR
1	MAKMAL BAHASA 1	MOHD AMIR BIN OTHMAN
2	MAKMAL BAHASA 2	MOHD AMIR BIN OTHMAN
3	MAKMAL BAHASA 3	MOHD AMIR BIN OTHMAN

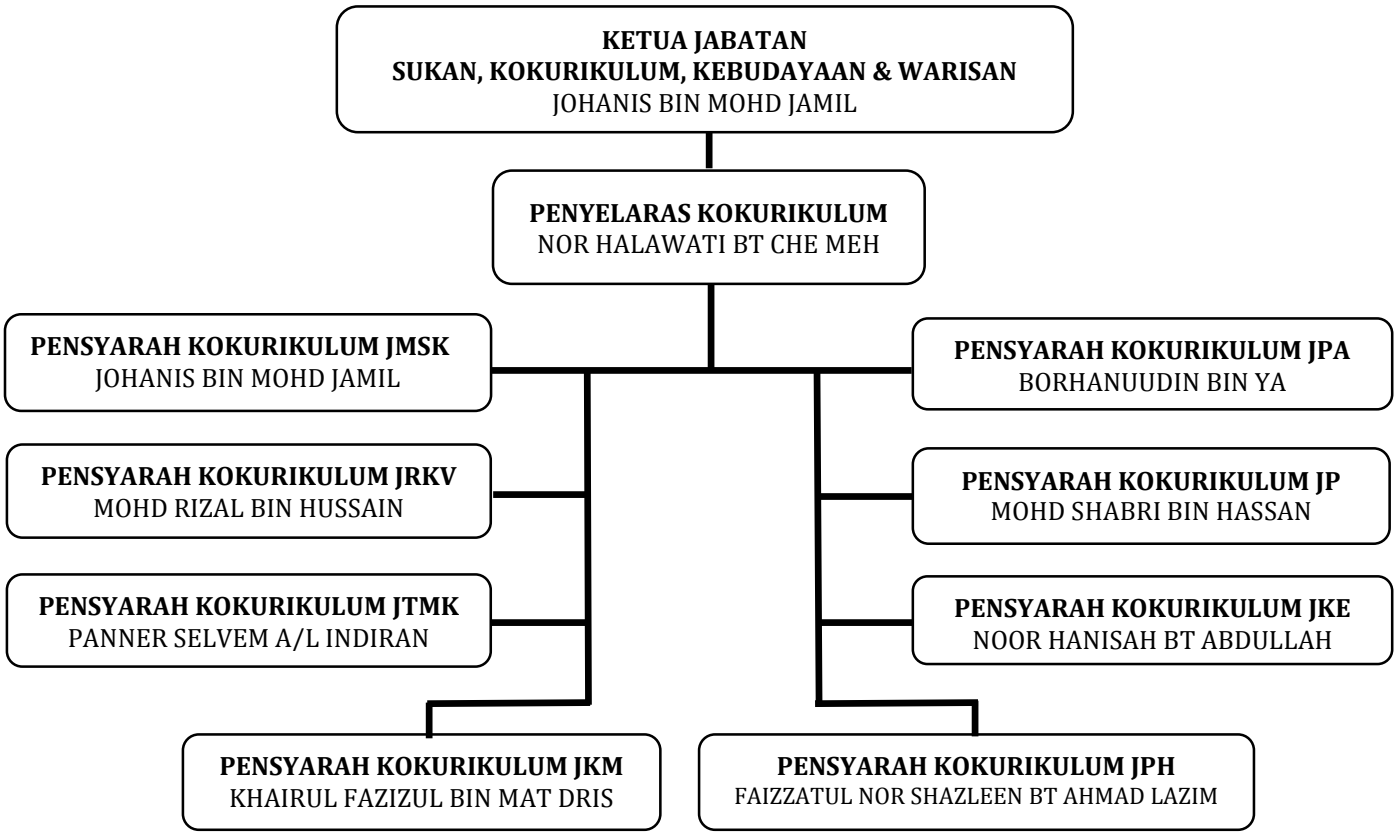
4.3 SPORTS, CO-CURICULUM, CULTURE AND HERITAGE DEPARTMENT

The involvement in co-curriculum creates opportunities for students to develop their talents and interests. To achieve these require commitment, innovation and creativity from both educators and students. It also includes outdoor activities such as sports, uniform units, clubs and societies. The activities should consist of elements that support the physical, emotional, spiritual and intellectual aspects in line with the National Philosophy of Education.

The Sports Unit is responsible for :

- managing sports activities inside and outside PTSS compound
- planning and ensuring sports activities are carried out accordingly
- monitoring and keeping record of PTSS athletes
- managing and maintaining the sports facilities
- developing individuality in spiritual, physical and intellectual

4.3.1 DEPARTMENT ORGANISATION CHART



4.3.2 SPORTS, CO-CURICULUM, CULTURE AND HERITAGE DEPARTMENT STAFS

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Johanis Bin Mohd Jamil	Head of Department	04-988 1378	johanis@ptss.edu.my
2	Imran Syafik Bin Ahmad	Youth and Sports Officer	04-988 6340	imran@ptss.edu.my
3	Saiful Bin Ishak	Operation Assistant	04-988 6344	saifulishak@ptss.edu.my

4.3.3 SYPNOSIS AND COURSE LEARNING OUTCOME

SEMESTER	COURSE	SYPNOSIS	COURSE LEARNING OUTCOME (CLO)
1	**MPU24011 SUKAN**	**SUKAN** adalah aktiviti yang mengandungi latihan kemahiran berguna secara rekreasi dan peraturan-peraturan tertentu dalam mengejar kecemerlangan bagi penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan (P2 , CLS 4) CLO2 : Menunjukkan kepimpinan dan kerja berpasukan berdasarkan penguasaan kemahiran dan amalan positif (A3 , CLS 3d)
2	**MPU24021 KELAB**	**KELAB** memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif.	CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan (P2 , CLS 4) CLO2 : Menunjukkan kepimpinan dan kerja berpasukan berdasarkan penguasaan kemahiran dan amalan positif (A3 , CLS 3d)

3	**MPU24611 - ASKAR WATANIAH 1** **MPU24711 - ASKAR WATANIAH 2**	**ASKAR WATANIAH** memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan (P2 , CLS 4) CLO2 : Menunjukkan kepimpinan dan kerja berpasukan berdasarkan penguasaan kemahiran dan amalan positif (A3 , CLS 3d)
4	**MPU24661 - PENGAKAP KELANA 1** **MPU24761 - PENGAKAP KELANA 2**	**PENGAKAP KELANA** memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan (P2 , CLS 4) CLO2 : Menunjukkan kepimpinan dan kerja berpasukan berdasarkan penguasaan kemahiran dan amalan positif (A3 , CLS 3d)
5	**MPU24691 - RELASIS 1** **MPU24791 - RELASIS 2**	**RELASIS** memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan (P2 , CLS 4) CLO2 : Menunjukkan kepimpinan dan kerja berpasukan berdasarkan penguasaan kemahiran dan amalan positif (A3 , CLS 3d)

6	**MPU24651 - PISPA 1** **MPU24751 - PISPA 2**	**PISPA** memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan (P2 , CLS 4) CLO2 : Menunjukkan kepimpinan dan kerja berpasukan berdasarkan penguasaan kemahiran dan amalan positif (A3 , CLS 3d)

5.0 SUPPORTING SERVICES

5.1 STUDENT AFFAIRS DEPARTMENT (HEP)

Our role is to contribute to the mission of Politeknik Tuanku Syed Sirajuddin (PTSS) by partnering with other academic and administrative units to provide professional, creative, accessible, and high-quality services. To fulfill this role, Student Affairs Department seeks to create an environment that is caring and positive for students; practice champion cultural sensitivity and inclusiveness; provide coordinated services to ensure the student-focused and technologically up to date; and respond positively to change.

Our vision is to eliminate barriers and create opportunities that enable all students to experience success. Our actions are guided by these values:

- the well-being of all students
- innovation in problem solving
- the positive affirmation of student achievement
- professionalism and ethical behavior
- cooperative and collaborative efforts that include enthusiasm, respect, and humor

To accomplish our mission, Student Affairs Department has established the following goals:

- increase retention and completion rates of students
- develop capacity to deliver services to all campus sites
- institute data-driven analysis for planning and decision-making
- improve attitudes toward and participation in student activities and services
- increase new student enrollment at class, overall and in specified programs

The Student Affairs Department is responsible for managing :

- student admission and registration
- scholarships
- residential college
- discipline and student behavior

- registration of students' vehicle
- student's activities through club / society
- alumni
- Student Representatives Committee (MPP)
- student insurance

5.1.1 DEPARTMENT ORGANISATION CHART

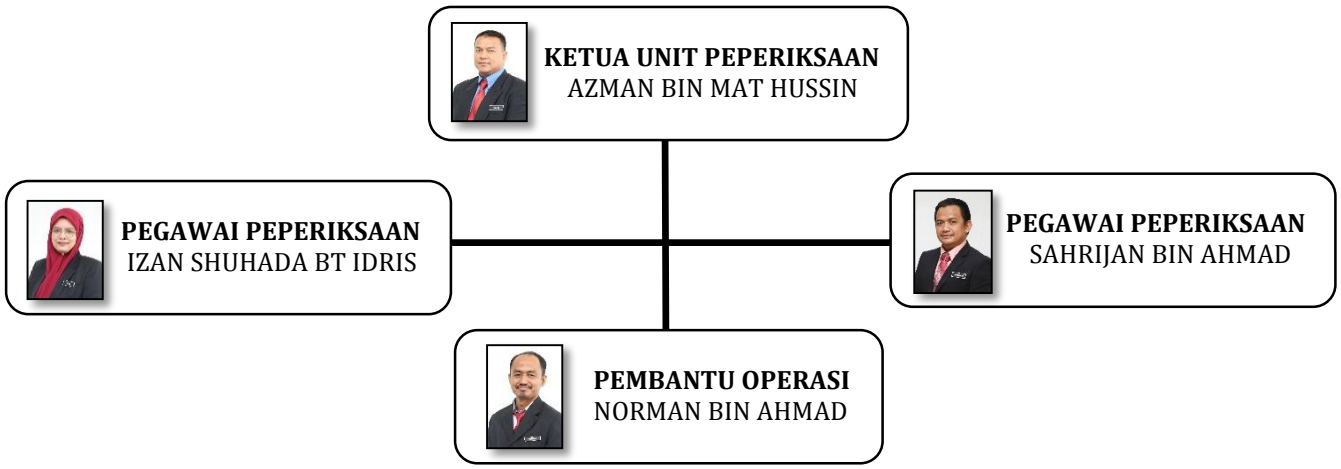
5.1.2 STUDENT AFFAIRS DEPARTMENT CONTACT PERSONNEL

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Mazrul Hisyam Bin Mat Ali	Head Of Department	0 12-5255033	mazrul@ptss.edu.my
2	Zulina Binti Yusoff	Student Affairs Officer (Welfare & Discipline)	012-5529853	zulina@ptss.edu.my
3	Azlida Binti Abdullah	Student Affairs Officer (Welfare)	0 19-3271369	azlida@ptss.edu.my
4	Syazwani Binti Sobri	Student Affairs Officer (Pd)	0 14-6126367	syazwani@ptss.edu.my
5	Mohamad Hairi Bin Othman	Operation Assistant	0 12-3675029	mohamadhairi@ptss.edu.my
6	Nurul Hayati Binti Muda	Administrative Assistant	0 19-4150773	hayatimuda@ptss.edu.my
7	Rosnaniwati Binti Che Abdullah	Administrative Assistant	0 13-4301757	rosnaniwati@ptss.edu.my

5.2 EXAMINATION UNIT

Every Polytechnic under the Ministry of Higher Education responsible for providing guidance on learning, assessment, control and conduct of the examination. Conferment of Certificate and Diploma to each student is subject to approval and confirmation of Board of Examination and Certificate / Diploma Polytechnic after students have passed all examinations and meet all the requirements of the course. Polytechnic Examination Unit is the unit where responsible for planning, managing and implementing all activities related to student assessment based on the guidelines and evaluation set.

5.2.1 EXAMINATION UNIT ORGANISATION CHART



5.2.2 EXAMINATION UNIT CONTACT PERSONNEL

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Azman Bin Mat Hussin	Head of Unit	04-9886388	azman@ptss.edu.my
2	Izan Shuhada Binti Idris	Examinations Officer	04-9881030	izanshuhada@ptss.edu.my
3	Sahrijan Bin Ahmad	Examinations Officer	04-9881037	sahrijan@ptss.edu.my
4	Norman Bin Ahmad	Operation Assistant	04-9886386	normanahmad@ptss.edu.my

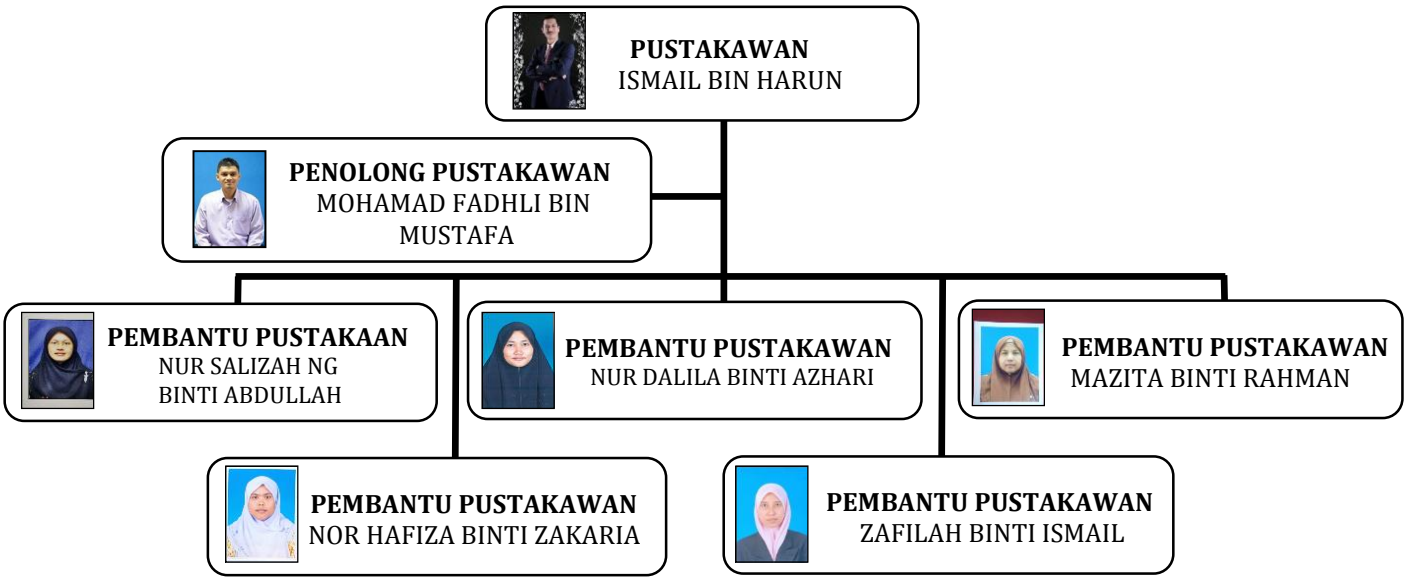
5.3 LIBRARY UNIT

The library provides quality and up-to-date information to everyone in terms of managing and providing access to information resources. Taking the role as a centre of knowledge, the library acts as a catalyst and assists in the teaching and learning and research in the process of producing creative and innovative semiprofessional.

The Library Unit is also an instrument in inculcating the reading culture among PTSS and the local communities through an ongoing reading campaign. Among the many objectives of the library unit are:

- to acquire relevant and current information for reference
- to manage a collection of information using a standard system for easy access.
- to provide quality information service and cultivate interest in reading
- to support the organization's objectives in teaching, learning and research.

5.7.1 LIBRARY UNIT ORGANISATION CHART



5.3.2 LIBRARY UNIT CONTACT PERSONNEL

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Ismail Bin Harun	Librarian	04-9886377	ismail@ptss.edu.my
2	Mohamad Fadhli Bin Mustafa	Assistant Librarian	04-9886378	mfadhlimustafa@ptss.edu.my
3	Nur Salizah Ng Abdullah	Assistant Librarian	04-9881672	nursalizah@ptss.edu.my
4	Nur Dalila Bt Azahari	Assistant Librarian	04-9881672	dalilaazhari@ptss.edu.my
5	Nor Hafiza Bt Zakaria	Assistant Librarian	04-9881672	hafiza@ptss.edu.my
6	Zafilah Bt Ismail	Assistant Librarian	04-9881672	zafilah@ptss.edu.my
7	Mazita Bt Rahman	Assistant Librarian	04-9881672	mazitarahman@ptss.edu.my

5.4 LIAISON & INDUSTRIAL TRAINING UNIT

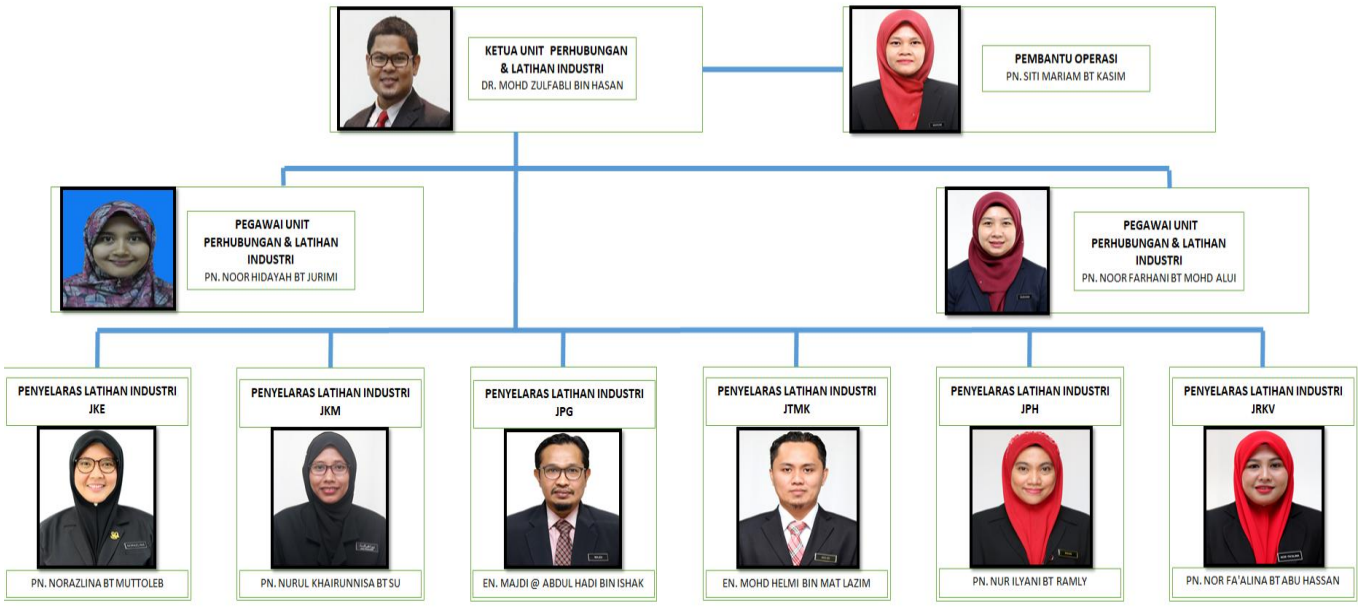
The Liaison & Industrial Training Unit (UPLI) is responsible for managing students' industrial training affairs. Students will be assigned to a particular organization during their training period based on their respective fields of study.

The placement process is finalised before training commences. Students are constantly advised to maintain a high level of discipline. They should abide by the rules and regulations of both the polytechnic and organization. Organizations are advised to consult the polytechnic immediately if there are any disciplinary problems.

The objectives of this programme can be summarized as follows:

- to foster a positive character and traits among students
- to develop better communication skills
- to practise good work ethics and conform to rules and regulations
- to expose students to the working environment
- to produce daily report on the training

5.4.1 LIASON & INDUSTRIAL TRAINING UNIT ORGANISATION CHART



5.4.2 LIAISON & INDUSTRIAL TRAINING UNIT CONTACT PERSONNEL

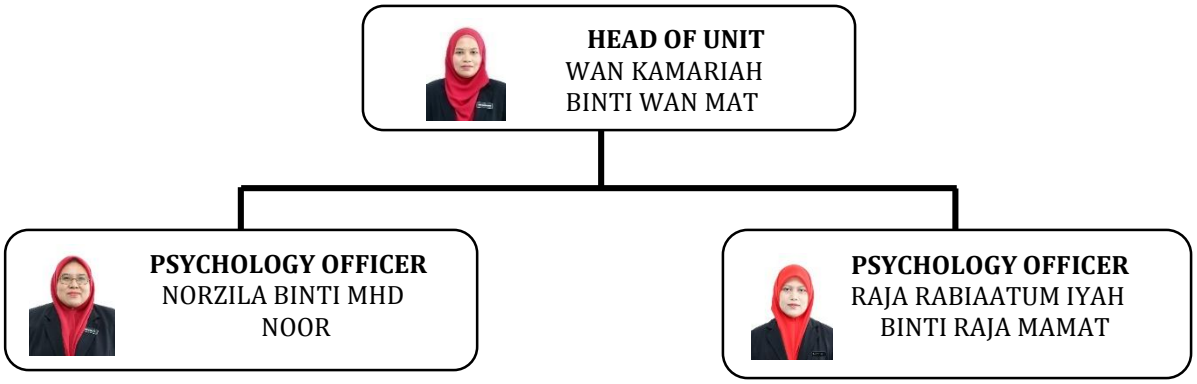
NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Dr. Mohd Zulfabli Bin Hasan	Head of Unit	04-9886244	zulfabli@ptss.edu.my
2	Noor Farhani Binti Mohd Alui	Liaison & Industrial Training Officer	04-9881020	farhani@ptss.edu.my
3	Noor Hidayah Binti Jurimi	Liaison & Industrial Training Officer	04-9881021	noorhidayah@ptss.edu.my
4	Siti Mariam Binti Kasim	Operation Assistant	04-9886243	mariamsyaqis@gmail.com
5	Norazlina Binti Muttoleb	Liaison & Industrial Training Officer of Electrical Department	04-9886234	norazlina.muttoleb@gmail.com
6	Nurul Khairunnisa Binti Su	Liaison & Industrial Training Officer of Mechanical Department	04-9886200	nisa1811@gmail.com
7	Majdi @ Abdul Hadi Bin Ishak	Liaison & Industrial Training Officer of Business Department	04-9886200	majdiishak@ptss.edu.my
8	Mohd Helmi Bin Mat Lazim	Liaison & Industrial Training Officer of Information Technology Department	04-9886200	helmi@ptss.edu.my
9	Nur Ilyani Binti Ramly	Liaison & Industrial Training Officer of Hospitality Department	04-9886200	nurilyani.85@gmail.com
10	Nor Fa'alina Binti Abu Hassan	Liaison & Industrial Training Officer of Art and Visual Design Department	04-9886200	norfaalina@gmail.com

5.5 PSYCHOLOGY MANAGEMENT UNIT

The Psychology Management Unit works on implementing the Human Capital Development program based on psychological approaches which include aspects of development, prevention, rehabilitation and intervention. In addition, this unit also provides counseling and professional guidance to ensure semiprofessional work force is well balanced mentally and physically. The Psychology Management Unit is responsible for:

- raising self-awareness and surroundings
- highlighting ones' potential
- developing multi skills
- promoting studies opportunities
- assessing student's interests, personality, values and skills, and helps them to explore career options

5.5.1 PSYCHOLOGY MANAGEMENT UNIT ORGANISATION CHART



5.5.2 PSYCHOLOGY MANAGEMENT UNIT CONTACT PERSONNEL

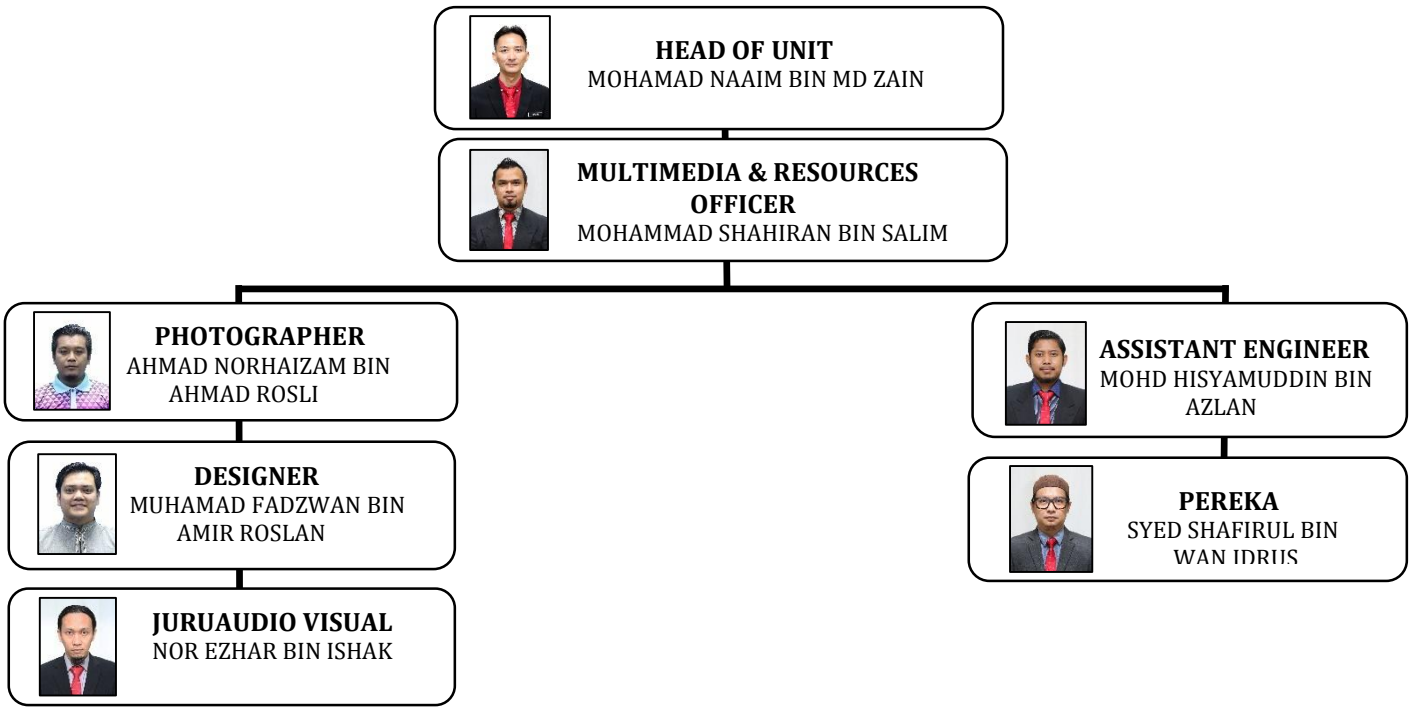
NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Wan Kamariah Binti Wan Mat	Head of Unit	04-9886208	kamariah@ptss.edu.my
2	Norzila Binti Mhd Noor	Psychology Officer	04-9886205	norzila@ptss.edu.my
3	Raja Rabiaatum Adawiyah Bt Raja Mamat	Psychology Officer	04-9881100	rabiaatum@ptss.edu.my

5.6 INSTRUCTIONAL DEVELOPMENT AND MULTIMEDIA UNIT

The Instructional Development and Multimedia Unit (UIDM) is one of the support unit for Academic and Administration in PTSS. The main functions are :

- Advising and guiding in Instructional Development for the purpose of Learning and Teaching.
- Provide sufficient skill and Audio Visual equipment for any activities (on campus/outside of campus) based on frequent application.
- Supervise in-term of skill and facilities/equipment for any activities by students/lecturers.
- UIDM as Audio Visual Committee for any major events on campus such as Convocation, Students Registration Day, major celebrations and assembly.
- Documentation Record any events on/off campus through video and photo for the purpose of archives.
- As committee for Design & Printing for most of the major events on campus.

5.6.1 INSTRUCTIONAL DEVELOPMENT AND MULTIMEDIA UNIT ORGANISATION CHART



5.6.2 INSTRUCTIONAL DEVELOPMENT AND MULTIMEDIA UNIT CONTACT PERSONNEL

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Mohamad Naaim Bin Md Zain	Head of Unit (Multimedia & Resources Officer)	04-9886380	mohamadnaaim@ptss.edu.my
2	Mohammad Shahiran bin Salim	Multimedia & Resources Officer	04-9886380	shahiran@ptss.edu.my
3	Ahmad Norhaizam Bin Ahmad Rosli	Photographer	04-9881693	norhaizam@ptss.edu.my
4	Muhamad Fadzwan Bin Amir Roslan	Designer	04-9881690	fadzwan@ptss.edu.my
5	Syed Shafirul Bin Wan Idrus	Designer	04-9881690	shafirul@ptss.edu.my
6	Mohd Hisyamuddin Bin Azlan	Assistant Engineer	04-9881693	hisyamazlan@ptss.edu.my
7	Nor Ezhar Bin Ishak	Juruaudio Visual	04-9881690	ezhar@ptss.edu.my

5.7 INFORMATION TECHNOLOGY AND DATA CENTER

The Information Technology and Data Center (ITDC) is one of the support unit for Academic and Administration in PTSS that provides ICT services for management, teaching and learning activities.

Among the scope of duties and responsibilities of ITDC are:

- Management of Campus Network System
- Management of ICT Equipment Maintenance
- Management of Polytechnic Information Management System (SPMP)
- Management of Staff Attendance System (Net-AIMS)
- Management of ICT Helpdesk System (UTMK2U)
- Management of PTSS Official Website
- Management of Staff Official Email (MyGovUC)
- Management of Server Room
- Management of ICT Asset
- Management of ICT Procurement
- Management of Government Public Key Infrastructure (GPKI)
- Management of Video Conference
- Management of ICT Projects
- Management of Technical Support for Other Systems

5.7.1 INFORMATION TECHNOLOGY AND DATA CENTER ORGANISATION CHART

5.7.2 INFORMATION TECHNOLOGY DATA CENTRE CONTACT PERSONNEL

NO	NAME	DESIGNATION	CONTACT NO	EMAIL
1	Nor Hafizah Binti Khadzir	Head of Unit	04-9886346	norhafizah@ptss.edu.my
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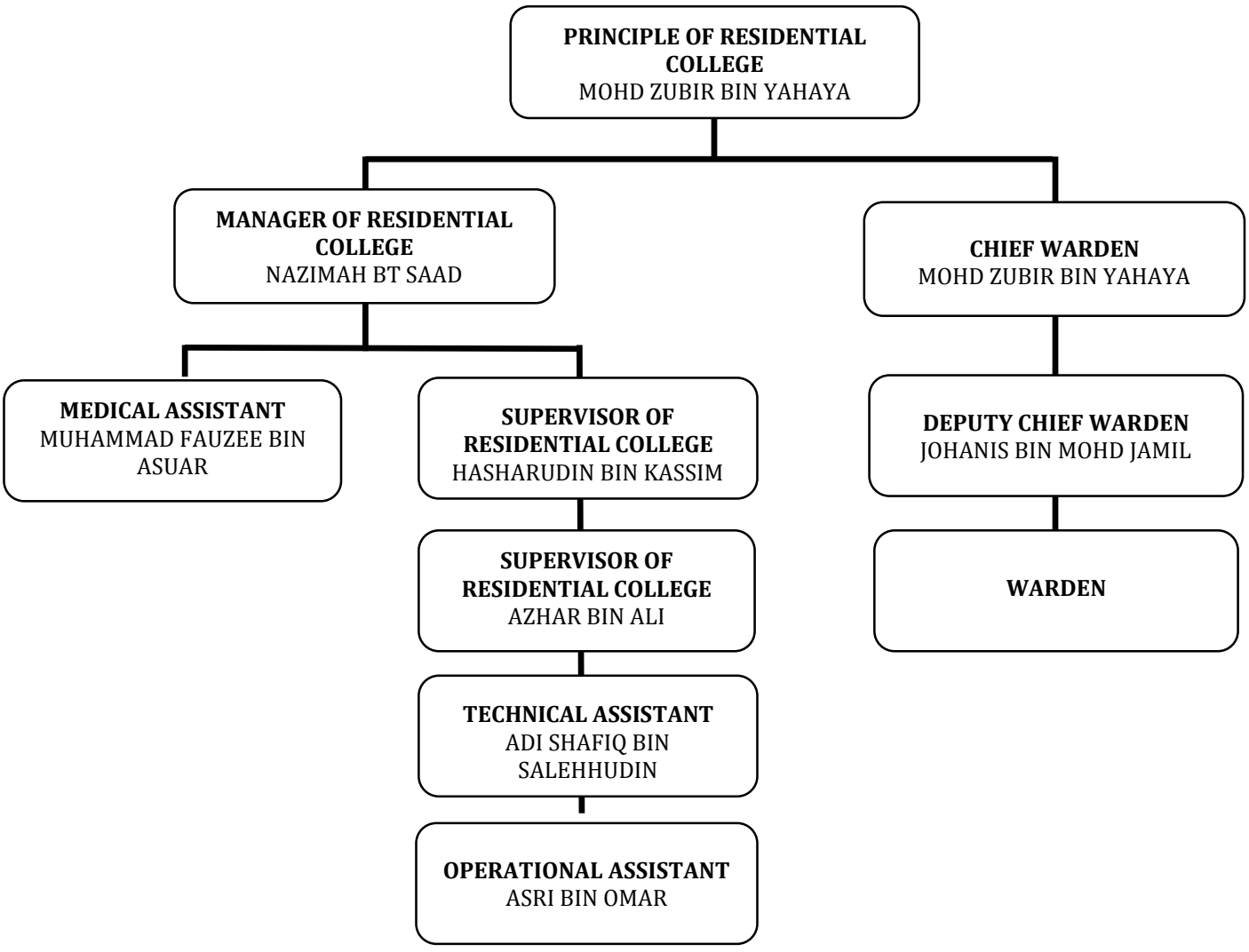
12	Zuraidah Binti Ghazali	Assistant Information Technology Officer	04-9886348	zuraidahghazali@ptss.edu.my
13	Mohd Rifaiz Bin Mohd Razali	Computer Technician	04-9886348	rifaiz@ptss.edu.my

5.8 RESIDENTAL COLLEGE

The uniquely modern PTSS hostel can easily accommodate a total of 3600 students. Students in semester one have the opportunity to enjoy the facilities provided on campus in addition to a comfortable and conducive living environment. Students are placed in the hostel to instill good learning habit, moral values, integration and friendship among students of different race, religion and culture.

5.8.1 RESIDENTAL COLLEGE ORGANISATION CHART



5.8.2 RESIDENTIAL COLLEGE CONTACT PERSONNEL

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