POLITEKNIK MALAYSIA
KUCHING SARAWAK

Student HANDBOOK

DEPARTMENT OF PETROCHEMICAL ENGINEERING

2024 EDITION

Petrochemical Engineering Student Society

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Disclaimer

Student Handbook Department of Petrochemical Engineering 2024 Edition is meant for the students for the **Diploma in Process Engineering (Petrochemical) Intake 2024**. Jabatan Pendidikan Politeknik dan Kolej Komuniti and Politeknik Kuching Sarawak reserve the right to change the content without prior notice.

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STUDENT HANDBOOK
DEPARTMENT OF PETROCHEMICAL ENGINEERING
2024 Edition

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PREFACE FROM THE HEAD OF DEPARTMENT

Bismillahirrahmanirrahim
Assalamualaikum warahmatullahi wabarakatuh dan Salam Sejahtera

Praise be to Allah S.W.T and peace be upon you to our beloved Prophet Muhammad and his family and friends.

We are pleased that you have chosen to study at Politeknik Kuching Sarawak (PKS) and enrolled in the Diploma in Process (Petrochemical) (DPE). We are fully committed to providing the environment, expertise and support, which enables you to fulfill your potential and reach your aspirations.

Student Handbook Department of Petrochemical Engineering 2024 Edition provides general information and guidance you may need to help you to make the most of the opportunities offered at PKS such as vision and mission PKS, programme information, Programme Learning Outcomes (PLO) and Sustainable Development Goals (SDG). It is essential, and your responsibility to read it.

This handbook sits alongside with other guidelines and information relevant to your programme with which you should familiarise yourself with to complete the program on time with flying colours result successfully.

We hope that your time as a student at PKS is successful and enjoyable. Make as many friends as you can, develop as much networking as possible, explore various skills, especially management. Hopefully, JKPK will continue to produce holistic graduates in Intelligence Quotient (IQ), Emotional Quotient (EQ), Social Quotient (SQ) and Adversity Quotient (AQ) in the future, InsyaAllah.

Ts. Nor Hakimah binti Ahmad Subri
Head of Petrochemical Engineering Department
Politeknik Kuching Sarawak

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ABSTRACT

Congratulations to all the students who have been selected to be Diploma in Process Engineering (Petrochemical (DPE) in Department of Petrochemical Engineering.

Student Petrochemical Engineering Department Handbook 2024 Edition provide general and detailed information and guidance related to the Diploma of Process Engineering (Petrochemical) program that helps students throughout their stay at Polytechnic Kuching Sarawak.
Among the main information in this handbook are courses in DPE, examination and assessment, industrial training, sport and co-curriculum, library, students' affairs, hostels, information and communication technology service, safety system, Kelab Pelajar and other facilities provided to students.

We hope all students will appreciate this opportunity. As future leaders, students should have good ethical values such as discipline, honesty, trust, knowledge and the like. These noble values will help students become balanced citizens in terms of Physical, Emotional, Spiritual, Intellectual and Social.

We believe that students have their own ambitions to navigate life in this challenging world. Only students who work hard to succeed will succeed. Therefore, we hope all students to always be ready to face various challenges.

Finally, we hope all students will cooperate with each other to achieve excellence for religion, race and country.

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
KUCHING SARAWAK

Carta Organisasi
JABATAN KEJURUTERAAN PETROKIMIA

KETUA JABATAN
JABATAN KEJURUTERAAN PETROKIMIA
Ts NOR HAKIMAH BINTI AHMAD SUBRI

KETUA PROGRAM
DIPLOMA KEJURUTERAAN PROSES (PETROKIMIA)
HAFIZAH BINTI NAIHI

Hj ABDULLAH BIN ELON

KINTAN BINTI OTHMAN

POLAND JELIHI

ABDULLAH BIN AHMAD

KHAIRULFADILAH BINTI MOHAMAD SAZALI

DAISY AUGUSTINE PEDANG

MASLINA BINTI BUANG

NUR LYDIA BINTI OTHMAN

SITI HAWA BINTI ISMAWI

HIDAYAH BINTI JULAIHI

HATTA AZUWAR BIN DAHLAN

ALEXANDRIA GEORGE EMPAM

CHRISTOPHER JANTING LIEW CHALU

DONALD JUAN

Ts MUHAMMAD FAEZ BIN ABD RAHMAN

NUZUL ARDZAN BIN MOKHTAR

Dr MUHAMAD NAZRI BIN ABU SHAH

MOHAMAD FIKHRI BIN NOR AZMAN

Ts MUHAMMAD AZRI IZANI BIN MOHAMAD HALIM

Ts MUHAMMAD ZAKWAN BIN ZAINE

NURAIMAN BIN ABD RAHMAN

MUHAMMAD BILAL BIN MOKHTAR

AZIS BIN SAPALI

SUIT BIN BOJI

Aline with the 2030 Agenda for Sustainable Development, Department of Petrochemical Engineering Politeknik Kuching Sarawak actively supports the 17 Sustainable Development Goals (SDGs)

VISION

PKS VISION IS TO BECOME THE LEADING-EDGE TVET INSTITUTION.

MISSION

TO PROVIDE WIDER ACCESS TO QUALITY AND RECOGNIZED TVET PROGRAMMES IN ORDER TO PRODUCE HOLISTIC, ENTREPRENEURIAL, BALANCED AS WELL AS TO EMPOWER COMMUNITIES THROUGH LIFELONG LEARNING BY CAPITALISM SMART PARTNERSHIP WITH STAKEHOLDERS.

EDUCATIONAL GOAL

TO PRODUCE HOLISTIC AND COMPETENT TVET GRADUATES CAPABLE OF CONTRIBUTING TO THE NATIONAL DEVELOPMENT

OUTCOME-BASED EDUCATION (OBE)

Outcome-based education or outcomes-based education (OBE) is an educational theory that bases each part of an educational system around goals (outcomes)

Outcome-based education (OBE) is an educational model for students to demonstrate their knowledge and ability to perform according to the required outcomes. It is a student-centered approach that focuses on students' learning. It starts with a clear picture of what students should know, what they should be able to do, and what desirable attitudes and values are needed to organize the curriculum, instruction, and assessment to ensure ultimate learning. Thus, OBE involves the restructuring of Curriculum and assessment that reflects achievement of high learning order and mastery learning.

OBE helps students to be aware of what they should learn, aware of what they are learning and the control over their learning. It leads to successful student learning and encourages lecturers to be well-prepared. It also provides students with appropriate, purposeful learning experiences and opportunities for students to develop originality, self-motivation and independence while acquiring useful knowledge and skills. Outcome-based education (OBE) is an educational model for students to demonstrate their knowledge and be able to perform according to the required outcomes. It is a student-centered approach that focuses on students' learning. It starts with a clear picture of what students should know, what they should be able to do, and what desirable attitudes and values are needed to organize the curriculum, instruction, and assessment to ensure an ultimate learning. Thus, OBE involves the restructuring of the Curriculum and assessment that reflects achievement of high learning order and mastery learning.

ENGINEERING TECHNOLOGY ACCREDITATION COUNCIL (ETAC)

The Board of Engineers Malaysia (BEM) registers inspector inspectors of works, engineering technologists, graduate engineers, and professional engineers under the Registration of Engineers Act 1967 (Revised 2015). The BEM has a duty to ensure that the quality of engineering, engineering technology, and engineering technician education programmes of its registered engineers, engineering technologists and engineering technicians/inspector inspectors of works attain the minimum standard comparable to global practice. Hence the necessity to accredit engineering, engineering technology and engineering technician education programmes conducted in institutions.

The Engineering Technology Accreditation Council (ETAC) is the body delegated by BEM for accreditation of engineering technology degrees and engineering technician qualifications. ETAC is made up of representatives from the BEM, relevant learned societies, related Ministries, related government agencies, industry employers of Engineering Technologists and Engineering Technicians in Malaysia, and public representatives.

This Standard outlines details for accreditation of engineering technician education programmes in Malaysia. It serves to facilitate Institutions of Higher Learning (IHLs) to meet the minimum standard stipulated for the accreditation of their existing engineering technician education programmes as well as proposed new programmes. This Standard includes elements of outcomes in the engineering technician education programme curriculum to ensure a Continual Quality Improvement (CQI) culture in the spirit of Outcome-Based Education (OBE).

Board of Engineers Malaysia (BEM) logo

PROGRAMME INFORMATION

PROGRAMME INTRODUCTION

Department of Petrochemical Engineering (JKPK) was established in 1992. Earlier it was known as the Department of Petrochemical Technology (JTP). JKPK offers courses Diploma in Process Engineering (Petrochemical).which related to petroleum and petrochemical industries in Polytechnic Kuching Sarawak, in line with the rapid development of petroleum and petrochemical industries. JKPK is led by the Head of Department and assisted by a Head of Programme. The academic staffs are from various academic backgrounds such as Chemical Engineering, Electrical Engineering, Mechanical & Plant Engineering and Chemistry. There are also a technician as supporting staff.

In order to keep abreast with rapid technological advancements and evolving requirements in industries today, Department of Polytechnic Education has worked collaboratively with the nation's key industry players in developing competency standard of Diploma in Process Engineering (Petrochemical) programme. This collaboration aims to equip students with up-to-date knowledge, relevant skills and attitudes to meet the global challenges and the requirements of the industries.

PROGRAMME SYNOPSIS

The Diploma in Process Engineering (Petrochemical) programme is designed to produce holistic graduates that have knowledge and competent skills in the field of process engineering to fulfil the demand of workers in engineering sector. The programme structure focuses on the area of Mass and Energy Balance, Chemistry, Thermodynamics, Mechanical Plant Equipment, Heat and Mass Transfer, Fluid Mechanics, Separation Process, Process Control, Instrumentation and Electrical, Process Design and Reactor Technology

Diploma in Process Engineering (Petrochemical) is a 3-year programme offered by the Petrochemical Engineering Department, Politeknik Kuching Sarawak, since 2011, with the pioneer batch of students graduating in 2014. The programme uses Malay/English as medium of instruction and has obtained full accreditation status by the Malaysia Qualification Agency (MQA) in December 2012 until 2018. Furthermore in 2019 Diploma in Process Engineering (Petrochemical) has obtained accreditation status by Engineering Technology Accreditation Council (ETAC).

PROGRAMME INFORMATION

PROGRAMME AIMS

The programme believes that every individual has potential and the programme aims to develop adaptable and responsible Senior Assistant Process Engineers to support government aspiration to increase workforce in engineering related field.

JOB PROSPECT

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

1. Assistant Engineer
2. Technical Assistant
3. Assistant Service Manager
4. Service Advisor
5. Assistant Engineer
6. Technical Assistant
7. Assistant Service Manager
8. Service Advisor
9. Supervisor
10. Technician
11. Technical Instructor or Lecturer
12. Technical Sales Executive / Engineer
13. Draughter / Designer
14. Entrepreneur

PROGRAMME EDUCATIONAL OBJECTIVES

The Diploma in Process Engineering (Petrochemical) programme should produce balanced and competent TVET workers who are:

01 Proficient with industry-relevant knowledge and skills in process engineering (petrochemical) field

02 Engaging on lifelong and continuous learning to enhance knowledge and skills

03 Acquire with entrepreneurial skills and mind set in the real working environment

04 Established links with society and players in the industry

Diploma in Process Engineering (Petrochemical) DPE

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
KUCHING SARAWAK

Upon completion of the DPE programme, students should be able to

Knowledge

Apply knowledge of applied mathematics, applied science, computer and engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices in area of process engineering (petrochemical).

Design/ Development of Solution

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 as well as cultural, societal and environmental considerations in area of process engineering (petrochemical) (DK5).

Modern Tool Usage

Apply appropriate techniques, resources, and modern engineering computing and IT tools to well-defined engineering problems, with an awareness of the limitations (DK2 and DK6).

Ethic

Understand and commit to professional ethics and responsibilities and norms of technician practice and including compliance with national and international laws. Demonstrate an understanding of the need for diversity and inclusion (DK9).

Communication

Communicate effectively and inclusively 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.

Life Long Learning

Recognise the need for, and have the ability for i) independent and lifelong learning and ii) critical thinking in the face of specialised technical knowledge (DK8).

What are the PROGRAMME LEARNING OUTCOMES (PLO) for DPE programme?

PLO 1 · PLO 2 · PLO 3 · PLO 4 · PLO 5 · PLO 6 · PLO 7 · PLO 8 · PLO 9 · PLO 10 · PLO 11

Problem Analysis

Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to process engineering (petrochemical) field (DK1 to DK4).

Investigation

Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements (DK8).

The Engineer & Society

Consider sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment, in solving well- defined engineering problems (DK1, DK5 and DK7).

Individual and Teamwork

Function effectively as an individual, and as a member in diverse and inclusive teams in multi-disciplinary, face-to-face, remote and distributed settings (DK9).

Project Management and Finance

Demonstrate awareness of engineering management principles as a member or leader in a technical team and to manage projects in multidisciplinary environments.

PROGRAMME INFORMATION: KNOWLEDGE PROFILE

Notes:

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

DK 2: Procedural mathematics, numerical analysis, statistics applicable in a sub- discipline.

DK 3: A coherent procedural formulation of engineering fundamentals required in an accepted sub-discipline.

DK 4: Engineering specialist knowledge that provides the body of knowledge for an accepted sub-discipline.

DK 5: Knowledge that supports engineering design and operations based on the techniques and procedures of a practice area.

DK 6: Codified practical engineering knowledge in recognized practice area.

DK 7: Knowledge of issues and approaches in engineering technician practice, such as public safety and sustainable development.

DK 8: Engagement with the current technological literature of the practice area.

DK 9: Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

DK: Knowledge Profile

Dublin Knowledge refers to the Knowledge Profile as listed in the Manual of Engineering Technician Education Programme Accreditation Standard (ETAC) for diploma programmes

CURRICULUM STRUCTURE

Diploma in Process Engineering (Petrochemical) Kohort Sesi I 2024/2025

SEMESTER 1

COURSE TYPE	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
Compulsory	DUE10062	Technical English 1	1	0	2	0	2	
	MPU24031	Sukan 1	0	2	0	0	1	
	MPU24041	Kelab / Persatuan 1						
	MPU24XX1	Unit Beruniform 1						
Common Core	DBM10163	Engineering Mathematics 1	2	0	2	0	3	
	DBS10042	Engineering Science	2	1	0	0	2	
Discipline Core	DGP10283	Electrical Technology	2	2	0	0	3	
	DGP10293	Applied Chemistry	2	2	0	0	3	
	DGP10302	Computer Aided Design	0	3	0	0	2	
	DGP10512	Occupational, Safety and Health for Process Engineering	2	0	0	0	2	
Total			23				18	

SEMESTER 2

COURSE TYPE	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
Compulsory	MPU21072	Penghayatan Etika dan Peradaban	1	0	2	0	2	
	MPU24051	Sukan 2	0	2	0	0	1	MPU 24XX1
	MPU24061	Kelab / Persatuan 2						MPU 24XX1
	MPU24XX1	Unit Beruniform 2						MPU 24XX1
Common Core	DBM20173	Engineering Mathematics 2	2	0	2	0	3	DBM10163
Discipline Core	DGP20313	Thermodynamics	2	2	0	0	3	
	DGP20323	Process Plant Equipment	2	2	0	0	3	
	DGP20333	Fluid Mechanics	2	2	0	0	3	
Specialization	DGP20343	Chemistry of Petrochemical Processes	2	2	0	0	3	
Total			25				18	

SEMESTER 3

COURSE TYPE	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
Common Core	DBM30183	Engineering Mathematic 3	2	0	2	0	3	DBM20173
Compulsory	DUE30072	Technical English 2	1	0	2	0	2	DUE10062
Discipline Core	DGP30353	Process Instrumentation and Control	2	2	0	0	3	
	DGP30363	Heat transfer	2	2	0	0	3	DGP20313
	DGP30373	Mass and Energy Balance	2	2	0	0	3	DGP10293
Specialization	DGP30383	Piping and Instrumentation Diagram in Petrochemical Plant	2	2	0	0	3	
Total			23				17	

CURRICULUM STRUCTURE

Diploma in Process Engineering (Petrochemical) Kohort Sesi I 2024/2025

SEMESTER 4

COURSE TYPE	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
Common Core	DUU10072	Entrepreneurship	1	2	0	0	2	
Compulsory	MPU22071	Kursus Integriti dan Anti-Rasuah	0	0	2	0	1	
Discipline Core	DGP40392	Programming Method for Process Engineering	1	2	0	0	2	
	DGP40402	Project 1	1	2	0	0	2	
Specialization	DGP40413	Petrochemical Polymer	2	2	0	0	3	
	DGP40423	Petrochemical Process Technology	2	2	0	0	3	
Electives	DGPXXXXX	Elective***	3	0	0	0	3	
Total			22				16	

SEMESTER 5

COURSE TYPE	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
Compulsory	MPU23182	Sains Teknologi dan Kejuruteraan Islam*	1	0	2	0	2	
	MPU23172	Nilai Masyarakat Malaysia**						
	DUE50082	Technical English 3	1	0	2	0	2	DUE30072
Common Core	DJJ30332	Engineering and Society	2	0	0	0	2	
Discipline Core	DGP50433	Project 2	1	4	0	0	3	DGP40402
Specialization	DGP50443	Pollution Control in Petrochemicals Industry	2	2	0	0	3	
	DGP50452	Petrochemical Production Processes	2	0	0	0	2	
Total			19				14	

SEMESTER 6

COURSE TYPE	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
Industrial Training	DUT600610	Engineering Industrial Training	0	0	0	0	10	
Total			0				10	

ELECTIVES

NO.	COURSE CODE	COURSE NAME	CONTACT HOURS				CREDIT VALUES	PREREQUISITE
			L	P	T	O		
1	DGP40463	Renewable and Sustainable Energy Engineering	3	0	0	0	3	
2	DGP40473	Petroleum Technology	3	0	0	0	3	
3	DGP40483	Industrial Management	3	0	0	0	3	
4	DGP40493	Utility Plant	3	0	0	0	3	
5	DGP40503	Reactor in Petrochemicals Industry	3	0	0	0	3	
FREE ELECTIVE								
1	DUD10012	Design Thinking	1	0	0	1	2	
TOTAL CREDIT HOUR							**93**	

CURRICULUM STRUCTURE

Diploma in Process Engineering (Petrochemical) Kohort Sesi I
2024/2025

Legend:

L: Lecture, P: Practical / Lab, T: Tutorial, O: Others

(The numbers indicated under L, P, T & O represent the contact hours per week, to be used as a guide for timetable preparation)

*For Muslim Students

**For Non-Muslim Students

Notes:

1. The total of SLT for graduate is 93 credits.

2. The total credit hours to qualify for Industrial Training is 83 credits. The total hours of SLT for Industrial Training is 800 hours or equivalent to 20 weeks.

3. The minimum and maximum credit value of Electives must be referred to the programme standard or professional bodies.

4. Elective courses offered are cross-disciplinary and can be chosen from courses listed in the program structure or any courses listed in the inventory of other disciplines; but must adhere to prerequisite requirements in the Programme Information.

5. Free Electives are courses which are not included in any programme structure but if taken, will contribute towards students' CGPA, provided that institutions adhere to the Jabatan Pendidikan Politeknik & Kolej Komuniti Free Electives Guidelines.

6. MPU22212 Bahasa Kebangsaan A is COMPULSORY for students who did not attain credit in Bahasa Melayu at Sijil Pelajaran Malaysia (SPM) level and will contribute to students' CGPA.

7. Co-curriculum pathways:

   a. Path 1: Sukan
   b. Path 2: Kelab/Persatuan
   c. Path 3: Unit Beruniform

COURSE SYNOPSIS

Semester 1/Year 1

COURSE CODE:	NAME OF COURSE:	PREREQUISITE (IF ANY) : None	CREDIT VALUE: 3
DGP10283	ELECTRICAL TECHNOLOGY		

SYNOPSIS:
Electrical Technology exposes students to concepts of basic electrical, electromagnetism and transformers. The course focuses on different types of electrical circuits, the relationship between current and voltage including resistance. It also provides skills in measuring the electrical quantities, constructing basic circuits and operating transformer.

COURSE CODE:	NAME OF COURSE:	PREREQUISITE (IF ANY) : None	CREDIT VALUE: 3
DGP10293	APPLIED CHEMISTRY		

SYNOPSIS:
Applied Chemistry is designed to provide students with knowledge related to the principles of general chemistry. It emphasises the principles of applying the theories to practical problems involving the fundamental of chemistry. This course covers the structure of the atom, matter, mole concept, periodic table, chemical bonding, acid-base concepts, oxidation-reduction and chemical equilibrium.

COURSE CODE:	NAME OF COURSE:	PREREQUISITE (IF ANY) : None	CREDIT VALUE: 2
DGP10302	COMPUTER AIDED DESIGN		

SYNOPSIS:

Computer Aided Design introduces and provides knowledge to Computer Aided Design (CAD) software application in developing engineering drawing particularly in technical drawing. This course will enable students to explore the software from its graphical user interface to command features including data entry, draw, modify, display control, drawing aids, layer, block, insert, dimensioning, hatching and plotting.

COURSE CODE:	NAME OF COURSE:	PREREQUISITE (IF ANY) : None	CREDIT VALUE: 2
DGP10512	OCCUPATIONAL SAFETY AND HEALTH FOR PROCESS ENGINEERING		

SYNOPSIS:
Occupational Safety and Health for Process Engineering course is designed to impart understanding of the self-regulatory concepts and provisions under the Occupational Safety & Health Act (OSHA) in Malaysia. This course presents the responsibilities of workers in implementing and complying with the safety procedures at work. Understanding of notifications of accidents, dangerous occurrences, poisoning and diseases and liability for offences will be imparted to students. This course will also provide an understanding of the key issues in OSH Management, Incident Prevention, Chemical Safety, Hazard Identification Risk Control and Risk Assessment (HIRARC), Fire Safety, Workplace Environment and Ergonomics and guide the students gradually into this multi-disciplinary science.

COURSE SYNOPSIS

Semester 2/Year 1

COURSE CODE: DGP20314	**NAME OF COURSE:** THERMODYNAMICS	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3

SYNOPSIS:
Thermodynamics introduces students to basic thermodynamics concepts such as the perfect gas law, steam properties, non-flow and flow processes, the First Law and Second Law of thermodynamics, the Carnot and Rankine cycles, and Gibbs Free Energy. Additionally, this course will impart knowledge and understanding of theory, concepts, and the application of principles to solve problems pertaining to thermodynamics processes. This course also exposes students to demonstrations of thermodynamics experiments using real equipment.

COURSE CODE: DGP20323	**NAME OF COURSE:** PROCESS PLANT EQUIPMENT	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3

SYNOPSIS:

Process Plant Equipment provides knowledge on the concepts and basic principles of plant static and rotary equipment. The course emphasizes the general uses and basic operating principles of static and rotary equipment such as valves, pipes, furnaces, boilers, heat exchangers, pumps, compressor, turbines and internal combustion engine. Students will be introduced to the classifications, types and specific functions of the stated components above.

COURSE CODE: DGP20333	**NAME OF COURSE:** FLUID MECHANICS	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3

SYNOPSIS:
Fluid Mechanics introduces and provides knowledge of the basic principles and concepts of fluid mechanics with applications to practical engineering situations. This course will enable students to learn about fluid properties, statics, and dynamics. This course also exposes the students to measuring flow rates and solving fluid mechanics problems in fluid flow and pipe systems

COURSE CODE: DGP20343	**NAME OF COURSE:** CHEMISTRY OF PETROCHEMICAL PROCESSES	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3

SYNOPSIS:
Chemistry of Petrochemical Processes focuses on the chemistry of various petrochemical processes. It emphasizes the chemical reactions and their derivatives of hydrocarbon. Students should be able to describe the chemical reactions and processes involved in transforming petroleum-based hydrocarbons into the chemicals of the petrochemicals industry.

COURSE SYNOPSIS

Semester 3/Year 2

COURSE CODE: DGP30353	**NAME OF COURSE:** PROCESS INSTRUMENTATION AND CONTROL	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3

SYNOPSIS:
Process Instrumentation and Control provides knowledge about measurement equipment used in the industry, understanding the basic principles and the job lists of instruments. This course will include the basic theory, construction, operation and usage of pneumatic equipment, control valves, transmitters, converters and controllers. Students will understand the basic principle of control systems and their usage according to petrochemical plant situations.

COURSE CODE: DGP30363	**NAME OF COURSE:** HEAT TRANSFER	**PREREQUISITE (IF ANY)** : DGP20313 Thermodynamics	**CREDIT VALUE:** 3

SYNOPSIS:
Heat Transfer emphasises the principles of Heat Transfer in a steady state by conduction, convection and radiation. The principles of steady-state and transient heat conduction in solids are investigated. Laminar and turbulent boundary layer flows are treated, as are condensation and boiling phenomena, thermal radiation, and radiation heat transfer between surfaces. Students will be exposed to the procedures for general problem solving and their application to heat exchangers.

COURSE CODE: DGP30373	**NAME OF COURSE:** MASS AND ENERGY BALANCE	**PREREQUISITE (IF ANY)** : DGP10293 Applied Chemistry	**CREDIT VALUE:** 3

SYNOPSIS:
Mass and Energy Balance is designed as an introduction to the fundamentals of material and energy balance. The emphasis is on understanding the principles of material and energy balances in chemical process systems. This course will develop students ability to solve and perform mass and energy balance problems in the chemical process industry.

COURSE CODE: DGP30383	**NAME OF COURSE:** PIPING AND INSTRUMENTATION DIAGRAM IN PETROCHEMICAL PLANT	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3

SYNOPSIS:
Piping and Instrumentation Diagram in Petrochemical Plant provides knowledge of recognizing symbols used in process flow diagram including equipment, piping and instrument. This course also provides practical skills in reading piping and instrumentation diagram (P&ID) on the actual process to enable students to read and to draw in the industry.

COURSE SYNOPSIS

Semester 4/Year 2

COURSE CODE: DGP40392	**NAME OF COURSE:** PROGRAMMING METHOD FOR PROCESS ENGINEERING	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE: 2**
SYNOPSIS: Programming Method for Process Engineering introduces students to the essential skills of the Python Programming Language. The course provides knowledge on learning to design, write and run programmes encoded in the Python language. Students' skills are developed through programming exercises in the class, from writing simple functions to developing complete applications.			

COURSE CODE: DGP40402	**NAME OF COURSE:** PROJECT 1	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 2
SYNOPSIS: Project 1 provides knowledge on the implementation methods and project production based on the hardware or analysis from laboratory tests, or research data/information. This course provides exposure to selection and initial project planning, preparation methods, presentation proposals, and production projects. This course also prepares the students with knowledge and training skills in problem-solving and decision-making before going into the nature of employment in the future.			

COURSE CODE: DGP40413	**NAME OF COURSE:** PETROCHEMICAL POLYMER	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3
SYNOPSIS: Petrochemical Polymer focuses on theoretical knowledge of the basic polymer and plastic classifications. The course will also introduce students to the plastic production process. The students will be able to describe the plastic production process and relate it to environmental aspects.			

COURSE CODE: DGP40423	**NAME OF COURSE:** PETROCHEMICAL PROCESS TECHNOLOGY	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3
SYNOPSIS: Petrochemical Process Technology provides exposure to the basic processes involved in oil and gas processing plants in relationship to the petrochemical industry. This course also provides exposure to the various processing technologies carried out in petrochemical plants. The students will be able to learn the processes involved in the production of petrochemical products and thus complete a process flow diagram.			

COURSE SYNOPSIS

Semester 5/Year 3

COURSE CODE: DGP50433	**NAME OF COURSE:** PROJECT 2	**PREREQUISITE (IF ANY)** : DGP40402 Project 1	**CREDIT VALUE: 3**
SYNOPSIS: Project 2 focuses on the methods of construction, testing, detection, and project preparation planned in the previous semester. This course also trains students to prepare project reports accordance with the prescribed format and perform projects throughout the semester.			

COURSE CODE: DGP50443	**NAME OF COURSE:** POLLUTION CONTROL IN PETROCHEMICAL INDUSTRY	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 3
SYNOPSIS: Pollution Control in Petrochemical Industry emphasizes the fundamentals of environmental pollution such as air, water, solid wastes, and hazardous waste handling in the petrochemicals industry. The students will be exposed to regulations and guidelines related to pollution control and the practical session in the laboratory will also enhance the student's technological literacy skills. This course offers the students the opportunity to demonstrate awareness of sustainability and adhere to environmental quality procedures.			

COURSE CODE: DGP50452	**NAME OF COURSE:** PETROCHEMICAL PRODUCTION PROCESSES	**PREREQUISITE (IF ANY)** : None	**CREDIT VALUE:** 2
SYNOPSIS: Petrochemical Production Processes provide exposure to the basic processes involved in petrochemical processing plant. This course also provides exposure to the various processing technologies carried out in petrochemical plants. The students will be able to learn the processes involved in the production of petrochemical products and thus complete a process flow diagram.			

EXAMINATION & ASSESSMENT

UNIT PEPERIKSAAN is responsible for carrying out all matters and examination activities as well as providing Certificates/Diploma/Academic Transcripts to graduates based on the ruling of Lembaga Peperiksaan dan Penganugerahan Sijil / Diploma Politeknik.

GRADE POINT SYSTEM

The polytechnic evaluation system is based on the quantitative evaluation method of students performance in a program known as Sistem Nilaian Mata (SNM):

1.Purata Nilaian Mata (PNM) or Grade Point Average (GPA)

$$GPA = \frac{Total\ Grade\ Point\ Obtained\ in\ Current\ Semester}{Total\ Credit\ in\ Current\ Semester}$$

2. Himpunan Purata Nilaian Mata (HPNM) or Cumulative Grade Point (CGPA)

$$CGPA = \frac{Current\ Overall\ Total\ Grade\ Point\ Earn}{Current\ Overall\ Total\ Number\ of\ Credit\ Taken}$$

The course assessment consist of:

i. Continous Assesment (CA) – 50%

ii. Final Examinantion (FE)/ Final Assesment (FA) - 50%

OR

i. Continous Assesment (CA) – 100%

ii. Final Examinantion (FE)/ Final Assesment (FA) - 0%

Polytechnic Education Department Management Meeting and Community College has set passing requirements for **Continuous Assessment (PB)** and **Final Exams (PA)** starting Sesi II: 2022/2023 the passing marks for **PB ≥ 40% and PA ≥ 20%.**

GRADING SYSTEM

Markah	Nilai Mata	Gred	Status*
90 - 100	4.00	A+	Sangat Cemerlang
80 - 89	4.00	A	Cemerlang
75 – 79	3.67	A-	Kepujian
70 – 74	3.33	B+	Kepujian
65 – 69	3.00	B	Kepujian
60 – 64	2.67	B-	Lulus
55 – 59	2.33	C+	Lulus
50 – 54	2.00	C	Lulus
47 – 49	1.67	C-	Lulus
44 – 46	1.33	D+	Lulus
40 – 43	1.00	D	Lulus
30 – 39	0.67	E	Gagal
20 – 29	0.33	E-	Gagal
0 – 19	0.00	F	Gagal

WEIGHTAGE OF COURSEWORK ASSESSMENT & FINAL EXAMINATION

- Assessment of each course is carried out continuously within the prescribed study period for a particular semester based on the procedures specified in the current curriculum documents.
- Courses without final examination will be fully (100%) assessed by coursework.
- Final assessment aggregates are assessed based on coursework and final examination as specified in the current curriculum document.

REMINDER!

- **Attendant** for the each semester is **< 80%**
- **Continuous assessment (PB)** mark is **< 40%**
  < 40/100
  < 20/50
- Did not attend Final Examination (PA)
- **Final Examination (PA)** mark is **< 20%**
- **Total assessment** PB + PA is **< 40%**

Will be considered as **FAILED A SUBJECT**

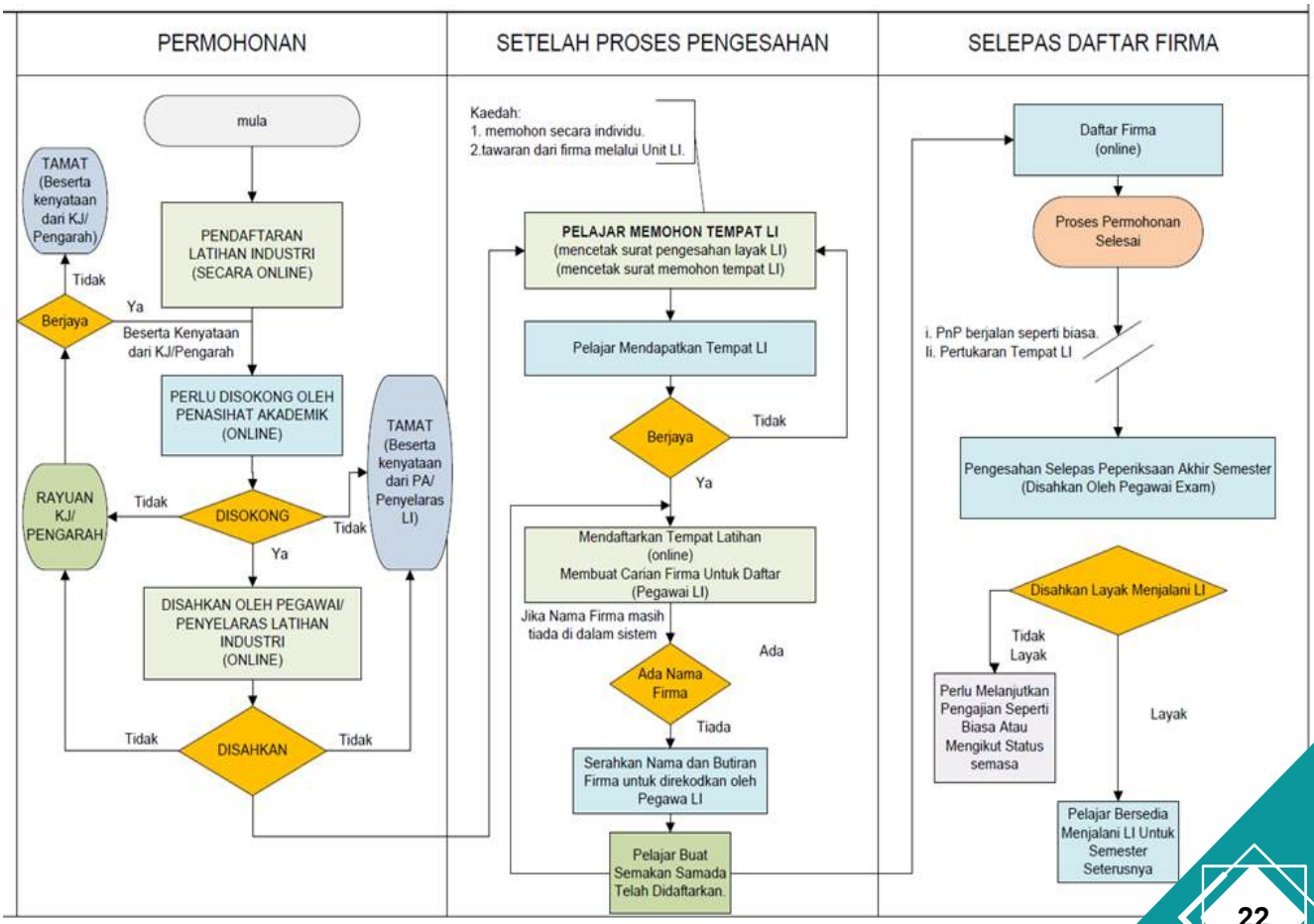
- **CGPA < 1.60**
- **GPA < 1.00**
- **Failed any subject** for **3 times**
- **Failed Industrial Training (LI)** for **2 times**
- **HPNM under KS** status more than **3 times**
- has **exceeded the maximum** study period of a program (Diploma) **:**
  Min : 5 semesters
  Max : 9 semesters

Will be considered as **GB (GAGAL BERHENTI)**

INDUSTRIAL TRAINING

Industrial Training is a compulsory **10-credit-hour course** that exposes students to an actual engineering practice in various industries in their field of studies. All students must undergo 20 weeks of industrial training during their final semester as part of their graduation requirements.

Students of Diploma in Process Engineering (Petrochemical) must complete **83 credits** courses as pre-requisite to do an Industrial Training. This matter will be handled by **Unit Perhubungan & Latihan Industri (UPLI).**



SPORTS & CO- CURRICULUM

JABATAN SUKAN, KOKURIKULUM & KEBUDAYAAN will be responsible for the development of aspects related to sports, co-curricular and culture among students. Various facilities and sports, co-curricular and cultural activities are provided whether competitive or recreational to help improve natural talents in the field of sports and sports management.

LIBRARY

PERPUSTAKAAN SERI KENYALANG plays a very important role in helping institutions to manage and ensure that the information obtained can benefit the people of SMEs. The SME Library operates in an air-conditioned two-story building equipped with facilities for reading books, newspapers, magazines, journals, etc., as well as sufficient study space. In addition to providing reference materials, book lending services, reader reference services and information search advisory services are also provided.

STUDENTS AFFAIRS

JABATAN HAL EHWAL PELAJAR (JHEP) assists the management of Politeknik Kuching Sarawak in the process of recruitment, registration and updating of student records in addition to monitoring student welfare. JHEP's role is to help take care of students' welfare such as assisting in financial aid loan applications, obtaining students permit for non-Sarawakian and also monitoring overall discipline. There are various types of assistance for students, such as insurance arrangements and fee payment assistance.

UNIT JAMINAN KUALITI

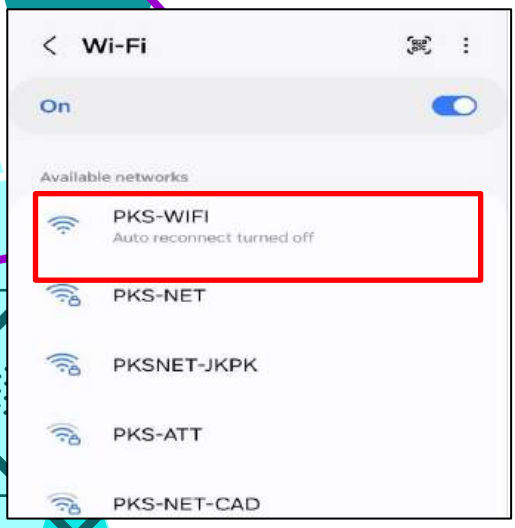
Unit Jaminan Kualiti (UJK) is a Coordinator of quality management activities. There are 10 portfolios under the responsibility of the Quality Assurance Unit at Polytechnic Kuching Sarawak (PKS), namely Quality Management System (SPK), Integrated Management System (SPB), Accreditation, Calendar, Risk Management, OBE, EKSA, OPITO, APACC and Audit. The Quality Assurance Unit functions as:

- Plan, implement and monitor the implementation of quality management activities.
- Monitor KPI achievement.
- Ensure that each department and unit has the necessary documents.
- Coordinate improvement activities related to quality.
- Monitor the culture of quality practices.
- Improve the quality management system through the monitoring of internal audit activities.
- Plan and coordinate writing management reviews, action plan workshops, strategic plan workshops.
- Coordinating and updating the storage of coordinated quality documents in the SME.
- Coordinating and updating the SME VISION & MISSION.
- Monitor the implementation of accreditation compliance.
- Assessing the level of SPK & SPB compliance in SMEs.
- Be a source of reference and support related to quality management in SMEs.

UNIT TEKNOLOGI MAKLUMAT DAN KOMUNIKASI (UICT)

PKS WIFI

PKS provides free Wi-Fi services for students within the campus namely as PKSWIFI. PKS-WIFI is an open WIFI and the student can access the wifi using the username & password which had been registered by the network team at UICT.



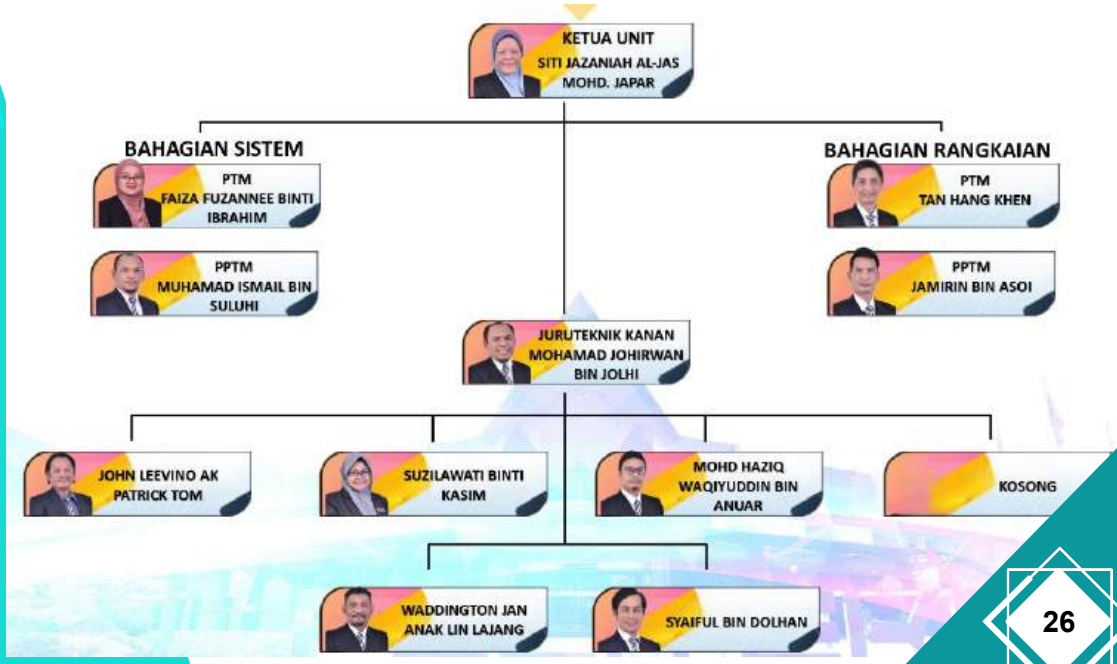
UICT SERVICE

UICT also provides services to SME staff & students. The main activities of UICT are as follows:

ADMINISTRATION OF SERVER AND CAMPUS NETWORK SYSTEM

- Server Administration and Campus Network System Management
- Staff and Student Wireless Network Administration and Monitoring
- Database Administration Matters

UICT ORGANIZATION CHART



HOSTEL

Kuching Sarawak Polytechnic Residential College known as Kolej Kediaman Serapi started its first intake of students in July 1989. In the beginning, this Residential College only had five (5) buildings.

Year 1989 – 5 building blocks
Year 1997 – 7 building blocks
Year 2005 to date – 9 building blocks namely 7 blocks for male students and 2 blocks for female students

Residential College Capacity:
Male: 1058
Female: 1200

Kuching Sarawak Polytechnic Dormitory Unit is responsible for providing safe, peaceful, comfortable living facilities with sufficient facilities for Kuching Sarawak Polytechnic students.

Application for Kolej Kediaman Serapi PKS can be applied through spmp i- kamsis

DORMITORY APPLICATION GUIDE

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
KUCHING SARAWAK

PANDUAN PERMOHONAN MENDIAMI KOLEJ KEDIAMAN DESA SERAPI POLITEKNIK KUCHING SARAWAK
SESI I 2024/2025

Politeknik Kuching Sarawak akan melaksanakan sesi PdP secara bersemuka pada Sesi I 2024/2025 melibatkan semua pelajar. Sehubungan dengan itu, permohonan mendiami kolej kediaman dibuka secara online melalui Sistem Pengurusan Maklumat Politeknik (SPMP i-Kamsis) bermula 24 April 2024 sehingga 15 Mei 2024.

Bagi pelajar yang berminat untuk menduduki Kolej Kediaman Desa Serapi untuk Sesi I 2024/2025, dikehendaki untuk mengisi dan mengemukakan borang permohonan berserta dokumen sokongan seperti berikut :

i. Borang Permohonan Kamsis Sesi I 2024/2025 (isi secara 'online' dan "WAJIB" muat turun daripada SPMP i-Kamsis);
ii. Salinan keputusan peperiksaan terkini pelajar senior Sesi I 2023/2024 kecuali pelajar semester 1 Sesi II 2023/2024;
iii. Kad Kegiatan Aktiviti Asal (fotostat tidak diterima);
iv. Dokumen Kesihatan Sendiri dan Keluarga seperti Surat Doktor (Sakit/OKU), Surat Cerai/Sijil Kematian Ibu/Bapa dan lain-lain (jika berkaitan).

Borang Permohonan yang lengkap diisi hendaklah dikemukakan ke pejabat penyelia asrama pada waktu pejabat atau melalui pos ke alamat berikut :

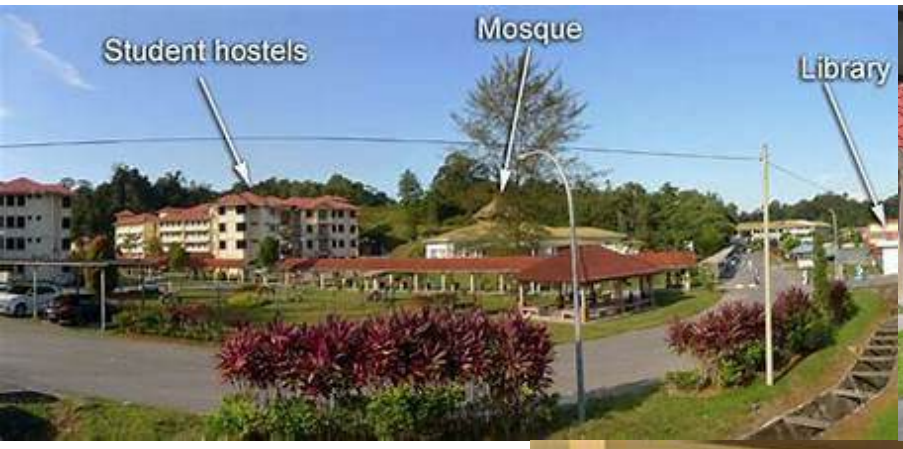
Pejabat Penyelia Asrama
Politeknik Kuching Sarawak,
KM 22, Jalan Matang,
93050 Kuching, Sarawak.

Bagi pelajar yang tidak dapat mengakses / log in SPMP diminta untuk menghubungi penyelia asrama dengan kadar segera. Permohonan selepas tarikh tutup permohonan tidak akan dilayan. Keputusan awal mendiami asrama akan diumumkan melalui laman web dan media sosial rasmi PKS pada 05 Julai 2024.

Sebarang pertanyaan, boleh menghubungi Penyelia Asrama di talian 082-845596/7/8 pada waktu pejabat (8.00pg hingga 1.00ptg / 2.00ptg hingga 4.30ptg) atau emelkan kamsis.pks@poliku.edu.my

Sekian, harap maklum.

Penolong Pengurus Asrama
b.p. Pengarah
Politeknik Kuching Sarawak
24 April 2024



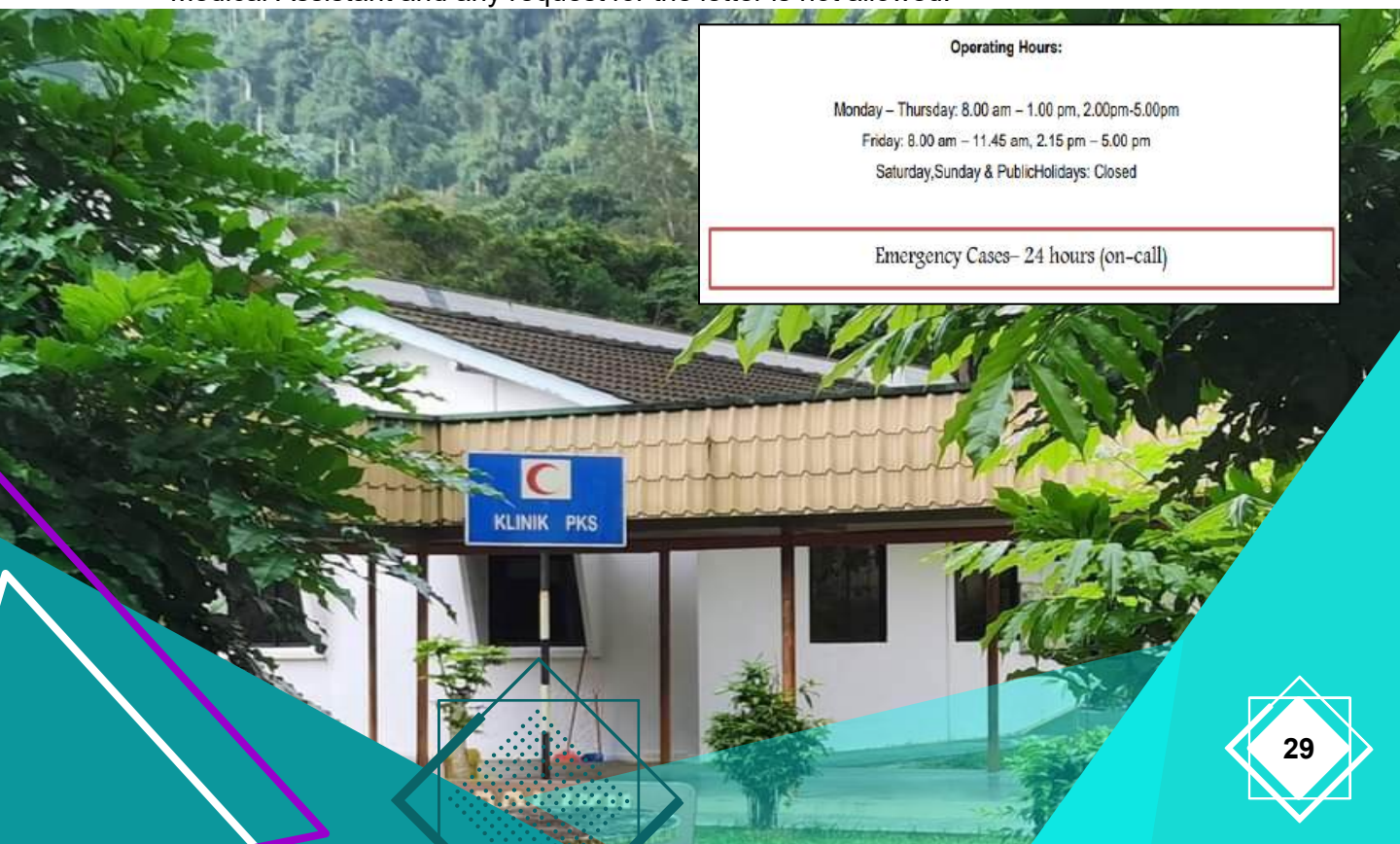
Facilities such as the mosque, ATM machine, cafe & library near Kolej Kediaman Serapi

PKS CLINIC

- The main service of PKS Clinic is to give early medical treatment in emergency cases and non-emergency cases handled by medical assistance.
- If required for further treatment after early treatment by medical assistance, the patient would be sent to Klinik Kesihatan Telaga Air, Klinik Kesihatan Batu Kawa, Klinik Kesihatan Petrajaya, Klinik Kesihatan Jalan Masjid or Sarawak General Hospital.

GETTING TREATMENT ETHICS

- Students have to bring their matrix card or identity card (I.C.) to get the confirmation whether they are PKS students or not.
- For non-emergency cases, please get the treatment during office hours only.
- For emergency cases (after office hour), please contact the warden on duty first before heading to the PKS Clinic.
- Please follow the attire acknowledged by PKS.
- Female students who need of treatment need to be accompanied by at least another female student and a female warden (in case of after office hour).
- Only the Medical Assistant can prescribe medicines to the patients.
- “Surat Pengecualian Kuliah” would only be given after the check-ups are done by the Medical Assistant and any request for the letter is not allowed.



SAFETY

Emergency line PKS and public hotline

TALIAN KECEMASAN

EMERGENCIES 999

POLIS	082-244444/999
BOMBA (PETRAJAYA)	082-313587/999
HOSPITAL UMUM	082-276666/257555
JABATAN PERTAHANAN AWAM	082-252940
PIHAK BERKUASA TEMPATAN	
DBKU	082-446688
MPP	082-333111

	NAMA PEGAWAI	JAWATAN	NO TELEFON
1	Thandayuthapani A/L Seperamaniam	Ketua Unit Keselamatan PKS	012-8226972
2	Shahrulnizam bin Bahari	OSH Coordinator	013-8032523
3	Hamdan Bin Zulkifli	Ketua Warden	019-9922817
4	Imelda Bt Biding	Pen. Ketua Warden	014-3334678
5	Noor Fhakurulzee Bin Abd Talib	Penyelaras ERT	019-3432736
7	Ahmad Nasir Bin Mohd Noor	Pengawalan Keselamatan	012-5128865
8	Mark Philip Engkujat Anak Michael Dean	Ketua Unit Pengurusan Asrama	013-846 9681

LAB / WORKSHOP SAFETY

- Students are required to read and understand general lab/workshop procedure before entering lab/workshop.
- Students need to ensure their attire is appropriate according to general lab/workshop procedure.
- Read the working manual procedure and standard operating procedure (SOP) of equipment before starting experiment in lab / workshop.
- Read and understand Hazard Identification, Risk Assessment and Risk Control (HIRARC) of related equipment before running experiments to identify the hazard and avoid unwanted events in the lab/ workshop.
- For evacuation cases, students need to gather at the assembly point located at the parking area beside JKPK Office.

JKPK LAB/ WORKSHOP SOP

HIRARC JKPK

Kelab Pelajar

JABATAN KEJURUTERAAN PETROKIMIA

1

Vision of Kelab Pelajar JKPK

Become a leading reference organization in management toward excellence and student well-being in the Department of Petrochemical Engineering

Mission of Kelab Pelajar JKPK

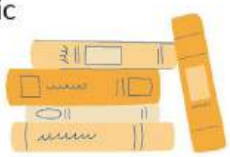
Implement various activities actively at the departmental level to cultivate talent and produce quality graduates as well as develop the potential of students to meet the aspirations of the educational system in the polytechnic

2

Our Past Program

3

4



Official Merchandise

Our Achievement

- Program Pelajar Terbaik 2022 (Poliku Sport Carnival 2022)
- Program Pelajar Terbaik 2023 (Poliku Sport Carnival 2.0)
- Kelab Pelajar Terbaik PKS 2023

5

Lets follow our social media now!!