KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
Sandakan



STUDENT HANDBOOK

FOUNDATION IN ENGINEERING TECHNOLOGY



First Edition
2026

Politeknik Sandakan Sabah
Education Hub, Batu 10
Jalan Sg. Batang
90000 Sandakan
Sabah

POLITEKNIK SANDAKAN SABAH
MINISTRY OF HIGHER EDUCATION MALAYSIA

STUDENT HANDBOOK: A GUIDEBOOK FOR FOUNDATION IN ENGINEERING TECHNOLOGY

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FOREWORD

السلام عليكم ورحمة الله وبركاته



Engineering Technology Foundation Programme, Politeknik Sandakan Sabah

Warm greetings to all our new students.
It is with great pleasure and pride that I welcome you to the **Engineering Technology Foundation Programme** at **Politeknik Sandakan Sabah**. By choosing this path, you have demonstrated a clear commitment to excellence, innovation, and the pursuit of lifelong learning.

This programme is more than just an academic requirement; it is a vital foundation designed to prepare you for the complexities of higher education and the professional challenges of the future. Our curriculum is meticulously crafted to equip you with fundamental knowledge, essential technical expertise, and the sharp analytical thinking necessary to thrive in a competitive world.

In alignment with the **National TVET** Agenda, we emphasize a holistic approach to education. Beyond academic results, we focus on:

- **Soft Skills & Ethics: Developing well-rounded individuals with strong values.**
- **Creativity & Adaptability: Ensuring you remain resilient in today's rapidly shifting technological landscape.**
- **Integrated Learning: Balancing theoretical depth with hands-on experience to produce industry-ready graduates.**

At Politeknik Sandakan Sabah, we believe that true education extends far beyond the four walls of a classroom. We are dedicated to nurturing competent and confident graduates who are ready to contribute meaningfully to society and our national development.

I strongly encourage you to take full advantage of our modern facilities, extensive learning resources, and the academic support system we have in place. Be proactive, engage deeply with your lecturers, and participate in co-curricular activities to ensure a rich and fulfilling educational journey.

This handbook serves as your comprehensive guide and roadmap throughout your studies. I wish you every success in your academic endeavors and look forward to witnessing your growth, achievements, and future contributions

Warm Regards,

MOHD SAHRAN @ AWANG BIN MOHIDIN
Director of Politeknik Sandakan Sabah



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FOUNDATION IN ENGINEERING TECHNOLOGY

POLITEKNIK SANDAKAN SABAH



ABOUT
POLITEKNIK SANDAKAN SABAH

Politeknik Sandakan Sabah (PSS) is a key public **Technical and Vocational Education and Training (TVET)** institution in Sabah and Malaysia, with a strong and distinctive niche in agriculture and aquaculture. As the only polytechnic in Borneo offering specialised diploma programmes in Aquaculture Technology and Agrotechnology, PSS serves as a strategic talent developer for agro-based, fisheries, and food production industries. Through industry-driven curricula, competency-based training, and hands-on learning, the polytechnic plays a vital role in supporting national TVET objectives, food security initiatives, and sustainable economic development.

Established on **12 May 2008**, PSS commenced operations at Politeknik Kota Kinabalu from 1 June 2008 to 30 June 2009, before relocating to Bandar Labuk Jaya in June 2009. The institution subsequently moved to its permanent 100-acre campus at the Education Hub, Batu 10, Jalan Sungai Batang, Sandakan on 30 December 2011. The campus is equipped with modern academic facilities, specialised laboratories, workshops, and student residential amenities that support applied learning and skills mastery aligned with TVET standards.

Further strengthening its role as a main TVET player, Politeknik Sandakan Sabah will introduce a new Foundation (Asasi) programme named Foundation in Engineering Technology starting from Session 1, Academic Year 2025/2026. This newly offered programme is designed to provide a strong academic and skills-based pathway for students aspiring to pursue diploma studies in agriculture, aquaculture, and related technical fields.

The introduction of the Asasi programme reflects PSS's commitment to widening access to TVET education, nurturing early talent, and ensuring a sustainable pipeline of skilled graduates. As of 2025, more than 2,710 graduates have completed their studies at PSS, underscoring its growing contribution to human capital development in Sabah and beyond.

VISION & MISSION



Vision

Becoming a leading institution in TVET excellence

MISSION

Providing wide access to quality and accredited TVET programs

Empowering the community through lifelong learning

Producing holistic, entrepreneurial, and well-rounded graduates

Maximising strategic partnerships with key stakeholders



CLIENT'S CHARTER

"In line with the Customer Charter of the Department of Polytechnic and Community College Education – JPPKK, Politeknik Sandakan Sabah is committed to delivering quality, efficient and integrity-driven technical and vocational education and training to meet stakeholder needs and national aspirations by..."

- *To provide quality and industry-relevant academic programmes and training.*
- *To deliver effective teaching and learning supported by conducive facilities and infrastructure.*
- *To produce knowledgeable, skilled, ethical and competitive graduates.*
- *To offer efficient, transparent and professional academic, student affairs and administrative services.*
- *To safeguard student welfare, safety and discipline at all times.*
- *To foster strong collaboration with industry, agencies and the community.*
- *To manage feedback and complaints professionally for continuous service improvement.*

POLITEKNIK SANDAKAN SABAH

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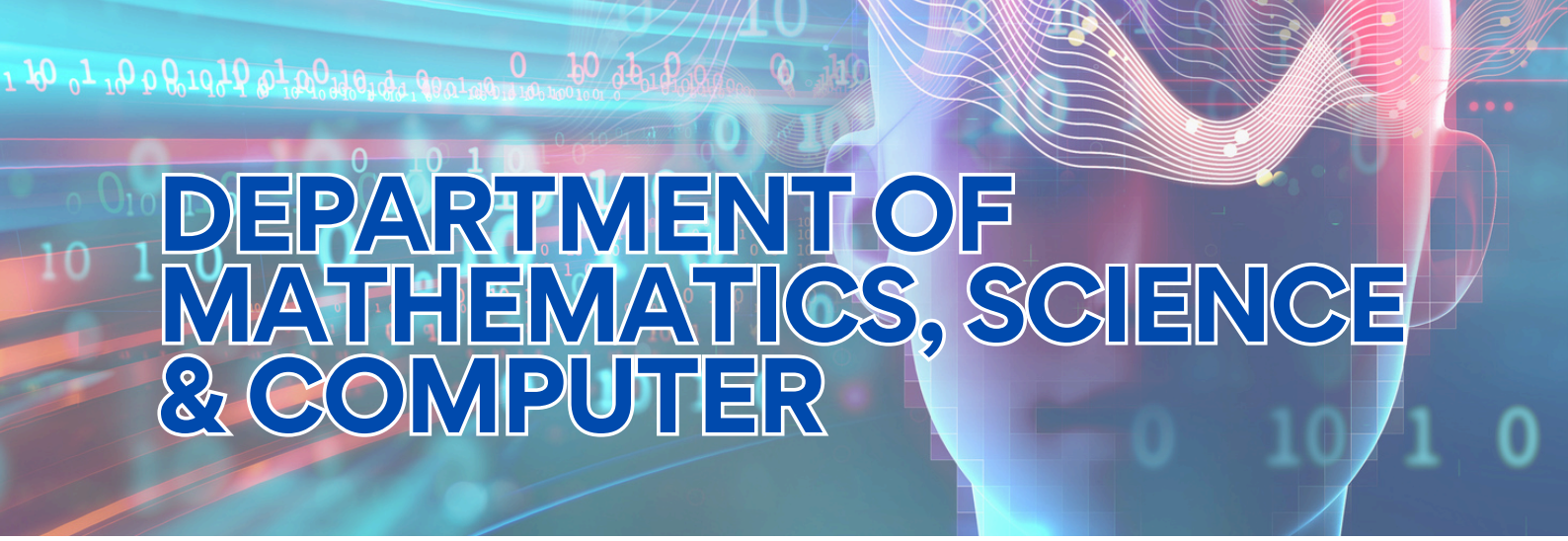


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DEPARTMENT OF MATHEMATICS, SCIENCE & COMPUTER

INTRODUCTION

The **Department of Mathematics, Science and Computer** serves as a key academic unit at Politeknik Sandakan Sabah, providing strong foundational knowledge to support various programmes within the institution. The department delivers core subjects including Biology, Chemistry, Mathematics, and Robotics, which are essential in developing students' analytical, scientific, and technological competencies.

The department is supported by a team of 11 qualified lecturers with diverse academic backgrounds in Mathematics, Science, Engineering Technology, Computer Science, and Robotics. Their collective expertise ensures high standards of teaching, curriculum delivery, and student development.

In Session 1 2025/2026, the department successfully introduced the Foundation in Engineering Technology, marking a significant milestone as the institution's first foundation-level programme. This initiative reflects the department's commitment to strengthening academic pathways and preparing students for progression into diploma-level engineering and technology programmes.

Overall, the Department of Mathematics, Science and Computer remains committed to academic excellence, quality education, and the continuous development of competent graduates aligned with industry needs.

OBJECTIVES

1. **Mathematics Skills:** Integrating mathematical skills for application in engineering, architecture, and information technology.
2. **Science Exposure:** Providing science knowledge relevant to engineering applications for technicians.
3. **Basic Computer Skills:** Equipping students with essential computer skills for their studies at the Polytechnic.
4. **Academic Knowledge & Values:** Integrating academic knowledge with noble values like integrity, responsibility, and independence to develop well-rounded individuals in line with the National Education Philosophy.

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DEPARTMENT STAFF

FOUNDATION PROGRAMME

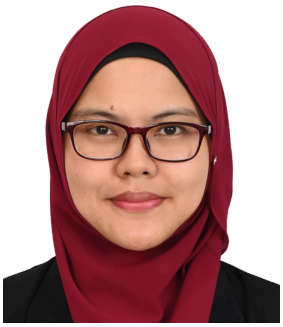
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PROGRAMME INFORMATION

INTRODUCTION

The **Foundation in Engineering Technology programme** (formerly known as Foundation in TVET) aims to broaden access for SPM graduates who meet the required criteria to undertake preparatory studies, providing essential knowledge and skills before pursuing a Bachelor's degree, specifically in Engineering Technology.

Emphasis is placed on practical and hands-on learning, aligned with current industry requirements. The programme spans one year, divided into **TWO (2) semesters** (six (6) months for each semester), aims to equip students with the foundational knowledge and skills necessary for future engineering studies and career success. Coordinated by the **Department of Mathematics, Science, and Computer**, support is provided throughout the journey to ensure academic and personal growth.

Graduates of the Foundation in Engineering Technology programme are given priority for further studies at the **Bachelor's degree level**, based on relevant fields and study pathways. They can pursue their degrees at any of the four **(4) Malaysian Technical University Network (MTUN)**: Universiti Malaysia Perlis (UniMAP), Universiti Teknikal Malaysia Melaka (UTeM), Universiti Tun Hussein Onn Malaysia (UTHM), and Universiti Malaysia Pahang (UMP).

FOUNDATION PROGRAMME
ACADEMIC PATHWAY

1 Foundation programme

AREAS OF SPECIALISATION

- Civil Engineering Technology
- Electrical and Electronic Engineering Technology
- Mechanical Engineering Technology
- Agricultural Engineering Technology

2 Foundation at polytechnic

PARTICIPATING POLYTECHNICS

- Politeknik Sandakan Sabah (**PSS**)
- Politeknik Tun Syed Nasir Syed Ismail, Johor (**PTSN**)
- Politeknik Merlimau Melaka (**PMM**)
- Politeknik Sultan Haji Ahmad Shah, Pahang (**POLISAS**)
- Politeknik Ungku Omar, Perak (**PUO**)
- Politeknik Sultan Abdul Halim Muadzam Shah, Kedah (**POLIMAS**)
- Politeknik Kuching Sarawak (**PKS**)
- Politeknik Sultan Idris Shah, Selangor (**PSIS**)
- Politeknik Nilai, Negeri Sembilan (**PNS**)
- Politeknik Tuanku Syed Sirajuddin, Perlis **(PTSS)**

3 Bachelor's Degree at MTUN

MTUN UNIVERSITIES

- Universiti Malaysia Perlis (***UniMAP***)
- Universiti Teknikal Malaysia Melaka (***UTeM***)
- Universiti Tun Hussein Onn Malaysia (***UTHM***)
- Universiti Malaysia Pahang (***UMP***)



FOUNDATION IN ENGINEERING TECHNOLOGY

ADMISSION REQUIREMENTS

Admission Requirements for the Foundation in Engineering Technology:

01 Sijil Pelajaran Malaysia (SPM)

Applicants **MUST** have completed the Sijil Pelajaran Malaysia (SPM) or its equivalent.

02 Malaysian Citizenship

Only Malaysian citizens are eligible.

03 Pass in SPM for History

For SPM 2013 and onwards, candidates must pass the History subject.

04 Malay and English Language Proficiency

A pass in SPM Malay and English Language subject are **REQUIRED**.

05 Academic Excellence

Candidates must have five (5) credits in the following subjects:

Mandatory Subjects	• Bahasa Melayu • Mathematics
Additional Subjects	• **Three credits** from Additional Mathematics, Physics, Chemistry, Engineering Drawing, Civil Engineering Studies, Electrical and Electronic Engineering Studies, Mechanical Engineering Studies, **OR** Science.
Any TWO (2) Subjects	• Two credits in any other subjects.

06 Physical and Sensory Requirements

Candidates must not have vision impairments (blindness or color blindness), hearing impairments, speech disabilities, physical disabilities, or learning disabilities that hinder practical work.

Programme Framework

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

Upon programme completion, the graduates are able to:

PEO 01 Apply fundamental knowledge and skills in engineering technology when pursuing higher education.

PEO 02 Participate in collaborative conducts, communicating effectively, and displaying good values while pursuing further education

PEO 03 Continue engagement and commitment to continuous learning in engineering and technology.

PROGRAMME LEARNING OUTCOMES (PLO)

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



PLO 6

Pursue Lifelong Learning Independently

Search, interpret, and use relevant information ethically to pursue lifelong learning independently.

PLO 5

Utilisation of Basic Digital Technology Applications

Utilise basic digital technology applications to seek and process data related to a specific field of study; and

PLO 1

Describe and Discuss

Utilise facts to describe and discuss concepts, principles, and processes in a specific field of study;

PLO 4

Communication

Communicate effectively in oral and writing;

PLO 2

Identify and Solve Problems

Apply fundamental principles in the field of study to identify and solve problems;

PLO 3

Conduct Academic Activities

Conduct academic activities such as collect, analyse, organise, and process data/information to make conclusions individually or in groups;

Programme Structure

CREDIT VALUE DISTRIBUTION

COURSE CLASSIFICATION	NO. OF COURSES	CREDIT	%
Common Core	1 x (1 Credit) 7 x (2 Credits) 1 x (3 Credits)	18	36%
Core	2 x (4 Credits) 4 x (3 Credits)	20	40%
Specialisation	3 x (4 Credits)	12	24%
GRAND TOTAL CREDIT VALUE		**50**	**100%**

STUDY DURATION

FULL TIME ONLY	
1 YEAR	2 SEMESTERS (6 months each semester)

NOTE: Students are strongly encouraged to complete their studies within the prescribed duration of the programme.

FIELD OF STUDY SPECIALISATION

PROGRAMME	FIELD SPECIALISATION
Foundation in Engineering Technology	Workshop for Agricultural Engineering Technology
	Workshop for Electrical and Electronic Engineering Technology
	Workshop for Mechanical Engineering Technology*
	Workshop for Civil Engineering Technology*

NOTE: Students are required to choose any **ONE (1)** course from the above in **Semester 2**
*These Specialisation Courses are **NOT OFFERED** in Politeknik Sandakan Sabah

Curriculum Structure

COMMON CORE COURSES

COURSE REQUIREMENT	CODE	COURSE NAME	CREDIT HOUR
Mandatory	FU10012	Thinking Skills	2
	FU10102	Basic Information and Communication Technology (ICT)	2
	FU10032	English 1	2
	FU10043	Fundamental of Engineering Technology	3
	FU10052	Engineering Technology Practice	2
	FU20012	Pendidikan Islam*	2
	FU20022	Pendidikan Moral**	
	FU20142	English 2	2
	FU20041	Co-Curriculum	1
	FU20052	Basic Programming	2
GRAND TOTAL CREDIT VALUE			**18**

NOTE:

1. Students are **REQUIRED** to enrol in **ALL** of the courses above (Common Core Courses), which are equivalent to **EIGHTEEN (18)** credit hours, **NINE (9)** courses in total.
2. Students must **PASS** in **ALL** of the courses above.

Curriculum Structure

CORE COURSES

COURSE REQUIREMENT	CODE	COURSE NAME	CREDIT HOUR
Mandatory	FB10064	Mathematics 1	4
	FB10073	Physics 1	3
	FB10083	Chemistry 1	3
	FB20154	Mathematics 2	4
	FB20073	Physics 2	3
	FB20083	Chemistry 2	3
GRAND TOTAL CREDIT VALUE			**20**

NOTE:
1. Students are **REQUIRED** to enrol in **ALL** of the courses above (Core Courses), which are equivalent to **TWENTY (20)** credit hours, **SIX (6)** courses in total.
2. Students must **PASS** in **ALL** of the courses above.

SPECIALISATION COURSES

COURSE REQUIREMENT	CODE	COURSE NAME	CREDIT HOUR
Mandatory	FS10094	Engineering Drawing and Computer Aided Design (CAD)	4
	FS20134	Workshop for Agricultural Engineering Technology	4
	FS20104	Workshop for Electrical and Electronic Engineering Technology	
	FS20124	Project	4
GRAND TOTAL CREDIT VALUE			**12**

NOTE:
Students are **REQUIRED** to enrol in **ALL** of the courses above (Specialisation Courses), which are equivalent to **TWELVE (12)** credit hours, **THREE (3)** courses in total.

SPECIALISATION FIELD OF STUDY:
Students must **choose any ONE (1)** of the following **Field of Study Specialisation Course**, which is offered in Politeknik Sandakan Sabah:

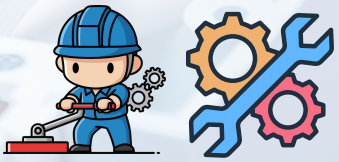
1. **FS20134: Workshop for Agricultural Engineering Technology**
2. **FS20104: Workshop for Electrical and Electronic Engineering Technology**

Curriculum Structure

COURSE DISTRIBUTION BY SEMESTER

SEMESTER	COURSE CLASSIFICATION	CODE	COURSE NAME	CREDIT HOUR
1	Common Core	FU10012	Thinking Skills	2
		FU10102	Basic Information and Communication Technology (ICT)	2
		FU10032	English 1	2
		FU10043	Fundamental of Engineering Technology	3
		FU10052	Engineering Technology Practice	2
	Core	FB10064	Mathematics 1	4
		FB10073	Physics 1	3
		FB10083	Chemistry 1	3
	Specialisation	FS10094	Engineering Drawing and Computer Aided Design (CAD)	4
TOTAL CREDIT FOR SEMESTER 1				**25**
2	Common Core	FU20012	Pendidikan Islam	2
		FU20022	Pendidikan Moral	
		FU20142	English 2	2
		FU20041	Co-Curriculum	1
		FU20052	Basic Programming	2
	Core	FB20154	Mathematics 2	4
		FB20073	Physics 2	3
		FB20083	Chemistry 2	3
	Specialisation	FS20134	Workshop for Agricultural Engineering Technology	4
		FS20104	Workshop for Electrical and Electronic Engineering Technology	
		FS20124	Project	4
TOTAL CREDIT FOR SEMESTER 2				**25**
GRAND TOTAL CREDIT VALUE				**50**

Course Summary



Thinking Skills

FU10012

Common Core

Course Synopsis

THINKING SKILLS course encourages students to reflect on the processes of thinking, as well as developing and practising thinking skills. It involves the ability to process critically, actively and skillfully conceiving, applying, analysing, and evaluating information gathered from observation, experience, reflection, reasoning or communication as a guide to belief and action. This course helps the students to develop and support their beliefs and evaluate the strength of arguments made by others in real-life situations.

Course Learning Outcome (CLO)

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

CLO 1: explain the concept of critical and creative thinking. (C2, PLO1)

CLO 2: identify better solution through critical thinking and creative problem solving. (C2, PLO2)

CLO 3: integrate attributes of critical, creative and innovative in learning and life. (A2, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	2	None

Basic Information and Communication Technology (ICT)

FU10102

Common Core

Course Synopsis

BASIC INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) course engages students to improve their skills on ICT, enabling them to manage their tasks effectively and efficiently that meet current ict trends. This course aimed to make student understand and apply the basic concepts of fundamental of Information System, Information Communication and Technology, Network Computing and Cloud Computing.

Course Learning Outcome (CLO)

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

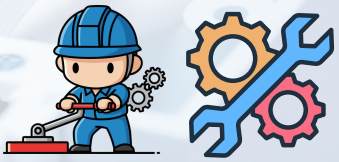
CLO 1: describe concepts and processes related to ICT effectively. (C2, PLO1)

CLO 2: apply suitable ICT tools to solve ICT related problems. (P3, PLO3)

CLO 3: solve problems using appropriate ICT tools. (P3, PLO5)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	2	None

Course Summary



English 1

FU10032

Common Core

Course Synopsis

ENGLISH 1 focuses on productive skills which include speaking and writing as well as receptive skills which encompass listening and reading. These skills enable students to produce language in written and spoken forms; other than to be able to create and communicate new ideas. This course is designed to prepare foundation students to become progressive B1 independent users (referencing to Common European Framework of Reference (CEFR) level); to be proficient English language users in both academic and social contexts.

Course Learning Outcome (CLO)

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

CLO 1: select various information from range of listening task independently. (A1, PLO6)

CLO 2: answer comprehension questions using effective reading skills. (A2, PLO4)

CLO 3: present ideas to communicate effectively in verbal and written form. (A2, PLO4)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	2	None

English 2

FU20142

Common Core

Course Synopsis

ENGLISH 2 aims to enable foundation students to become more proficient in English language by focusing deeper on all four language skills (listening, speaking, reading and writing). Hence, this course is designed to help them in delivering information and viewpoint effectively, able to use relevant information by analyzing and responding to language functions appropriately. Foundation students are aimed to be an independent English language user or a progressive B1 user based on the Common European Framework of Reference (CEFR).

Course Learning Outcome (CLO)

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

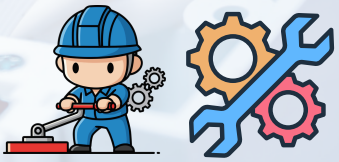
CLO 1: select various information from range of listening task independently. (A2, PLO6)

CLO 2: demonstrate effective communication and social skills in delivering information and viewpoints. (A3, PLO4)

CLO 3: explain relevant information using appropriate writing conventions and reading strategies on a variety of texts based on current issues/topic of interest. (A3, PLO4)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	2	FU10032: English 1

Course Summary



Fundamental of Engineering Technology

FU10043
Common Core

Course Synopsis

FUNDAMENTAL OF ENGINEERING TECHNOLOGY course is designed to equip students with comprehensive knowledge and skills related to engineering technology. This course also focuses on the history of engineering technology, calculation, and measurement which are the core of the engineering technology field. It will emphasize on fundamental usage of the calculator, trigonometry and understanding its relationships with theories learned.

Course Learning Outcome (CLO)

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

CLO 1: explain the knowledge of fundamental engineering technology and future technology in the industry field. (C2, PLO2)

CLO 2: display effectively the application of engineering technology using basic digital technology applications. (P3, PLO5)

CLO 3: respond to the problems using engineering technology in the industry field. (P3, PLO3)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	3	None

Engineering Technology Practice

FU10052
Common Core

Course Synopsis

ENGINEERING TECHNOLOGY PRACTICE focuses on the introduction to the role of technologies in the industry. In this course, students will be exposed to safety and health of the public, technology and development in the industry of engineering technology. This course also covers the meaning and impacts of engineering in society, ethical decision making and professional codes of ethics.

Course Learning Outcome (CLO)

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

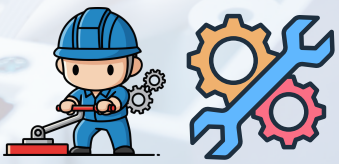
CLO 1: apply the principal of engineering in the field of study. (C3, PLO1)

CLO 2: present verbally the factor that can lead to accident in workplace. (A2, PLO4)

CLO 3: display ethics in completing the given task. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	2	None

Course Summary



Mathematics 1

FB10064
Core

Course Synopsis

MATHEMATICS 1 course is designed to equip students with knowledge of mathematics and the ability to solve problems and propose solutions using mathematical terms, notation, principles and methods to pursue education in first semester. This course covers basic algebra, trigonometry, matrices, vector scalar, statistics and probability.

Course Learning Outcome (CLO)

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

CLO 1: explain fundamental concepts and theories in algebra and statistics. (C2, PLO1)

CLO 2: solve problems using appropriate mathematical methods or tools in algebra and statistics. (C3, PLO2)

CLO 3: propose solutions for real life problems through case study. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	4	None

Mathematics 2

FB20154
Core

Course Synopsis

MATHEMATICS 2 course is designed to equip students with knowledge of mathematics and the ability to solve problems and propose solutions using mathematical terms, notation, principles and methods to pursue higher level of education. This course focuses on indices and logarithmic, differentiation, application of differentiation, integration, application of integration, ordinary differential equation and numerical method.

Course Learning Outcome (CLO)

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

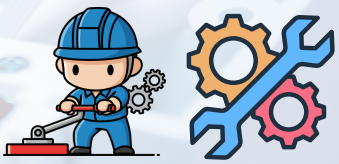
CLO 1: explain fundamental concepts and theories in calculus. (C2, PLO1)

CLO 2: solve problems using appropriate mathematical methods or tools in calculus. (C3, PLO2)

CLO 3: propose solutions for real life problems through group discussion. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	4	FB10064: Mathematics 1

Course Summary



Physics 1

FB10073
Core

Course Synopsis

PHYSICS 1 course is designed to enable students acquire knowledge, practical skills and problems solving skills in basic Physics. This course also focuses on motion, force, momentum, work, energy, power, rotation, oscillations and waves which are the core of the physics field. It will emphasize on fundamental and practical work, analysis and understanding its relationships.

Course Learning Outcome (CLO)

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

CLO 1: explain basic concept and principles in physics. (C2, PLO1)

CLO 2: use basic concept and principles to solve problem in physics. (C3, PLO2)

CLO 3: perform appropriate activities related to concept and principles of physics in laboratory. (P3, PLO3)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	3	None

Physics 2

FB20073
Core

Course Synopsis

PHYSICS 2 course is designed to enable students acquire knowledge, practical skills and problems solving skills in basic Physics. This course also focuses on electrostatics, capacitors and dielectrics, electric current and direct current circuits, magnetism, electromagnetic induction, alternating current and optics. It will emphasize on fundamental and laboratory work, analysis and understanding its relationships.

Course Learning Outcome (CLO)

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

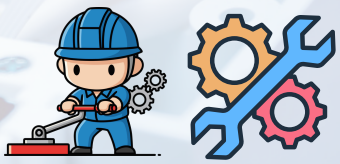
CLO 1: explain basic concepts of electric current, electronics, magnetism and optics. (C2, PLO1)

CLO 2: solve problems of electric current, electronics, magnetism and optics. (C3, PLO2)

CLO 3: display manipulative skills during experiments in capacitor, electric current and direct current circuits, magnetic field and optics. (P3, PLO3)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	3	FB10073: Physics 1

Course Summary



Chemistry 1

FB10083
Core

Course Synopsis

CHEMISTRY 1 is structured to provide students with fundamental concepts, techniques for handling laboratory apparatus and chemicals, and the development of problem-solving abilities in physical chemistry. Topics covered include principles of matter, stoichiometry, the periodic table, atomic structure and chemical bonding.

Course Learning Outcome (CLO)

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

CLO 1: explain basic concepts and principles of physical chemistry. (C2, PLO1)

CLO 2: apply basic concepts and principles of physical chemistry in solving related problems. (C3, PLO2)

CLO 3: display the correct techniques in handling laboratory apparatus and chemicals when carrying out experiments. (P3, PLO3)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	3	None

Chemistry 2

FB20083
Core

Course Synopsis

CHEMISTRY 2 is structured to provide students with fundamental concepts and principles, as well as proper techniques for handling laboratory apparatus and chemicals, alongside developing problem-solving abilities in physical chemistry. Topics covered include reaction kinetic, thermochemistry, electrochemistry, chemical equilibrium and ionic equilibria.

Course Learning Outcome (CLO)

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

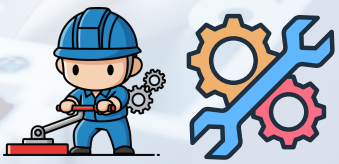
CLO 1: explain basic concepts and principles of physical chemistry in real life situations. (C2, PLO1)

CLO 2: apply basic concepts and principles of physical chemistry in solving chemistry related problems. (C3, PLO2)

CLO 3: display the correct techniques in handling laboratory apparatus and chemicals when carrying out experiments. (P3, PLO3)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	3	FB10083: Chemistry 1

Course Summary



Pendidikan Islam

FU20012

Common Core

Course Synopsis

PENDIDIKAN ISLAM course is designed to produce citizens who understand the Islamic worldview (concept) as a comprehensive and balanced way of life, capable of facing various problems and challenges. The discussion is based on basic Islamic concepts, Islam as a way of life, Islamic institutions, and contemporary challenges.

Course Learning Outcome (CLO)

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

CLO 1: correctly demonstrating the practice of Islam in the daily life of a Muslim. (A2, PLO4)

CLO 2: explain ethics and professionalism within the family institution towards the formation of a sustainable ummah (community). (A3, PLO6)

CLO 3: propose significant initiatives to address contemporary challenges faced by the Muslim community in Malaysia. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	2	None

Pendidikan Moral

FU20022

Common Core

Course Synopsis

PENDIDIKAN MORAL course instills the values and ethics of Malaysian society, which have been increasingly discussed recently. In a life full of challenges, individuals need a strong foundation of religious and moral principles. The Pendidikan Moral module aims to cultivate citizens with commendable morals who appreciate the heritage and culture of Malaysian society.

Course Learning Outcome (CLO)

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

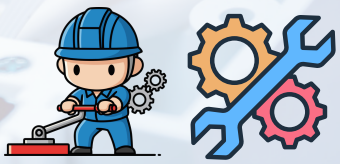
CLO 1: discuss the concepts of morals and ethics in the context of Malaysia's ethnic diversity. (A2, PLO4)

CLO 2: explain ethics and professionalism in addressing moral issues within Malaysian society. (A3, PLO6)

CLO 3: propose significant initiatives to address moral issues faced by Malaysian society. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	2	None

Course Summary



Co-Curriculum

FU20041
Common Core

Course Synopsis

CO-CURRICULUM course is offered to all Engineering Technology foundation students in preparing them with attributes that develop their interpersonal and leadership skills. This course requires students to participate in outside-the-classroom activity/project and to acquire specific skills in sports or clubs.

Course Learning Outcome (CLO)

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

CLO 1: present acquired skills in a chosen co-curricular activity. (P2, PLO3)

CLO 2: demonstrate leadership and teamwork skills in organising club/ sports/ community service. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	1	None

Basic Programming

FU20052
Common Core

Course Synopsis

BASIC PROGRAMMING course provides the skills necessary for the effective of application of computation and computer programming in engineering application. Students will develop their programming skills through a variety of labs and example programs. This learning outcome is proficiency in writing small to medium programs in C Programming language.

Course Learning Outcome (CLO)

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

CLO 1: apply knowledge of basic concepts and fundamentals of structured programming in solving a variety of engineering and scientific problems. (C3, PLO1)

CLO 2: build programs written in C Language for assigned practical work sessions. (P3, PLO3)

CLO 3: demonstrate the application of basic programming using digital technology applications. (A3, PLO5)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	2	None

Course Summary

Engineering Drawing and Computer Aided Design (CAD)

FS10094
Specialisation

Course Synopsis

ENGINEERING DRAWING AND COMPUTER AIDED DESIGN (CAD) course provides the students with the fundamentals of technical drawings and the application Computer Aided Design (CAD) software. For technical drawing, it emphasizes on the practical knowledge of drawing instruments and drawing techniques while for CAD the student will learn to navigate and use the software to create 2D drawing design in engineering. Students shall be able to demonstrate competency in using some standard available features of technical drawing and CAD application to create and manipulate objects or elements in engineering 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 Learning Outcome (CLO)

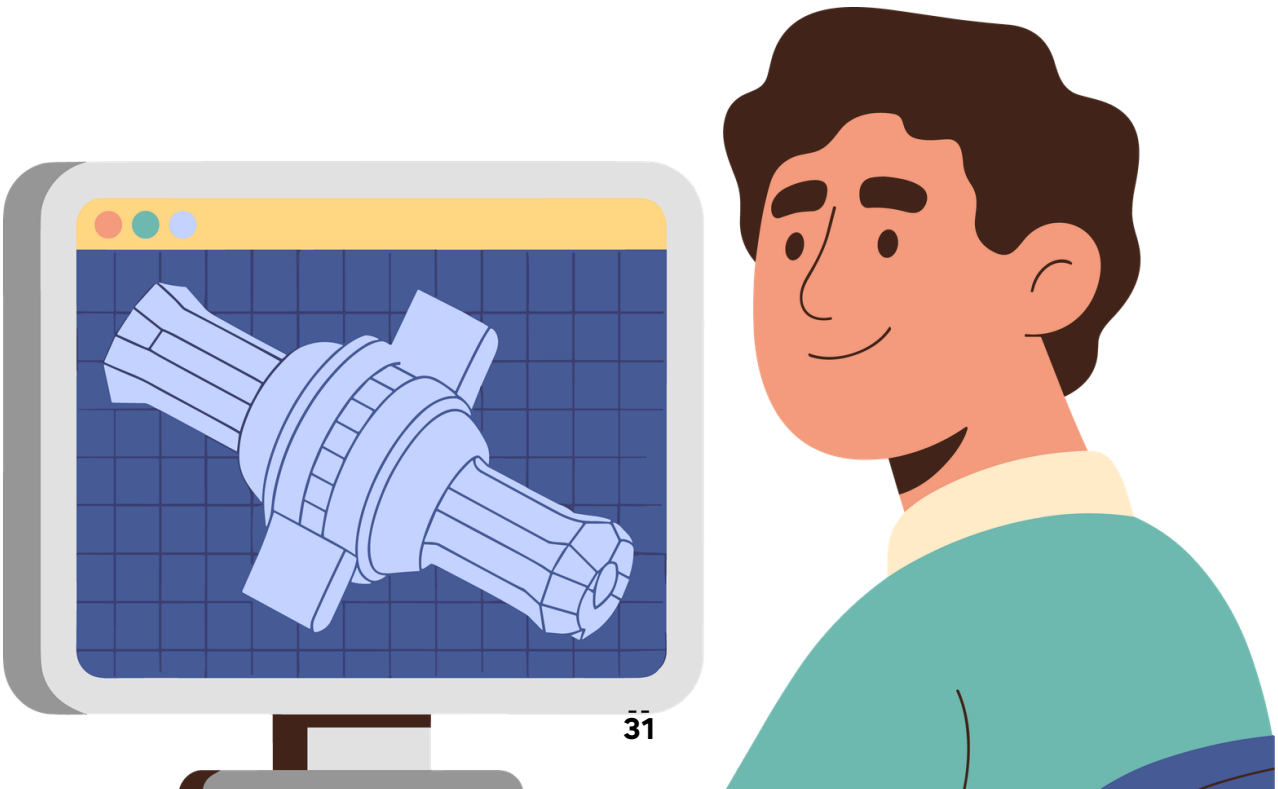
Upon completion of this course, students should be able to:

CLO 1: apply the fundamentals of technical drawing and features of CAD software in producing engineering drawing. (C3, PLO1)

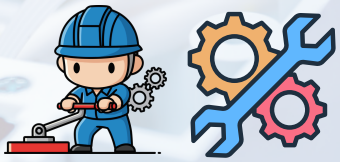
CLO 2: construct the technical drawing and 2D CAD drawing according to the engineering standards. (P3, PLO3)

CLO 3: demonstrate the understanding of engineering norms and practices in engineering drawing standard. (A3, PLO4)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 1 / Year 1	4	None



Course Summary



Workshop for Agricultural Engineering Technology

FS20134
Specialisation

Course Synopsis

WORKSHOP FOR AGRICULTURAL ENGINEERING TECHNOLOGY course is designed to equip student with a comprehensive knowledge and skills related to agriculture engineering. This course exposes the students to basic robotics in agriculture, farm machinery, precision farming and drone application in agriculture. Students are also taught to emphasize on safety procedures in handling robotic arm, agriculture machinery and agriculture drone.

Course Learning Outcome (CLO)

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

CLO 1: apply the knowledge of basic robotic, agriculture machineries and precision farming in agricultural engineering technology. (C3, PLO1)

CLO 2: organizes robot arm operating system, agricultural machineries and drone maneuvers according to standard operating procedures (sop). (P3, PLO3)

CLO 3: describe the most recent advancements in agricultural robotics and farm machinery in agricultural engineering technology. (A3, PLO4)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	4	None

Workshop for Electrical and Electronic Engineering Technology

FS20104
Specialisation

Course Synopsis

WORKSHOP FOR ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY course is designed to equip students with comprehensive skills and understanding in electrical and electronic technology. This course focuses on electrical safety, electrical wiring, electrical and electronic components, electronic test equipment, component testing, and circuit theories, all of which are fundamental to its field of electrical engineering. It focuses on fundamentals, laboratory work, analysis, and understanding how they relate to previously studied theories.

Course Learning Outcome (CLO)

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

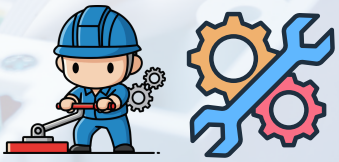
CLO 1: apply the concept of basic electrical safety in performing electrical wiring, measuring electrical and electronic component using test equipment and solving problems of electrical circuits using the appropriate electrical laws and theorem. (C3, PLO1)

CLO 2: perform the practical tasks with appropriate electrical equipment. (P3, PLO3)

CLO 3: explain the process and outcome of practical tasks activities. (A3, PLO4)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	4	None

Course Summary



Project

FS20124
Specialisation

Course Synopsis

PROJECT course will give students the practical and design experience of carrying out on real-world project that incorporates with a range of a vocational skills, electrical work, and other hands-on skills. The course also requires students to learn new technologies and encourage student to develop their generic skills such as developing teamwork, project management, communication skills, problem solving skills and technical writing skills.This enables students to gain valuable skill that can help them succeed in the workforce and achieve their career goals. This course is an excellent addition to any student's education, providing them with the practical skills and experience they need to succeed in their future careers. And, this will inculcate independent and life-long learning.

Course Learning Outcome (CLO)

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

CLO 1: prepare a proposal and report in related field. (C3, PLO1)

CLO 2: construct a product and detail project documentation using appropriate tools. (P4, PLO3)

CLO 3: demonstrate employability skills and entrepreneurial skills in pursuing lifelong learning, that will be valuable in any future career path. (A3, PLO6)

Semester and Year Offered	Credit Value	Pre-Requisite
Semester 2 / Year 1	4	None





Supporting Academic Departments

Supporting Academic Departments

Department of Mathematics, Science & Computer

Supporting Courses:

- **Basic Information and Communication Technology (ICT)**
- **Fundamental of Engineering Technology**
- **Engineering Technology Practice**
- **Engineering Drawing and Computer Aided Design (CAD)**
- **Basic Programming**
- **Co-curriculum**
- **Mathematics 1 & Mathematics 2**
- **Physics 1 & Physics 2**
- **Chemistry 1 & Chemistry 2**
- **Workshop for Electrical and Electronic Engineering**
- **Project**

Department of Agrotechnology & Bio-industry

Supporting Courses:

- **Workshop for Agricultural Engineering Technology**

Department of General Studies

Supporting Courses:

- **Thinking Skills**
- **English 1**
- **English 2**
- **Pendidikan Islam**
- **Pendidikan Moral**

Fees and Financial Assistance

Tuition Fees

- Tuition fees for every semester are as follows:

Foundation in Engineering Technology	RM200.00 per semester

- Tuition fees cover all standard academic courses, access to school facilities, and extracurricular activities.

Additional Fees

- **Accommodation Fees** Ranging from RM60-RM630

  Subject to the type/facilities of the accommodation provided by the respective Polytechnic.

- **Miscellaneous Fees**

First Semester	Maximum RM600
Next Semester Onwards	Maximum RM150

Financial Assistance

- The Financial Assistance for the Foundation in Engineering Technology program is designed to support eligible students financially, ensuring that education remains accessible. This assistance was approved by the Cabinet on October 27, 2023.
- The following are the key information of the financial assistance:

Objective	This program provides sponsorship at the foundation level in selected polytechnics for students who meet the SPM or equivalent entry requirements.
Target Group	Students from **B40 and M40 income groups** enrolled in foundation-level programs at polytechnics, using SPM or equivalent qualifications.
Requirements	Not receiving any other form of sponsorship from government or private agencies.

- Financial Assistance eligibility and application details can be found in the Scholarship Division of the Ministry of Higher Education official website at **biasiswa.mohe.gov.my** or by contacting the **PSS Students' Affairs Department**.

CAMPUS FACILITIES

Politeknik Sandakan Sabah (PSS) provides comprehensive facilities that support academic excellence, practical training, research, student accommodation, and co-curricular development. The campus is well-equipped with lecture halls, smart classrooms (TEC), computer labs, specialised laboratories (soil & water, agro-biotech, food tech, engineering), aquaculture research centres, greenhouses, and farm research areas to support hands-on learning.

Students also benefit from complete support facilities including a library, cafeteria, surau, sports hall, football field, courts, recreational areas, and on-campus hostels.



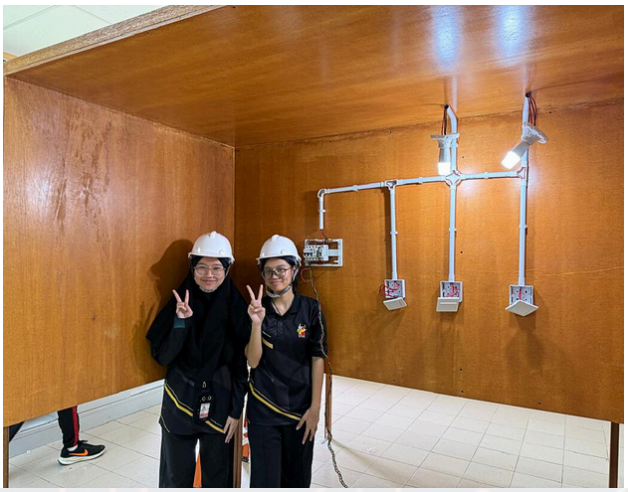




Academic Facilities









Teaching & Learning Spaces

- Main Lecture Hall (large capacity for seminars, briefings, and examinations)
- Lecture Rooms & Classrooms (standard capacity for regular teaching sessions)
- Technology-Enabled Classrooms (TEC) that support blended and digital learning
- Computer Laboratories with internet access and relevant academic software

Laboratories & Practical Facilities

- Soil and Water Laboratory
- Agro-Biotechnology Laboratory
- Post-Harvest Laboratory
- Food Technology Laboratory
- Engineering Laboratory
- Electrical & Electronics Workshop
- Aquaculture Facilities & Hatchery Systems
- Greenhouses and Agricultural Nursery Areas

These facilities allow students to gain hands-on experience aligned with diploma programmes in Agrotechnology, Aquaculture, and the Foundation of Engineering Technology programme.

Academic Support Facility

Library equipped with reference materials, textbooks, journals, and study spaces to support coursework and research activities.











Extracurricular Facilities

⚽ **Sports & Recreation Facilities**

- Sports Hall / Indoor Gymnasium – Used for badminton, volleyball, indoor games, and student sports training.
- Football Field – For football matches, training sessions, and major sports events.
- Petanque Court – For recreational and competitive petanque activities.
- Multipurpose Courts & Open Areas – For sepak takraw, netball, and other outdoor activities.

Student Activities & Development

- Multipurpose Hall / Large Lecture Hall – Used for seminars, leadership camps, student assemblies, competitions, and co-curricular programmes.
- Club & Association Spaces – For meetings, workshops, and society activities.
- Open Campus Areas – Suitable for community service programmes, outdoor training, and student events.

Support Facilities

Residential Facilities

- On-Campus Hostels (Asrama) – Separate accommodation for male and female students, equipped with basic living amenities to provide a safe and conducive residential environment.

Food & Daily Needs

- Cafeteria (Kafeteria) – Provides meals and refreshments for students and staff within campus.

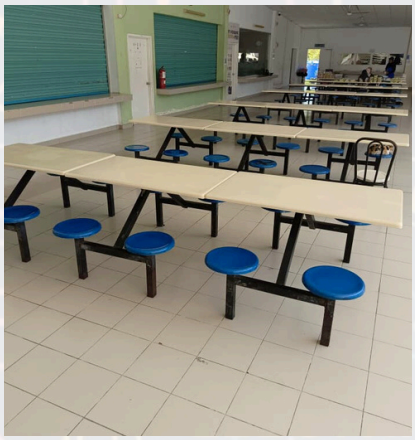
Religious & Spiritual Support

- Surau – Prayer facilities for Muslim students and staff to perform daily prayers and religious activities.

Administrative & Student Services

- Administrative Offices – Manage academic affairs, finance, student registration, and official documentation.
- Student Affairs Unit – Handles student welfare, discipline, scholarships, and co-curricular coordination.
- Security Services – Ensure campus safety and controlled access.

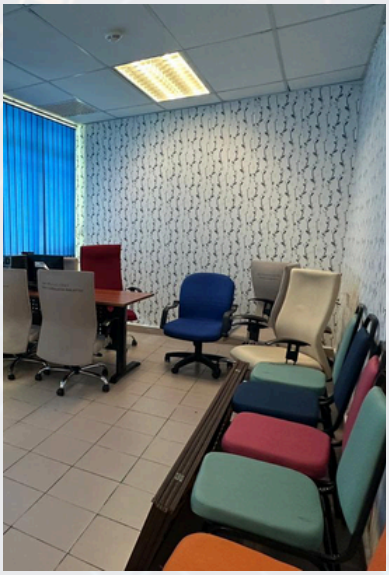












FAQ

Student Conduct and Appearance

Students must always comply with the polytechnic's conduct and appearance guidelines.
This includes:

01 **Behaviour:** Maintain appropriate behaviour during lectures and when interacting with staff members at office counters.

02 **Dress Code:** Adhere to the proper attire requirements while on campus

These standards ensure a professional and respectful academic environment for all students.

Contact Information

Program Asasi Teknologi Kejuruteraan
Jabatan Matematik, Sains dan Komputer
Politeknik Sandakan Sabah.
Education Hub, Batu 10,
Jln. Sg. Batang, 90000 Sandakan,
Sabah.

General Line: **+6089-228 351**
Fax Number: **+6089-228 325**

Email: ***webmaster@pss.edu.my***
Website: ***https://pss.mypolycc.edu.my/***

Official Working Hours

Monday - Thursday : **08:00 am - 01:00 pm**
02:00 pm - 05:00 pm

Friday : **07:30 am - 11.30 am**
02:00 pm - 05:00 pm

Disclaimer

This handbook is accurate and up to date at the time of publication. However, the Department reserves the right to revise, amend, or update any part of its contents without prior notice, in accordance with policy changes, academic requirements, or administrative decisions. Students are advised to refer to the latest official announcements or consult with the Department for the most current information.



Foundation in Engineering Technology

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