TRAINEE GUIDEBOOK

POSTGRADUATE STUDIES
DOCTOR OF PATHOLOGY
IN HAEMATOLOGY

FACULTY OF MEDICINE
THE NATIONAL UNIVERSITY OF MALAYSIA

UNIVERSITI KEBANGSAAN MALAYSIA
The National University of Malaysia

NARATIF BAHARU UKM
UNIVERSITI WATAN KITA

CONTENT

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Universiti Kebangsaan ini merupakan puncak dari usaha kita ke arah memenuhi tuntutan dan aspirasi rakyat yang ingin melihat bahawa bahasa ibunda mempunyai kedaulatan dan kedudukan yang sewajarnya di dalam usaha memenuhi keperibadian nasional

(Speech by Tun Abdul Razak at the First Convocation of UKM, 1973)

Emblem

The National University of Malaysia (UKM) is a four-squared shield. Each square contains a different picture and background color with a specific meaning. The pictures found in the compartment are as follows:

- A dashing yellow tiger is attacking towards the right on a red background.
- The atomic symbol is on a yellow background.
- The technology symbol is on a blue background.
- A red hibiscus on a white background.

Books

Books symbolise knowledge, which is the main role of UKM as an institution of higher learning and research.

Shield

Shield means steadfastness. The emphasis is on UKM's ability to play the role of an institution of higher learning in the country.

Tiger

The tiger symbolizes courage and gallantry. Harimau reflects Malaysian society based on Malay culture. The fierce tiger illustrates UKM's willingness and ability to advance against ignorance, evil and falsehood.

Atoms and Technology

The symbol of the atom and technology symbolizes the concept of national development based on modern science and technology. UKM as a knowledge institution is responsible for producing skilled personnel in all fields to meet the country's development needs.

Hibiscus

Hibiscus is the national flower of Malaysia. The five pieces of ranggi symbolise the five principles of the Rukun Negara that are cherished and always preserved by Malaysians.

Philosophy, Vision, Mission and Goals of UKM

Philosophy

The combination of faith in Allah with beneficial knowledge and the combination of theory and charity is the main basis for the development of knowledge, the process of building an educated society and the development of the University.

Insights

UKM is determined to be a leading university that is ahead of the pace of society and its times to form a dynamic, knowledgeable and noble society.

Mission

To be a selected university that upholds the Malay language and universalises moulded knowledge
national culture.

Goals

To become a leading, technological and competitive knowledge centre that upholds the Malay language as the centre of the language of knowledge, develop a dynamic and noble society, internationalise UKM's image and contribution to the global society, generate technology that is beneficial to the society.

Vision and Mission of Faculty of Medicine UKM

Faculty of Medicine UKM

Vision

To become a leading and competitive medical academic hub based on knowledge, innovation and a team of medical professionals who are dedicated to shaping a healthy and informed society.

Mission

To provide education in the provision of medical professionals and high-quality services based on research on medical evidence, innovation and social sensitivity.

LIST OF UKM INSTRUCTORS

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Program Chair	Assoc. Prof. Dr. Suria Hayati Md Pauzi
Program Coordinator	Dr. Azlin Bt Ithnin
Deputy Program Coordinator	Dr. Mohd Fikri Mustapa
Coordinator of Part I	Assoc. Prof. Dr. Nurasyikin Yusof
Responsibility Center Officer Postgraduate	Mrs. Nordiana Bt Norshah

POSTGRADUATE PROGRAM MANAGEMENT COMMITTEE

1. Postgraduate Program Quality Committee

Chairman	Prof Dr Raja Zahratul Azma Raja Sabudin
Deputy Chairman	Assoc. Prof. Dr. Hafiza Alauddin
Members	Assoc. Prof. Dr. Nurasyikin Yusof Assoc. Prof. Dr. Suria Abdul Aziz Dr. Qhasmira Abu Hazir Dr. Lailatul Hadziyah Mohd Pauzy

2. Postgraduate Programme Accreditation Committee

Chairman	Dr. Azlin Binti Ithnin
Deputy Chairman	Dr. Mohd Fikri Mustapa
Members	
Area 1: Program Development and delivery	Prof Dr Raja Zahratul Azma Raja Sabudin
Area 2: Assessment of Student Learning	Assoc. Prof. Dr. Hafiza Alauddin
Area 3: Student Selection and Support Services	Assoc. Prof. Dr. Nurasyikin Yusof
Area 4: Academic Staff	Assoc. Prof. Dr. Suria Abdul Aziz

Area 5: Educational Resources	Dr. Qhasmira Abu Hazir
Area 6: Program Management	Dr. Lailatul Hadziyah Mohd Pauzy
Area 7: Program Monitoring, Review and Continual Quality Improvement	Dr. Alia Suzana Asri
MSc/PhD	Prof Dr Raja Zahratul Azma Raja Sabudin

3. Postgraduate Programme Review Committee

Chairman	Dr. Mohd Fikri Mustapa
Deputy Chairman	Dr. Azlin Binti Ithnin
Members	Prof Dr Raja Zahratul Azma Raja Sabudin Assoc. Prof. Dr. Nurasyikin Yusof Assoc. Prof. Dr. Hafiza Alauddin Assoc. Prof. Dr. Suria Abdul Aziz Dr. Qhasmira Abu Hazir Dr. Lailatul Hadziyah Mohd Pauzy

Recognition of Pathology Specialty Training Centers (Updated April 24, 2026)

Government and University Hospitals

No.	State	Hospital
1	Perlis	Hospital Tuanku Fauziah, Kangar
2	Kedah	Hospital Sultanah Bahiyah, Alor Setar
3	P Pinang	Hospital Pulau Pinang
4	Perak	Hospital Raja Permaisuri Bainun, Ipoh (AP, MM, HM for renewal)
5	WP Kuala Lumpur	Hospital Kuala Lumpur
6	WP Kuala Lumpur	Hospital Tunku Azizah
7	Selangor	Hospital Selayang
8	Selangor	Hosp Sultan Idris Shah, Serdang
9	Selangor	Hospital Ampang
10	Selangor	Hospital Tengku Ampuan Rahimah, Klang
11	Selangor	Hospital Sungai Buloh
12	Negeri Sembilan	Hospital Tuanku Ja'afar, Seremban
13	Melaka	Hospital Melaka (AP- not for renewal)
14	Johor	Hospital Sultanah Aminah, Johor Bahru
15	Johor	Hosp Sultan Ismail, Johor Bahru
16	Kelantan	Hospital Raja Perempuan Zainab II, Kota Bharu
17	Terengganu	Hospital Sultanah Nur Zahirah, Kuala Terengganu
18	Pahang	Hospital Tengku Ampuan Afzan, Kuantan
19	Sabah	Hospital Queen Elizabeth, Kota Kinabalu
20	Sarawak	Hospital Umum Sarawak, Kuching

Teaching Hospitals (Hospital Pengajar)

No.	University	Hospital
21	UKM	1. Hospital Canselor Tuanku Muhriz, UKM (HCTM)
22	UM	2. Pusat Perubatan Universiti Malaya (PPUM)
23	USM	3. Hospital Pakar Universiti Sains Malaysia (HPUSM)
24	UPM	4. Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia
25	UITM	5. Hospital Al-Sultan Abdullah, Universiti Teknologi MARA (UITM)

Private Hospitals/Laboratories (Hospital/Makmal Swasta)

26	1. Ramsay Sime Darby Medical Centre
27	2. Premier Intergrated Laboratory, Hosp Pantai, KL

PM DR. SHARIFAH EMILIA TUAN SHARIF
(NO MPM: 33693 NO NSR: 133137)
Chairman, Conjoint Committee of Pathology Specialty

HOW TO USE THIS GUIDEBOOK

This guidebook serves as a resource that contains information on the training of Doctor of Pathology in Haematology programme. It provides detailed information on every aspect of the program including specific course structures, assessment methods, rules and regulations as well as available support services. To make the most of this guidebook, trainees may start by familiarizing with the table of contents to easily navigate to relevant sections. The full syllabus and curriculum guide for components of haemotology and research courses are provided in a separately. All of these guides should be used as a reference tool to understand program requirements, teaching and learning plan, assessments and evaluation criteria, as well as the requirements to be fulfilled to graduate as a specialist in Haematology field.

MAPPING OF THIS GUIDEBOOK TO MALAYSIAN STANDARD FOR MEDICAL SPECIALIST TRAINING

AREA	PURPOSE & SCOPE	DRPATH HEMATOLOGY UKM CURRICULUM GUIDE
1	Programme Delivery and Development	Overview (*Program Background*)
2	Assessment of trainee Learning	General criteria Assessment format
3	Trainee selection and support	Trainee selection and recruitment**(refer Prospectus)* Trainee Support Trainee Responsibility
4	Trainers	List of trainers
5	Educational Resources	List of courses and references Syllabus* Guide for research course* Assessment forms* List of approved training centres
6	Program Management	*Postgraduate Programme Management Committee at the Department of Microbiology & Medical Immunology Faculty of Medicine*
7	Program Monitoring, review and quality improvement	Quality assurance and accreditation

*(*provided in separate documents)*

DOCTOR OF PATHOLOGY IN HAEMATOLOGY UKM

PROGRAM DESCRIPTION:

The Doctor of Pathology in Haematology UKM is a four-year programme for training of qualified doctors to become specialists in the field of haematology. The programme is currently offered by UKM and a few other training Universities as Master of Pathology (Haematology). The running of the programme is governed by the Ministry of Higher Education-based Joint Committee of Master of Medicine – Pathology [JBSP-Pathology] to ensure uniformity in training and assessments.

The curriculum structure is now designed to support the development of competencies based on learning domain clusters of the Malaysian Qualification Framework (MQF) as follows:

1. Knowledge and Understanding
2. Cognitive skills
3. Functional work skills with focus on:
    a) Practical skills.
    b) Interpersonal skills
    c) Communication skills
    d) Digital skills
    e) Numeracy skills
    f) Leadership, autonomy and responsibility
4. Personal and enterpreneural skills
5. Ethics and professionalism

The Doctor of Pathology in Haematology programme is critically relevant to addressing the healthcare needs of the Malaysian population. The graduates of the program are specialists with the expertise to diagnose, treat, and prevent haematological diseases, which are significant public health concerns in Malaysia. By focusing on general hematology, molecular hematology, transfsion medicine, hemostasis and stem cell transplantation. The program ensures that trainees gain comprehensive knowledge and skills to manage hematological diseases effectively. Graduates of this program play a vital role in hospitals, laboratories, and public health institutions, contributing to the overall improvement of healthcare standards within the community.

The programme's structure allows for in-depth study of specific areas, focusing on advanced diagnostic techniques in hematology. This extensive training ensures that graduates are well-rounded specialists and equipped with the foundational knowledge required for pursuing further subspecialisation. The programme's emphasis on continuous learning and professional development prepares trainees for leadership roles and advanced practice in specialized fields of haematology, ultimately enhancing the overall quality of healthcare delivery.

General Objectives of the Programme

The Doctor of Pathology in Haematology programme aims to train trainees to become **competent and independent specialists** who can accurately diagnose diseases using morphological assessment, ancillary techniques, and clinical correlation.

Trainees will develop the ability to:

- Apply advanced haematology knowledge in real clinical settings
- Perform diagnostic reporting safely and effectively
- Engage in research and continuous professional development
- Contribute actively to multidisciplinary team (MDT) discussions
- Utilise modern technologies such as digital and molecular pathology in haematology.

This handbook outlines the structure, learning outcomes, training requirements, and assessment framework for the Doctor of Pathology in Haematology programme The programme is competency-based and integrates diagnostic service, academic learning, and research training.

Throughout the programme, emphasis is placed on **professionalism, ethical practice, communication skills, and leadership**, ensuring that trainees are well-prepared to function as key contributors to patient care and healthcare systems.

Ultimately, trainees will graduate as **well-rounded pathologists** capable of delivering high-quality diagnostic services and contributing to education, research, and innovation in haematology.

ENTRY REQUIREMENTS

Candidates who wish to pursue Doctor of Pathology in Haematology (UKM) need to:

a) have a valid medical Degree from a university recognized by Malaysian Medical Council (MMC).
b) be registered with the MMC.
c) completed at least 3 years of medical service.
d) pass the entrance examination (Medical Specialist Pre-entrance Examination-MEDEX)
e) pass an interview.

All candidates must pass the entrance examination before he or she can be eligible for the interview for selection into the programme.

a) For foreign candidates, requirements a-e above are applied, plus Possess a Temporary Practicing Certificate issued by the MMC before starting practice.
b) Undergo clinical or laboratory attachment at a minimum of 3 months before joining the programme with a satisfactory supervisor report.
c) Proof of proficiency in the English language. Candidates must obtain a minimum score of 6.5 in IELTS or 550 in TOEFL (obtained within 2 years prior to date of enrolment).

PROGRAMME EDUCATIONAL OBJECTIVES

The objective of this programme is to produce

1. A haematologist who is highly knowledgeable and proficient in laboratory applications, data analysis, and digital technology in his field.

2. A haematologist who is able to lead, contribute to education, research and health promotion in local, national and international environments, as well as convey knowledge and collaborate effectively.

3. A haematologist with an entrepreneurial mindset, committed to personal development and lifelong learning in the field of pathology.

4. A haematologist who demonstrates good ethics and professionalism in his career.

PROGRAMME LEARNING OUTCOMES

LEARNING OUTCOMES PROGRAM At the end of the programme, trainee will be able to:		MQF CLUSTERS OF LEARNING OUTCOMES	
PLO 1	Critically synthesize haematology knowledge in formulating and planning patient care.	Corresponds to MQF Cluster 1: Knowledge and Understanding	C1
PLO 2	Apply scientific knowledge and approaches as well as critical thinking in making decisions regarding patient diagnosis and treatment.	Corresponds to MQF Cluster 2: Cognitive skills	C2
PLO 3	Demonstrate good diagnostic and clinical skills based on standard operating procedures.	Corresponds to MQF Cluster 3: Cluster 3a: Functional Work Skills – Practical skills	C3a
PLO 4	Demonstrate the ability to interact and work in a team.	Corresponds to MQF Cluster 3: Cluster 3b: Functional Work Skills – Interpersonal skills	C3b
PLO 5	Demonstrate the ability to effectively convey knowledge and provide advice verbally and in writing to peers and the community.	Corresponds to MQF Cluster 3: Cluster 3c: Functional Work Skills – Communication skills	C3c
PLO 6	Demonstrate skills in the use of digital technology in the field of haematology.	Corresponds to MQF Cluster 3: Cluster 3d: Functional Work Skills – Digital skills	C3d
PLO 7	Using numerical skills in research, diagnosis and patient care activities.	Corresponds to MQF Cluster 3: Cluster 3e: Functional Work Skills – Numeracy skills	C3e
PLO 8	Exhibit leadership qualities and be able to make decisions in all situations.	Corresponds to MQF Cluster 3: Cluster 3f: Functional Work Skills – Leadership, Autonomy and Responsibility Skills	C3f
PLO 9	Demonstrate good personal management skills and continuous learning in career.	Corresponds to MQF Cluster 4: Cluster 4a: Personal Skills	C4a

PLO 10	Exhibiting entrepreneurial innovation in the field of haematology.	Corresponds to MQF Cluster 4: Cluster 4b: Entrepreneurial Skills	C4b
PLO 11	Exhibits high medical ethics and professional attitude.	Corresponds to MQF Cluster 5: Ethics and Professionalism	C5
*Interdependent areas such as patient safety, patient-centredness, principles of equality and diversity, healthcare economics, operational perspectives and workforce safety are incorporated in the training curriculum.			

PROGRAM STRUCTURE

The Haematology programme is an apprenticeship style training programme which consists of two stages: Stage 1 and Stage 2.

Stage 1

Stage 1 is of ONE (1) year in duration. In summary, the trainee will attend an Orientation programme, undergo a one-month foundation posting rotation to each of the other major specialties of Pathology, namely: Anatomical Pathology, Medical Microbiology and Chemical Pathology, to themselves familiarise with the workings of these other specialities of Pathology. The trainee will undergo supervised competency-based training in Haematology for the rest of Stage 1. At the end of Stage I, the trainee who has satisfactorily completed training will sit for an examination in Haematology (Part 1 Examination).

Stage 2

The Stage 2 is of THREE (3) years in duration during which the trainee will undergo supervised competency-based training in Haematology with the aim of progressing to Level 5 competence.

Some subspeciality areas will be introduced at this stage such as adult and paediatric haematology, haemopoietic stem cell transplant, molecular genetics, advanced haemostasis and immunology.

In Stage 2, the trainee will also be introduced to research methodology, data analysis and writing a research report. With the guidance of the supervisors (educational/clinical/research), the trainee will plan and undertake a research project and write up a research report. To facilitate understanding of research methodology, all training universities will conduct a research methodology course and all trainees are required to attend the course.

After the satisfactory completion of training in Stage 2, the trainee sits the Final (exit) examination.

Duration of the programme

The total duration of training programme is 4 years or 48 months.

FRAMEWORK OF PROGRAMME

STAGE 1	STAGE 2		
YEAR 1 2 semesters (48 weeks of T&L, log book)	YEAR 2 2 semesters (48 weeks T&L, in-service training, WBAs, and research activity)	YEAR 3 2 semesters (48 weeks T&L, in-service training, WBAs, and research activity)	YEAR 4 2 semesters (48 weeks T&L, in-service training, WBAs, and research activity)
Semester 1	**Semester 1**	**Semester 3**	**Semester 5**
TCL: Readings SCL: Practical, Seminar, Case Study Rotation: - Anatomical Pathology (1 month) -Chemical Pathology (1 month) - Medical Microbiology (1 month) - Fundamentals of Haematology I (2 months)	SCL: in-service training in laboratory/ward/clinic at University Hospital or MOH Hospital with WBAs	SCL: in-service training in laboratory/ward/clinic at University Hospital or MOH Hospital with WBAs	SCL: in-service training in laboratory/ward/clinic at University Hospital or MOH Hospital with WBAs
	TCL: Research methodology and preparation of research proposal. SCL: Practical, Seminar, Case Study, Journal Critique	SCL: Practical, Seminar, Case Study, Journal Critique	SDL: Carrying out research Activity / Writing Case reports ** Submission and assessment of dissertation, and case reports to examiner(s)/department.
	SDL: Case report writing / research proposal writing	SDL: Carrying out research activity / writing case reports	
Semester 2	**Semester 2**	**Semester 4**	**Semester 6**
SCL: Practical, Seminar, Case Study - Fundamentals of Haematology II	SCL: in-service training in laboratory/ward/clinic at University Hospital or MOH Hospital with WBAs	SCL: in-service training in laboratory/ward/clinic at University Hospital or MOH Hospital with WBAs.	SCL: in-service training in laboratory/ward/clinic at University Hospital or MOH Hospital with WBAs.
PART 1 PROFESSIONAL EXAMINATION (2 weeks)	SDL: Carrying out research activity / writing case reports	SDL: Carrying out research activity / writing case reports	Complete Portfolio Assessment PART 2 PROFESSIONAL EXAMINATION (2 weeks)

TCL:Teacher-centred Learning WBAs: Workplace-Based Assessments

SDL:Self-directed Learning

SCL: Student Centred Learning

1.COURSE STRUCTURE & TEACHING AND LEARNING METHOD

LIST OF COURSES YEAR 1-4

Year	Semester 1		Semester 2	
1	FFPM6113	Principles of Microbiology	FFPH612F	Fundamentals of Hematology II
	FFPH6213	Principles of Hematology	FFPH6224	Laboratory Management I
	FFPA6313	Principles of Anatomical Pathology	FFFQ6621	Personal and Professional Development II
	FFPK6413	Principles of Chemical Pathology		
	FFPH6117	Fundamentals of Hematology I		
	FFFQ6611	Personal and Professional Development I		
	Semester 3		**Semester 4**	
2	FFPH613F	General Hematology I	FFPH614F	General Hematology II
	FFPH6334	Research Proposal	FFPH6344	Laboratory Management II
	FFFQ6631	Personal and Professional Development III	FFFQ6641	Personal and Professional Development IV
	Semester 5		**Semester 6**	
3	FFPH615F	Clinical Hematology I	FFPH616F	Clinical Hematology II
	FFPH6354	Data Collection and Analysis	FFPH6364	Laboratory Management III
	FFFQ6651	Personal and Professional Development V	FFFQ6661	Personal and Professional Development VI
	Semester 7		**Semester 8**	
4	FFPH617F	Advanced Hematology I	FFPH618F	Advanced Hematology II
	FFPH6374	Manuscript Writing and Presentation	FFPH6384	Laboratory Management IV
	FFFQ6671	Personal and Professional Development VII	FFFQ6681	Personal and Professional Development VIII

Introduction to the Personal and Professional Development (PPD) Course

The Personal and Professional Development (PPD) course is a core component of the postgraduate curriculum, meticulously designed to develop holistic, ethical, and highly competent medical specialists. Spanning eight progressive stages (PPD I to VIII), the course focuses on critical soft skill domains, including strategic leadership, empathetic communication, and complex clinical decision-making.

In alignment with global standards, the PPD curriculum has been enhanced through the integration of Sustainable Development Goals (SDG) and Sustainability Competencies. Students will engage in various innovative learning methodologies, such as value-based peer mentoring, industry attachments, and professional ethical discussions. Through a comprehensive mapping of Course Learning Outcomes (CLO), this course ensures that every graduate is not only technically proficient but also possesses strong self-awareness and the strategic thinking necessary to lead advancements in the healthcare system.

MAPPING OF COURSE LEARNING OUTCOMES (HPK), PPD COURSES, AND SUSTAINABLE DEVELOPMENT GOALS (SDG)

No.	Course & Code	New HPK Domain	Sustainability Competency (SC)	SDG	Teaching Method	Assessment
1.	**PPD I** (FFFQ6611)	To critically evaluate the best practices in decision-making based on current and relevant theories, evidence and sustainability considerations; in particular, respecting the diversity of individuals involved in the process. (C4, PLO2) (Sustainability Competency : Critical Thinking)	Critical thinking	3, 4, 17	Project	Report
2.	**PPD II** (FFFQ6621)	Demonstrate ethically grounded and value-based interpersonal skills in patient management, guided by professional standards, empathy, and respect for human dignity. (A4, PLO4) (Sustainability Competency: Normative)	Normative	3, 4, 10	Project	Report
3.	**PPD III** (FFFQ6631)	To apply safe and appropriate clinical skills through integrated problem-solving that synthesises medical regulations, patient context, and interprofessional considerations in patient management.(P5, PLO3; Sustainability Competency: Integrated Problem Solving)	Integrated problem solving	3, 4, 8	Project	Report
4.	**PPD IV** (FFFQ6641)	To demonstrate ethical and professional conduct in patient care through continuous self- awareness, reflection on personal values, and adherence to the medical code of professional practice.(A5, PLO11;	Self-awareness	3, 4, 10	Project	Report

		Sustainability Competency: Self- Awareness)				
5.	**PPD V** (FFFQ6651)	Demonstrate effective, empathetic and collaborative communication with patients, families and healthcare team members to support shared understanding and joint decision-making in patient care.(A5, PLO5; Sustainability Competency: Collaboration)	Collaboration	3, 4, 17	Project	Report
6.	**PPD VI** (FFFQ6661)	Demonstrate strategic leadership within the healthcare team by anticipating clinical needs, coordinating roles, and guiding collective actions to ensure safe and effective patient management. (A5, PLO8; Sustainability Competency: Strategic Thinking)	Strategic thinking	3, 4, 8	Project	Report
7.	**PPD VII** (FFFQ6671)	Apply digital skills and medical technologies safely by anticipating potential risks, ethical implications, and future impacts on patient safety and healthcare systems. (P6, PLO6;Sustainability Competency: Anticipatory Thinking)	Anticipatory thinking	3, 4, 17	Project	Report
8.	**PPD VIII** (FFFQ6681)	Critically evaluate patient progress data safely and accurately by understanding the interrelationships between clinical parameters, healthcare processes, and system- level factors influencing patient outcomes.(C6, PLO7; Sustainability Competency: Systems Thinking)	Systems thinking	3, 4, 17	Project	Report

COURSE STRUCTURE STAGE I - YEAR 1

Primary Objective

The primary objective of the Stage 1 course is for the trainee to attain basic knowledge and practical competence in Pathology.

Specific Objectives

1. To apply basic theoretical knowledge in the selection, interpretation and reporting of laboratory investigations of common haematological disorders.
2. To apply basic theoretical knowledge in the selection, interpretation and reporting of routine transfusion medicine procedures.
3. To work collaboratively with physicians in solving common problems associated with transfusion.
4. To apply a basic holistic understanding of the involvement of Anatomic Pathology, Medical Microbiology and Chemical Pathology in relation to Haematology.
5. To apply standard operating procedures in laboratory management including laboratory organisation, quality assurance and laboratory safety.

Teaching Programme Stage 1

a. Student-Teacher Ratio

   Within the programme, student-teacher ratio is maintained at 1:4, to allow trainee to receive individualized guidance and support throughout their study.

b. Syllabus of the curriculum : *Refer (NPMC) Master of Pathology Guide to Trainee & Trainers 2022*

c. Trainees must register for the designated courses in both Semester 1 and Semester 2 of the academic year. The registration process will be conducted online and must be completed within the specified timeframe.

d. Structured Learning Opportunities

   Teaching activities include concept lectures, case presentations, interactive seminars, team-based discussions, and small group discussions. Trainee will be required to follow the specific posting schedule arranged by the Department of Pathology

e. Hands-On Training Trainee will actively partake supervised laboratory activities.

f. Supervision and monitoring of trainee's progress

In Year 1, an academic supervisor will be appointed to guide and support the trainee throughout the 4 years training period. Regular meetings between the supervisor and trainee will be conducted to review and discuss the trainee's overall academic achievements and requirements. At the end of each semester, the trainee's performance and progress will be evaluated and discussed in a program management meeting to ensure they are meeting the necessary milestones and objectives.

g. Logbooks

Trainee are required to meet the requirements as delineated in the provided logbooks. Progress of logbook entries will be monitored regularly by the program coordinator, science officers and academic staffs.

h. Performance evaluation to proceed to the next level of training will be conducted at the end of semester 2.

FRAMEWORK OF TEACHING-LEARNING TIME IN STAGE 1

Orientation	1 week
Rotational postings	Anatomic Pathology* (4 weeks) Chemical Pathology* (4 weeks) Medical Microbiology* (4 weeks)
Basic Haematology post	Fundamentals of Haematology I (7 weeks) Fundamentals of Haematology II (22 weeks) Laboratory management (throughout semester 2)
Intensive course	3 weeks
Study leave	2 weeks
Examinations	2 weeks
TOTAL	**52** weeks**

*****Refer to Master of Pathology Guide to Trainee & Trainers 2022 for full description of each discipline
**Annual leave: 2 weeks/semester (4 weeks/academic year)

COURSE INFORMATION: YEAR 1

FFPM6113 PRINCIPLES OF MEDICAL MICROBIOLOGY

INTRODUCTION

This course is one of the basic DrPath Part 1 (DrPath) courses. This course introduces the basic knowledge of Medical Microbiology and the basic principles of microbiology laboratories. The duration of the teaching session is for 1 month (4 weeks). Teaching sessions include lectures, laboratory bench exercises, and self-study related to medical microbiology

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPM6113 PRINCIPLES OF MEDICAL MICROBIOLOGY At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Describe the principles for diagnosis, antimicrobial treatment, prevention, and control of infectious diseases.	C3/PLO1	Lecture, Tutorials	Quiz
2	Demonstrate sklills in interpreting basic laboratory tests for the diagnosis of infectious diseases.	P2/PLO3	Practical, lab demo sessions	DOPS

FFPH6213 PRINCIPLES OF HEMATOLOGY

INTRODUCTION

General Haematology component for Part I DrPath program consist of 4 weeks of teaching and learning session.
Teaching methods include lectures, seminars, bench work and case discussion. The 4 week formal program consists of the following components:

FBP (1 week)
Hb Analysis (1 week)
Transfusion (1 week)
Haemostasis (1 week)

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPH6213 PRINCIPLES OF HEMATOLOGY At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Describe the principles for diagnosis and treatment of haematological diseases and transfusion medicine.	C3/PLO2	Project	ECE
2	Interpret basic laboratory tests for the diagnosis of haematological diseases and transfusion medicine	P2/PLO3	Practical sessions	DOPS

FFPA6313 PRINCIPLES OF ANATOMICAL PATHOLOGY

INTRODUCTION

This course is one of the basic DrPath Part 1 courses which introduces the basic knowledge of Anatomic Pathology and the basic principles of histopathology laboratories. The duration of the teaching session is for 1 month (4 weeks). Teaching sessions include lectures, laboratory visits, case discussions and self-study.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPA6313 PRINCIPLES OF ANATOMICAL PATHOLOGY At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Describe the principles of diseases in anatomic pathology.	C3/PLO2	Project	ECE
2	Demonstrate skills in interpreting basic laboratory tests in anatomic pathology.	P2/PLO3	Lab Demonstration	DOPS

FFPK6413 PRINCIPLES OF CHEMICAL PATHOLOGY

INTRODUCTION

This course is one of the basic Doctor of Pathology Part 1 (DrPath) courses. This course introduces the basic knowledge of Chemical Pathology and the basic principles of chemical pathology laboratories. The duration of the teaching session is for 1 month (4 weeks). Teaching sessions include lectures, laboratory bench exercises, case discussions and self-study related to chemical pathology. Student assessment is done formively based on assessment of the student's portfolio which records student involvement in teaching and learning sessions.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFPK6413 PRINCIPLES OF CHEMICAL PATHOLOGY At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Describe the principles of clinical biochemistry for the diagnosis and monitoring of human diseases.	C3/PLO2	Tutorial	CBD
2	Demonstrate skills in interpreting basic laboratory tests of basic routine and specialised chemical pathology test.	P2/PLO3	Lab Demonstration	DOPS

FFPH6117 FUNDAMENTALS OF HEMATOLOGY I

INTRODUCTION

Fundamental Haematology I component for Part I DrPath program consists of 7 weeks of teaching and learning sessions.

Teaching methods include lectures, seminars, bench work and case discussion in various areas of haematology. The 7 weeks of formal program consists of the following components: general haematology, transfusion medicine, haemostasis and stem cell. Students need to complete 300 peripheral blood film slides in this semester (DOPS).

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFPH6117 Fundamentals of Hematology I** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Describe the basic principles of haematology diseases and transfusion medicine, its diagnosis and management	C3/PLO1	Tutorial	ECE
2	Demonstrate basic skills in interpreting laboratory tests for the diagnosis of haematology diseases and transfusion medicine.	P3/PLO3	Practical sessions	DOPS

FFPH612F Fundamentals of Hematology II

INTRODUCTION

The Fundamentals of Haematology for the Part 1 DrPath program of semester II consist of a 22-week teaching session. The core components involved are full blood picture and bone marrow aspiration interpretation, flow cytometry analysis, haemolytic anaemias, molecular haematology, haemostasis, transfusion medicine and stem cell transplantation introduction. Teaching sessions involve flipped classrooms, self-learning, seminars, and case discussions. Students will also undergo practical training in the respective diagnostic laboratories to gain direct exposure to the components involved. Candidates will work closely with senior students to understand the work processes and principles behind each component.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFPH612F Fundamentals of Hematology II At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Differentiate the mechanisms of haematological diseases and transfusion medicine and the principles for diagnosis and treatment involved	C4/PLO2	Lectures, case study	Written Exam
2	Demonstrate increasing competency in the interpretation of basic laboratory tests for the diagnosis of haematological diseases and transfusion medicine	P4/PLO3	Practical sessions	Practical Exam
3	Display good personal management and professional development skills in haematology and transfusion medicine activities	A5/PLO9	Project, Case study	Portfolio

FFPH6224 LABORATORY MANAGEMENT I

INTRODUCTION

This course introduces the fundamental principles and concepts of pathology laboratory management. It covers topics such as laboratory organization, quality management system introduction, and safety and risk management. This course is included in Year 1 semester 2 as a preparation for trainee to build strong fundamental to function as a laboratory manager upon finishing the programme. The teaching and learning activities are designed to be dynamic mainly involve interactive seminar, group discussion and hands-on laboratory postings. Assessment mainly done in the form of group task and presentation.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPH6224 LABORATORY MANAGEMENT I At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Describe the important aspects of management of the diagnostic laboratory.	C4/PLO2	Tutorial, Case study	ECE
2	Discuss the importance of quality assurance, quality control and continuous improvement in laboratory management	C4/PLO2	Tutorial, Case study	ECE

FFFQ6611 PERSONAL & PROFESSIONAL DEVELOPMENT I

INTRODUCTION

This course aims to enable students to critically evaluate the best practices in decision-making based on current and relevant theories, evidence and sustainability considerations. They should be able to critically evaluate the best practices in decision-making based on current and relevant theories, evidence and sustainability considerations; in particular, respecting the diversity of individuals involved in the process. Students are required to complete all the project comprises of various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFFQ 6611 PERSONAL & PROFESSIONAL DEVELOPMENT I** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	To critically evaluate the best practices in decision-making based on current and relevant theories, evidence and sustainability considerations; in particular, respecting the diversity of individuals involved in the process. (C4, PLO2) (Sustainability Competency : Critical Thinking)	C4/ PLO2	Project	Report

FFPU6621 PERSONAL & PROFESSIONAL DEVELOPMENT II

INTRODUCTION

This course aims to enable the students to demonstrate ethically grounded and value- based interpersonal skills in patient management, guided by professional standards, empathy, and respect for human dignity. Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFFQ 6621 PERSONAL & PROFESSIONAL DEVELOPMENT II** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Demonstrate ethically grounded and value- based interpersonal skills in patient management, guided by professional standards, empathy, and respect for human dignity. (A4, PLO4) (Sustainability Competency: Normative)	A4/ PLO4	Project	Report

List of Recommended Materials and Resources

STAGE 1

Medical Microbiology	1) Barer M., Irving W. 2022. Medical Microbiology: A Guide to Microbial Infections: Pathogenesis, Immunity, Laboratory Investigation and Control. 20th Ed. Elsevier Health Sciences. 2) Goering R.V., Dockrell H. l., Zuckerman M., Wakelin D., Roitt I., Mims C., Chiodini P. 2018.Mims' Medical Microbiology. 6th Edition. Elsevier Saunders. 3) Levinson W. 2022.Review of Medical Microbiology and Immunology. 17th edition. New York, NY: McGraw-Hill Education. 4) Murray P. 2015. Basic Medical Microbiology. 8th Edition. Amsterdam: Elsevier. 5) Sastry, A.S. and Bhat, S., 2018. Essentials of Medical Microbiology 3rd Edition. JP Medical Ltd.
Hematology	1) Bain, B.J., Bates, I., and Laffan, M.A. 2024. Dacie and Lewis Practical Haematology. 13th Edition. Elsevier. 2) Harmening, D.M. 2022. Modern Blood Banking and Transfusion Practices. 8th Edition. F.A. Davis Co. 3) Hoffbrand, A.V., and Steensma, D.P. 2023. Hoffbrand's Essential Haematology. 9th Edition. Wiley-Blackwell. 4) Hoffbrand, A.V., Vyas, P., Campo, E., Haferlach, T., and Gomez, K. 2023. Color Atlas of Clinical Hematology: Molecular and Cellular Basis of Disease. 6th Edition. Wiley. 5) Murphy, M.F., and Roberts, D.J. 2023. Practical Transfusion Medicine. 7th Edition. Wiley.
Chemical Pathology	1) Bishop, M. L., Fody, E. P., & Schoeff, L. E. 2022. Clinical Chemistry: Principles, Techniques, and Correlations (9th ed.) Lippincott Williams & Wilkins. 2) Harmening, D. M. (Ed.). 2020. Laboratory Management: Principles and Processes (4th ed.). D.H. Publishing & Consulting Inc. 3) Laposata, M. 2025. Laboratory Medicine: The Diagnosis of Disease in the Clinical Laboratory (4th ed.) McGraw-Hill Education. 4) Lieberman, M., & Peet, A. 2022. Marks' Basic Medical Biochemistry: A Clinical Approach (6th ed.). Wolters Kluwer. 5) Marshall, W. J., Lapsley, M., Day, A. P., & Shipman, K. 2021. Clinical Chemistry (9th ed., International edition). Elsevier.."

Anatomic Pathology	1) Goldblum, J.R., Lamps, L.W., McKenney, J.K. & Myers, J.L. 2023. Rosai and Ackerman's Surgical Pathology. 12th edition. Elsevier. 2) Kumar, V., Abbas, A. & Aster, J. 2021. Robbins & Cotran Pathologic Basis of Disease. 11th edition. Elsevier. 3) Lester, S. 2022. Manual of Surgical Pathology. 3rd edition. Elsevier. 4) Mills, S.E. 2020. Histology for Pathologists. 5th Edition. Wolters Kluwer. 5) O'Dowd, G., Bell, S. & Wright, S. 2023. Wheater's Pathology: A Text, Atlas and Review of Histopathology. 7th Edition. Elsevier
PPD	1) Blake, T., & Whallett, A. 2021. Leadership and the medical registrar: How can organisations support these unsung heroes? Postgraduate Medical Journal, 97(1145), 735–740. 2) Herring, J. 2022. Medical Law and Ethics (9th Ed.). Oxford University Press. 3) Malaysian Medical Council. 2022. Code of Professional Conduct. Retrieved from https://mmc.gov.my 4) Peter Tate & Francesca Frame. 2020. The Doctor's Communication Handbook 8th Edition. CRC Press Taylor & Francis Group 5) World Medical Association, Williams John Reynold. 2015. Medical Ethics Manual. World Health Communication Associates, UK.

COURSE STRUCTURE STAGE 2 - YEARS 2 TO 4

Objectives

i. To acquire the appropriate competencies in the selection and utilisation of routine and special haematological tests.

ii. To acquire competency in the interpretation and reporting of results in order to optimise patient care.

iii. To apply the appropriate competencies in developing and undertaking a research project.

iv. To acquire the appropriate competencies in the management of laboratory services i.e., haematology and transfusion medicine, including implementation of quality assurance system.

v. To demonstrate professional conduct as a Haematologist. evaluate the quality of specimen and to perform specimen reception/rejection for haematological diagnosis

STAGE 2 BREAKDOWN OF TEACHING & LEARNING TIME

YEAR 2

Orientation (1 week)	Research Methodology Workshop (2 weeks)	Laboratory and clinical work (45 weeks). Submission of 2 case reports at the end of the academic year.	Vacation - 4 weeks (2 weeks every 6 months)
Research Project			

YEAR 3

Laboratory and clinical work (48 weeks)	Presentation of research progress. Submission of 2 case reports at the end of the academic year.	Vacation - 4 Weeks (2 weeks every 6 months)
Research Project		

YEAR 4

Advanced Laboratory and clinical work (40 weeks) Presentation and submission of dissertation/Manuscript before sitting for exit exam	Study Leave (6 weeks) Exit Examination (2 weeks)	Vacation - 4 weeks (2 weeks every 6 months)

TEACHING PROGRAMME

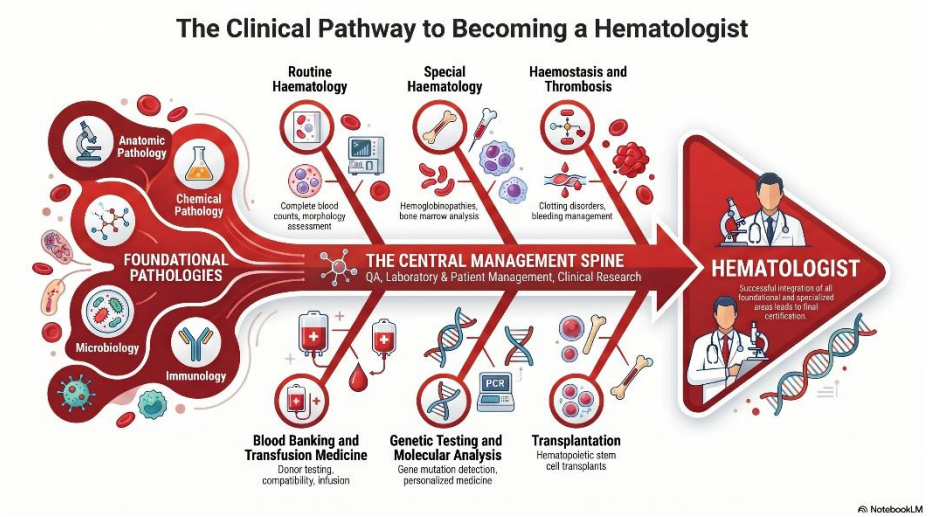
a. Student-Teacher Ratio

Within the programme, student-teacher ratio is maintained at 1:4, to allow trainee to receive individualized guidance and support throughout their study.

b. Syllabus of the curriculum :

The Doctor of Pathology in Haematology is a postgraduate programme, which involves supervised competency-based training in diagnostic Haematology for a duration of a minimum of FOUR (4) years and a maximum of SEVEN (7) years. It is a clinical coursework programme in which the research component comprises less than 30% of the whole programme of study.

The syllabus defines the generic and specialty-specific breadth of knowledge, skills and attitudes that a trainee needs to attain and apply to patient care. Trainees in Haematology will encounter a wide range of disease or conditions related to haematology. To reflect this, the topics and relationships between the domains in the syllabus are described in the Haematology Training diagram as below.



c. Quality Management

It is imperative that trainee become well-versed in, and adhere to, the quality management system requirements, including standards such as MS ISO15189 and ISO 9000.

d. Structured Learning Opportunities

Trainee will actively participate in a diverse range of educational activities, including case presentations, interactive seminars, journal reviews, and small group discussions. These sessions is to deepen trainee' comprehension of selected topics and foster active involvement.

e. Hands-On Training

Trainee will actively partake in routine duties, including laboratory rounds, clinical consultations, oncalls, laboratory administration, and quality assurance activities. These responsibilities will be carried out under the supervision of

haematologists.

f. Research Project

University will appoint a research supervisor in year 2. Trainee will be tasked with planning, executing, and documenting a research project, with the requirement to submit it at least four months before their Professional part 2 examination. A research project guide will be provided to the students.

g. Continuous Medical Education (CME)

Active engagement in Continuous Medical Education (CME) activities within each posting in the department or other institutions are highly encouraged. These activities will help trainee stay abreast of the latest developments in the field and contribute to their professional development.

h. Elective Postings

Trainee will have the opportunity to go for elective postings in both laboratory and clinical fields for topics or cases that may be limited in the university setting.

i. Case Reports

Trainee will be required to submit four case reports two months before the final examination.

j. Logbooks

Trainee are required to meet the training requirements as delineated in the provided logbooks. These are to be uploaded into student's e-portfolio. Progress of logbook entries will be monitored regularly by the program coordinator.

k. Active Participation in the Academic and Management activities

Trainee are required to engage in the teaching and learning activities of the academic programs and management activities in the laboratory. This participation enriches their overall educational experience and contributes to their well-rounded development.

l. Supervision

An academic and research supervisor will be appointed to assist the trainee during the period of training

m. Workplace-based Assessment (WBA)

Continuous trainee assessment will be conducted using Workplace- based Assessment (WBA). This is a structured and comprehensive evaluation approach designed to assess the practical skills, competencies, and professional behaviors of trainees in their actual working environment. It involves direct observation and feedback on day- to-day activities, ensuring that trainees are meeting the required standards for the profession. All trainees will be provided with appropriate information about the frequency, methods and criteria of the assessments at the beginning of the semester.

RESEARCH

Having a general knowledge on conducting research would be an advantage for the trainee and would help the trainee come up with a good research proposal. However, the trainee will be taught on research methodology, good clinical practice, statistical analysis and scientific writing. This proposal needs to be presented in the department and submitted to the local human/animal ethical committee for approval. The trainee has to conduct the research within the candidure and submit the dissertation at least four months before final examination for assessment.

A research project is compulsory for the Haematology Stage 2 programme and the candidate has to pass the research dissertation as a prerequisite for the Stage 2 examination. The purpose of the dissertation is to allow assessment of the practical ability of trainee and of ability to report and assess the significance of their findings. It is a test of the ability to analyse, criticise and present raw data. The overall standard of the project should be such that it is suitable for publication in a professional scientific journal.

A proposal describing the background, the research questions, the objective of the intended study, the details of the proposed experimental work and the expected outcomes must be presented and submitted for the approval by the committee. The project and the writing of the dissertation should be carried out under the supervision of a designated lecturer. If there are out-campus candidates, they may have extra co-supervisors from their respective hospitals.

The dissertation must be written in English. The candidate must submit the dissertation/research report in a Manuscript ready format for publication in peer-reviewed journal. The dissertation will be examined by designated examiners. All candidates will receive guidelines for conducting research upon entering year 2, semester 1.

OVERALL SUMMARY OF PROGRAMME STRUCTURE

STAGE	YEAR	ACADEMIC ACTIVITY	ASSESSMENT
I	YEAR 1 SEMESTER I&II	Part 1 Haematology Posting Part 1 Anatomic Pathology Posting Part 1 Chemical Pathology Posting Part 1 Medical Microbiology Posting Intensive Course	Continuous assessment Part 1 Examination (End of semester 2)
2	YEAR 2	- Hematology specialty postings in general microscopy, flow cytometry, Hb analysis, molecular, hemostasis, transfusion medicine, adult and pediatric clinical hematology - Research proposal - Active laboratory duty and oncall - Case reports writing - Academic exercises: Journal club presentations, CME, laboratory management activities, EQA	WBA
	YEAR 3	- Continue specialty postings - Research projects - Case reports writing - Elective postings - Active laboratory duty and oncall - Academic exercises: Journal club presentations, CME, laboratory management activities, EQA	WBA
	YEAR 4 SEMESTER 1	- Continue specialty postings - Submission of Research dissertation/ mansucript - Case reports writing - Elective postings - Active laboratory duty and registrar oncall - Academic exercises: Journal club presentations, CME, laboratory management activities, EQA	WBA
	YEAR 4 SEMESTER II	- Submission of case reports - Elective postings - Active laboratory duty and registrar oncall - Academic exercises: Journal club presentations, CME, laboratory management activities, EQA - Study leave	PART II EXIT EXAMINATION (End of Semester 8)

COURSE INFORMATION: YEAR 2

FFPH613F GENERAL HAEMATOLOGY I

The General Hematology course is divided into two semesters, General Hematology I and General Hematology II. Self-learning guided by specific objectives and the help of lecturers is the main requirement of General Hematology I. Self-learning requirements under the supervision of lecturers are provided in the form of seminars, journal presentations, confirmation of laboratory results, morphological diagnosis using a microscope and analysis of related laboratory tests. On-the-job training in the hematology laboratory provides students with the opportunity to acquire skills in laboratory work and procedures to understand the handling and processing of hematology specimens and enables students to be critical of the laboratory process.
The students are also exposed to various skills during training involving blood transfusion medicine, laboratory management and quality assurance. Assessment of the course is based on workplace-based assessments.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPH613F GENERAL HAEMATOLOGY I At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Outline the aspects of hematological knowledge in the description of hematological diseases, stem cells and transfusion medicine.	C4 / PLO2	Tutorial/ Case Study	ECE
2	Identify the pre-analytical, analytical and post-analytical phases in laboratory methods and procedures	C4 / PLO2	Tutorial/ Case Study	ECE
3	Demonstrate competency in the interpretation of laboratory tests for the diagnosis of haematological diseases, stem cells and transfusion medicine.	P4/PLO3	Practical	DOPS
4	Responsible for the selection of hematology, stem cell or transfusion medicine cases for case report writing.	A3/PLO8	Case Study	CBD

FFPH614F GENERAL HAEMATOLOGY II

The General Hematology II course is an extension from semester I.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPH614F GENERAL HAEMATOLOGY II At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Evaluate the whole aspects of hematological knowledge, stem cells and transfusion medicine.	C5/PLO2	Tutorial/ Case Study	ECE
2	Demonstrate competency in the interpretation of laboratory tests for the diagnosis of hematological diseases, stem cells and transfusion medicine	P4/PLO3	Practical	DOPS
3	Utilize digital platforms in hematological diseases, stem cells and transfusion medicine.	A4/PLO6	Project	ECE
4	Responsible for the selection of hematology, stem cell or transfusion medicine cases for case report writing.	A3/PLO8	Case Study	CBD

FFPH6334 RESEARCH PROPOSAL

In this course, students will be guided by lecturers to carry out research activities as follows:

i. A literature review exercises to identify the latest fields in haematology and transfusion medicine research. Research topic is selected after presentation and discussion with the supervising lecturer.

ii. Writing a research proposal according to the selected topic and presentation at the departmental level. Review of "research design" as the basis for preparation/planning of data collection according to the recommendations of department members after the presentation. Research proposals must be presented at the department and submitted to the Faculty Research and Ethics Committee for approval before the end of semester 2 year 2.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPH6334 RESEARCH PROPOSAL At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Organize a comprehensive literature review using a range of digital tools and resources.	A4/PLO6	Project	Portfolio
2	Propose appropriate research budget in the preparation of research proposal.	A4/PLO10	Project	Presentation
3	Present the research proposal to the Ethics Committee.	A5/PLO11	Project	Presentation

FFPH6344 LABORATORY MANAGEMENT II

This course is an extension of the laboratory management I course. This course is included in Year 2 semester 2. Trainees will learn about quality control and quality assurance activities to maintain accuracy and reliability of laboratory tests. It covers topics such as quality management systems, equipment and instrumentation, and continuous quality improvement. Teaching and learning activities are designed to be dynamic especially involving interactive seminars, group discussions and laboratory practical sessions. Assessment is done using Direct Observation of Practical Skills (DOPS) on quality control and quality management.

Trainees will also focus on personnel management and effective leadership in the pathology laboratory. It covers topics such as team building, staff training, and fostering a positive work environment. Teaching and learning activities are designed to be dynamic especially involving interactive seminars, group discussions and laboratory practice. Assessment is done with multi-source feedback from lecturers, officers, staff and colleagues as well as self-assessment and professional assessment by supervisors.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	FFPH6344 LABORATORY MANAGEMENT II At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Perform quality control tests using appropriate laboratory equipment and procedures.	P4/PLO3	Practical	DOPS
2	Demonstrate proficiency in personnel management, effective leadership, and fostering a positive work environment	A4/PLO4	Case Study, Group work	Report

FFFQ 6631 PERSONAL AND PROFESSIONAL DEVELOPMENT III

This course aims to enable students to apply safe and appropriate clinical skills through integrated problem-solving that synthesises medical regulations, patient context, and interprofessional considerations in patient management. Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	FFFQ 6631 PERSONAL AND PROFESSIONAL DEVELOPMENT III At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	To apply safe and appropriate clinical skills through integrated problem-solving that synthesises medical regulations, patient context, and interprofessional considerations in patient management.(P5, PLO3; Sustainability Competency: Integrated Problem Solving)	P5/PLO3	Project	Report

FFFQ 6641 PERSONAL AND PROFESSIONAL DEVELOPMENT IV

This course aims to enable students to demonstrate ethical and professional conduct in patient care through continuous self- awareness, reflection on personal values, and adherence to the medical code of professional practice. Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

CLO	FFFQ6641 PERSONAL AND PROFESSIONAL DEVELOPMENT IV At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	To demonstrate ethical and professional conduct in patient care through continuous self- awareness, reflection on personal values, and adherence to the medical code of professional practice.(A5, PLO11; Sustainability Competency: Self- Awareness)	A5/PLO11	Project	Report

COURSE INFORMATION: YEAR 3

FFPH615F CLINICAL HEMATOLOGY I

This course provides a comprehensive overview of the principles and practice of clinical hematology. The course is delivered in the form of teaching sessions and laboratory sessions, case studies and elective postings to equip students with knowledge in clinical hematology and laboratory management. Students will be trained to achieve proficiency in accurately performing, interpreting and reporting hematology results, emphasizing quality assurance and control, and understanding the role of the hematology laboratory in the management of hematology patients. This course provides real clinical case scenarios to develop critical thinking and problem solving skills that add to building a solid foundation in clinical hematology and transfusion medicine.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	FFPH615F CLINICAL HEMATOLOGY I At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Summarize the essential aspects of hematological knowledge in the management of hematological diseases	C5/PLO2	Case Study	ECE
2	Implement laboratory testing methods and procedures in haematology laboratory.	P5/PLO3	Practical	DOPS
3	Demonstrate self sufficiency in writing of case reports related to hematological diseases	A5/PLO9	Case Study	CBD

FFPH 616F CLINICAL HEMATOLOGY II

This course is an extension of the Clinical Hematology I course which discusses the principles and practices of clinical hematology more comprehensively.

CLO	FFPH 616FHEMATOLOGY CLINICAL II At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Summarize the essential aspects of haematological diseases, transfusion medicine, and its management	C5/PLO2	Tutorial, Case Study	ECE
2	Efficiently perform important hematology laboratory tests and procedures.	P5/PLO3	Practical	DOPS
3	Prepare case reports related to haematological diseases.	A4/PLO9	Discussion	CBD

FFPH6354 DATA COLLECTION AND ANALYSIS

Self -study with the guidance of a supervisor is the main method of the Research II course. This course includes:

i. Conducting research after obtaining the approval of the Faculty Research and Ethics Committee.
ii. Collecting and analyzing data using statistical tools.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	FFPH6354 DATA COLLECTION AND ANALYSIS At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Conduct a research based on the proposed methodology.	P5 / PLO3	Practical	Practical report
2	Analyse data based on appropriate statistical analysis tools.	C4 / PLO7	Project	Practical report

FFPH6364 LABORATORY MANAGEMENT III

This course is an extension of the laboratory management course in previous semester. This course is included in Year 3 semester 2. The focus of this course is on safety and risk management in diagnostic laboratory. Trainees will develop skills in identifying, assessing, and managing risks while ensuring a safe working environment and patient safety, and practicing ethics and professionalism accordingly. Teaching and learning activities are designed to be dynamic especially involving interactive tutorials, group discussions and laboratory practical sessions. Assessment is via practical/technical reports of risk assessment.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	FFPH6364 LABORATORY MANAGEMENT III At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Relate biosafety and biosecurity principles to ensure a safe and secure laboratory environment in accordance with international guidelines and regulations	C5 / PLO2	Case study	ECE
2	Demonstrate leadership and accountability in risk assessment and risk management for laboratory procedures.	A5 / PLO8	Case study, discussion	ECE

FFFQ6651 PERSONAL AND PROFESSIONAL DEVELOPMENT V

This course aims to enable students to demonstrate effective, empathetic and collaborative communication with patients, families and healthcare team members to support shared understanding and joint decision-making in patient care. Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLD	FFFQ6651 PERSONAL AND PROFESSIONAL DEVELOPMENT V At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Demonstrate effective, empathetic and collaborative communication with patients, families and healthcare team members to support shared understanding and joint decision-making in patient care.(A5, PLO5; Sustainability Competency: Collaboration)	A5/PLO5	Project	Report

FFFQ 6661 PERSONAL AND PROFESSIONAL DEVELOPMENT VI

This course aims to enable students to demonstrate strategic leadership within the healthcare team by anticipating clinical needs, coordinating roles, and guiding collective actions to ensure safe and effective patient management.Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	FFFQ 6661 PERSONAL AND PROFESSIONAL DEVELOPMENT VI At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Demonstrate strategic leadership within the healthcare team by anticipating clinical needs, coordinating roles, and guiding collective actions to ensure safe and effective patient management. (A5, PLO8; Sustainability Competency: Strategic Thinking)	A5/PLO8	Project	Report

COURSE INFORMATION: YEAR 4

FFPH617F ADVANCED HEMATOLOGY I
FFPH618F ADVANCED HEMATOLOGY II

The Advance Haematology Course I and II is designed for the final year students of the DrPath Part II program. This course is a preparation for students to become haematologist upon completion of the study program. The course provides in-depth covers of topics in haematology and transfusion medicine. Students are expected to be registrars and junior specialists, thus help screen and correct all cases in the laboratory before other students refer to the oncall specialists. Upon completion of the course, students will have gained an in-depth understanding of the new technologies and latest developments in haematology and will be efficient in laboratory management.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	FFPH617F ADVANCED HEMATOLOGY I At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Summarize important aspects in the management of hematological diseases and blood transfusion medicine	C5/PLO2	Case study	ECE
2	Demonstrate competency in performing laboratory tests according to standard operating procedures.	P5/PLO3	Practical	DOPS
3	Display enterpreuneral skills in financial management process and budgeting of diagnostic laboratory	A5/PLO10	Case study	ECE

CLO	FFPH618F ADVANCED HEMATOLOGY II At the end of the module, trainee will be able to:	Taxonomy Level / PLO	Teaching Method	Assessment method
1	Summarize all aspects in the management of hematological diseases and transfusion medicine	C6/PLO2	Case study, Tutorial	Written Exam
2	Demonstrate competency in performing laboratory tests and procedures with adherence to standard protocols.	P6/PLO3	Practical	Preactical Exam
3	Effectively communicate knowledge and expert advice to stakeholders	A5/PLO5	Case study, Tutorial	Viva voce

FFPH6374 MANUSCRIPT WRITING AND PRESENTATION

Self -study with the guidance of a supervisor is the main method of Research III course. This course includes reviewing and updating literature and reference studies. It also includes presentation of the findings and writing up of the research report in the form of manuscript for journal publication.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	**FFPH6374 MANUSCRIPT WRITING AND PRESENTATION** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Produce scientific writing in the form of manuscript based on data analysis.	C5 / PLO2	Project	Manuscript
2	Present research results using digital platforms with creativity and innovation.	A4 / PLO6	Project	Portfolio

FFPH6384 LABORATORY MANAGEMENT IV

This course is included in Year 4 semester 2. Laboratory Management VI is an advanced course designed to equip trainees with the knowledge and skills necessary to implement and adapt continuous quality improvement (CQI) activities in diagnostic laboratory practices. This course also focuses on leveraging recent evidence and cutting-edge technologies to enhance the quality and efficiency of laboratory diagnostics. Teaching and learning activities are designed to be dynamic especially involving interactive tutorials, group discussions and laboratory practical sessions. Assessment is via practical/technical reports.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching-Learning Methods & Assessment

CLO	**FFPH6384 LABORATORY MANAGEMENT IV** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Adapt continuous quality improvement activities in the diagnostic laboratory practices	A5 / PLO8	Case study, group work	Report
2	Appraise recent evidence and technologies for application in laboratory diagnostics	C5 / PLO2	Case study, project	Presentation

FFFQ6671 PERSONAL AND PROFESSIONAL DEVELOPMENT VII

This course aims to enable students to apply digital skills and medical technologies safely by anticipating potential risks, ethical implications, and future impacts on patient safety and healthcare systems.Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFFQ6671 PERSONAL AND PROFESSIONAL DEVELOPMENT VII** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Apply digital skills and medical technologies safely by anticipating potential risks, ethical implications, and future impacts on patient safety and healthcare systems. (P6, PLO6;Sustainability Competency: Anticipatory Thinking)	P6/PLO6	Project	Report

FFFQ6681 PERSONAL AND PROFESSIONAL DEVELOPMENT VIII

This course aims to enable students to critically evaluate patient progress data safely and accurately by understanding the interrelationships between clinical parameters, healthcare processes, and system- level factors influencing patient outcomes. Students are required to complete all the projects, comprising various activities including clinical case discussions, webinars, and quizzes as part of the teaching and learning methods. Students will undergo an individual assessment and receive a supervisor's report for this module.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome(PLO) mapping, Teaching- Learning Methods & Assessment

CLO	**FFFQ6681 PERSONAL AND PROFESSIONAL DEVELOPMENT VIII** **At the end of the module, trainee will be able to:**	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method**
1	Critically evaluate patient progress data safely and accurately by understanding the interrelationships between clinical parameters, healthcare processes, and system- level factors influencing patient outcomes.(C6, PLO7; Sustainability Competency: Systems Thinking)	C6/PLO7	Project	Report

List of Recommended Materials and

Resources Stage 2

• DATA COLLECTION AND ANALYSIS • MANUSCRIPT WRITE-UP AND PRESENTATION	1) Creswell, J. W., & Creswell, J. D. 2023. Research design: Qualitative, quantitative, and mixed methods approaches. 6th ed. Sage Publications. 2) Pallant, J. 2020. SPSS survival manual: A step by step guide to data analysis using IBM SPSS. Routledge. 3) Resnik, D. B. 2023. The ethics of research: A guide for students and researchers. 3rd ed. Routledge. 4) Thomas, G. 2020. How to do your research project: A guide for students. 4th ed. Sage Publications. 5) Walliman, N. 2021. Your research project: Designing and planning your work. 4th ed. Sage Publications.
• GENERAL HEAMATOLOGY • CLINICAL HAEMATOLOGY • ADVANCED HAEMATOLOGY	1) Bain, B.J., Bates, I., and Laffan, M.A. 2024. Dacie and Lewis Practical Haematology. 13th Edition. Elsevier. 2) Cohn, C., Delaney, M., Johnson, S.T., Katz, L.M. & Schwartz, J. 2023. AABB Technical Manual. 19th edition. AABB. 3) Harmening, D.M. 2022. Modern Blood Banking and Transfusion Practices. 8th Edition. F.A. Davis Co. 4) Hoffbrand, A.V., Vyas, P., Campo, E., Haferlach, T., and Gomez, K. 2023. Color Atlas of Clinical Hematology: Molecular and Cellular Basis of Disease. 6th Edition. Wiley. 5) Swerdlow, S. H., Campo, E., Harris, N. L., Jaffe, E. S., Pileri, S. A., Stein, H., & Thiele, J. 2022. WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. 5th ed. International Agency for Research on Cancer (IARC).
LABORATORY MANAGEMENT	1) Brown, R. W. 2024. Quality Management in Clinical Laboratories: Optimizing Patient Care Through Continuous Quality Improvement. College of American Pathologists. 2) Garcia, L. S., & Procop, G. W. 2024. Clinical Laboratory Management. Wiley. 3) Harmening, D.M. 2020. Laboratory Management, Principles and Processes. 4th edition. D.H. Publishing & Consulting Inc. 4) International Organization for Standardization. 2022. Medical laboratories - Requirements for quality and competence. 4th Edition. International Organization for Standardization. 5) Jayamani, J., Janardan, C. C., & Appan, S. V. 2022. A Practical Tool for Risk Management in Clinical Laboratories. Cureus, 14(12), e32774

PERSONAL AND PROFESSIONAL DEVELOPMENT	1) Herring, J. 2022. Medical Law and Ethics. 8th Edition. Oxford: Oxford University Press. 2) Jones, S. K., Chan, K. H., Bourdage, J. S., et al. 2022. Identifying leadership in medical trainees: Evaluation of a competency-based approach. BMJ Leader, 6, 20–29. https://doi.org/10.1136/leader-2021-000456 3) Malaysian Medical Council. 2023. Code of Professional Conduct. https://mmc.gov.my/wp-content/uploads/2023/10/CODE-OF-PROFESSIONAL-CONDUCT-2023.pdf 4) Tate, P., & Frame, F. 2023. The Doctor's Communication Handbook. 9th Edition. CRC Press, Taylor & Francis Group. 5) World Medical Association. 2022. Medical Ethics Manual. 4th Edition. UK: World Health Communication Associates.

STUDENT ASSESSMENT

Introduction

Demonstration of the knowledge, skills and attitude required for independent practice is a requirement of the curriculum and the relevant competencies must be achieved before completion of the training programme. Assessment forms an integral part in the constructive alignment model of outcome-based.
The assessment methodology in Haematology aims to meet the following objectives;

1. Demonstrate the trainee's achievement of knowledge and skills as appropriate to each phase of training.
2. Identify and ensure the trainees suitability for progress in training in Haematology.
3. Provide the trainee with feedback on progress.
4. Ensure the trainee is ready to progress to next stage of training.
5. Ensure the trainee is able to practice independently as a Haematologist at the end of the training.
6. Demonstrate the development of research skills in Haematology.
7. Demonstrate management skills for running the laboratory.
8. Demonstrate familiarity with laboratory accreditation processes.
9. Demonstrate the ability to act professionally at all times

Methods of assessment

Trainees will be subject to formative assessments and summative assessments.

FORMATIVE ASSESSMENTS

In Haematology, the formative assessment of the trainee is carried out at the workplace. The trainee is expected to undergo regular WBAs, which will chart the trainee's educational progress throughout the training programme. Recognition of any weakness in the trainee's education should be quickly remedied. In general, the trainee should demonstrate "satisfactory" progression before progressing to the next stage of training.

Topics assessed include:
Stage 1

Topic	Reports per Trainee
Completed FBP reports with abnormal findings	50
Satisfactory completed Hb analysis reports with abnormal findings	20
Satisfactory BMAT and flowcytometry reporting	10
Satisfactory coagulation test review with abnormal findings (PT, APTT, D-dimer, mixing test)	20
Satisfactory ABO/RhD blood grouping, antibody screening and antibody identification and crossmatching	20
Pre-donation counselling and donor management	20

Stage 2

Spiral progression of competence achievement in the validation, interpretation and consultation of reports (reports per trainee):

Topics	Reports per Trainee
Completed FBP reports with abnormal findings	250
Satisfactorily Hb analysis reports with abnormal findings	80
Satisfactorily BMAT and flowcytometry reporting	50
Satisfactorily review of basic coagulation test with abnormal findings (PT, APTT, D-dimer, mixing test, special coagulation test reporting (thrombophilia, factor assay, inhibitor, platelet aggregation, VWD study, LA study)	80
Satisfactory ABO/RhD blood grouping, antibody screening and antibody identification and crossmatching, reporting extended immunohematology test (Coombs test, Ab titre, elution, adsorption, Du test, phenotyping, ABO discrepant, DL test, secretor test)	80
Pre-donation counselling and donor management	80
Donor microbiology tests (serology and NAT)	20
Satisfactory review of stem cell processing and storage	10
Research project report	1

Formative assessment primarily relies on Workplace-based Assessments (WBAs), which gauge trainees' professional skills and attitudes based on their actual performance. WBAs utilize various assessment methods, including Direct Observed Practical Skills (DOPS), Case-Based Discussions (CBD), Evaluation of Clinical Events (ECE), and Multisource Feedback (MSF), adapted from the Royal College of Pathologists, UK.

The Work Based Assessments (WBA) that are involved in Hematology training are as

follows:

1. DOPS are used to assess the trainee's ability to demonstrate the skills required for the different stages of training. The assessor provides immediate feedback to the trainee and further develops the trainee's strengths as well as identifying areas for improvement.
2. ECE are used to assess the trainee's ability to perform tasks which involve teamwork and interacting with other professional colleagues.
3. CBD is used to assess the trainee's ability to apply their medical knowledge in decision making for patient care, and running a safe, efficient and reliable Hematology service.
4. MSF is used to assess the trainee's behavioural characteristics. Generally, the supervisor's report provides the main feedback. The supervisor may also take into consideration comments from other staff who have had the opportunity to work with the trainee. The trainee may conduct a self-appraisal and discuss this with their supervisor, with the objective of ensuring the trainee is guided to reach the conduct level required at the professional level of a medical specialist.

The trainee is expected to participate in regular WBAs, which serve to track and oversee their educational progress throughout the training program. These assessments also offer ongoing feedback to the trainee regarding their progress. Consequently, any deficiencies in the trainee's education should be promptly addressed. Generally, the trainee should demonstrate "satisfactory" progress before advancing to the next stage of training.

Conduct of WBA during training

The conduct of Workplace-based Assessment (WBA) during training encompasses several key steps to ensure a systematic evaluation and support system for trainees:

1. **Introduction to WBA:** Trainees will be introduced to the purpose and structure of WBAs at the beginning of academic year. Assessment methods, frequency, and criteria will be informed to trainees.
2. **Initial Assessment Planning**: Coordinators and supervisors will work closely with trainees to set objectives and goals for the assessment period. This is to ensure alignment between trainee expectations and assessment tools, and to facilitate effective planning and execution of the assessments.
3. **Ongoing Assessment**: Regular WBAs are conducted throughout the training period according to the predetermined schedule. Trainees are expected to keep tract of the schedule and able to fulfil the requirements for the semester.
4. **Assessment Methods**: DOPS, CBD, ECE, and MSF are utilized to evaluate different aspects of trainees' performance. Trainee must achieve 100% of at least satisfactory level. A satisfactory re-assessment after remedial action can replace an unsatisfactory initial assessment.
5. **Feedback and Coaching**: Feedback sessions will follow each assessment, to provide guidance for improvement.
6. **Remediation**: If weaknesses are identified during assessments, remedial actions are promptly implemented. Trainees are expected to be prepared for the remediation sessions.
7. **Progress Review**: Periodic reviews will be conducted to assess trainees' overall progress. The review committee will be headed by the Head of the programme. Decisions regarding trainees' readiness to progress to the next stage of training, based on their performance outcomes will be informed to trainees before the commence of the new academic year.
8. **Documentation and Reporting**: Records of training activities, assessments, feedback, and progress are maintained throughout the training period. Trainees are expected to keep the training records safely and securely in an individual portfolio.
9. **Continuous Improvement**: The assessment process is subject to periodic reviews and refinements to ensure its effectiveness. Feedback from trainees and supervisors will be collected to identify areas for enhancement, with strategies implemented to optimize the WBA process continually.

Summative Assessment (SA)

The Doctor of Pathology in Haematology examinations include TWO (2) major summative assessments, the Part 1 Examination at the end of the first year, and the Final (exit) examination at the end of the fourth year (or final year).

Any trainee who has failed the Part 1 examination at the first attempt is permitted TWO (2) resits of the examination at SIX (6) monthly intervals in Year 2. A trainee who has failed the Final (exit) Examination at the first attempt is permitted up to a maximum of FOUR (4) resits, to be completed within the maximum period of SEVEN (7) years of the whole training programme.

The trainee is only permitted to sit for the Final (exit) examination on satisfactory completion of training having fulfilled all prerequisites as outlined in the curriculum.

Examinations are outlined as follows:

Part 1 Examination (SA-1)

The Part 1 examination comprises of (i) Theory and (ii) Practical components.
To pass the Part 1 examination, the trainee must satisfactorily pass BOTH the theory AND practical components of the examination.

The Part 1 examination will comprise

Examination component		Weighting (%)	Requirement to pass the examination
Theory MCQ ESSAY		50%	50%
Practical		50%	50%
Total (overall)		100%	50%

To pass the Part 1 examination, the trainee must obtain, at least:
- an overall score of 50% AND
- a pass (50%) in BOTH theory and practical components

Repeat Examination:

1. A trainee who has failed may be allowed to repeat the examination after SIX (6) months.
2. A trainee is allowed a maximum of TWO (2) repeat attempts to pass the Part 1 examination
3. The components of the repeat examination and their weightings will be as in the main Part 1 examination.

Final (exit) Examination (SA-2)

The Final (exit) examination comprises of (i) Theory, (ii) Practical and (iii) Viva Voce.
To pass the Final examination, the trainee must satisfactorily pass BOTH the theory AND practical components of the examination. In addition, a viva voce will be conducted. The trainee must obtain an overall score of at least 50%.

The Final Examination will comprise of:

Examination component		Weightage (%)	Requirement to pass the examination
Theory		40%	50%
Practical Morphology Transfusion Coagulation / MISc Clinical		50% 20% 10% 15% 5%	50%
Viva voce		10%	Mandatory attendance
Total (overall)		100%	50%

To pass the Final (exit) examination, the trainee must obtain, at least:

- an overall score of 50% AND
- a pass (50%) in BOTH theory and practical
- AND attend the viva voce

Repeat examination

Repeat examination attempts for trainees who have obtained an overall score of less than 50% OR failed to attend the viva voce

After satisfactorily completing a further 1 (ONE) year of training, the trainee will be examined on the theory and practical components as well as having to attend a compulsory viva voce.

The components of the examination and their weightings will be as in the main examination.

To pass the repeat examination, the trainee must obtain, at least:

- an overall score of 50% AND
- a pass (50%) in BOTH theory and practical
- AND attend the viva voce

2. Repeat examination attempts for trainees who have obtained an overall score of 50% or more but have failed in either the theory or practical component.
After satisfactorily completing a further SIX (6) months of training, the trainee will be examined in the failed component as well as having to attend a compulsory viva voce.

The components and weighting of the 6-month repeat examination are as follows:

Examination component		Weighting (%)	Requirement to pass the examination
Theort [1]		40%	50%
Practical2		50%	50%
Viva voce		10	Mandatory attendance
Total (overall)		100%	50%

To pass this repeat examination, the trainee must obtain a pass mark of at least 50% in the theory or practical component that they have sat for.

The trainee is only allowed to repeat the examination of the failed theory or practical twice consecutively. If the trainee fails on the second repeat attempt, the trainee must repeat BOTH the theory and practical components and viva-voce after SIX (6) months, or after ONE (1) year based on the recommendation of the Board of Examiners'. The components and weightings of the repeat examinations will be as in 1 and 2 above.

3. A trainee is allowed a maximum of FOUR (4) repeat examination attempts.
4. The maximum duration permitted for the completion of the entire programme is SEVEN (7) years.

EXIT PROCESS

This section describes the training outcomes and exit process from programmes for Haematology. Conceptually, the outcomes and processes for both the MOHE and parallel pathways follow similar principles, although details in the format of processes may differ. The Doctor of Pathology in Haematology programme of the MOHE pathway, which is the only pathway currently offered, is described below.
A graduate of the programme is expected to have acquired the knowledge, skills and professional attributes required to practice as a safe and competent Haematologist on completion of the programme.

Outcome of training

By the end of the training programme, the trainee is expected to have successfully completed the learning objectives in the syllabus, and fulfilled the various levels of assessments (refer to the Assessments section). They will therefore be equipped to practice as a safe and competent Haematologist during the subsequent gazettement (or probation) period and throughout their careers.

The general outcomes of training are:

1. Acquisition and demonstration of the knowledge, skills and attitudes to act in a professional manner as a Haematologist at all times.
2. Communicate appropriately with team members and other healthcare professionals on Haematological related issues.
3. Able to practice appropriate time management and task prioritisation in the practice of Haematology.
4. Able to demonstrate good working relationship with colleagues.
5. Able to demonstrate basic management skills in the running of a Haematology laboratory.
6. Familiarity with health and safety requirements of a Haematology service.
7. Able to conduct and participate in research in Haematology within the broader context of medical research.
8. Able to conduct and participate in audit in Haematology in the broader context of clinical governance.
9. Able to pursue life-long learning and continuing professional development in Haematology.

ROLES & RESPONSIBILITIES OF DOCTOR OF PATHOLOGY IN HEMATOLOGY TRAINEE

i. Registration:
Trainees must register within the period prescribed by the University. They must submit all required documents as required during the registration process. For existing students, registration for courses must be completed early every semester.

ii. Orientation and Familiarisation:
Trainees are required to participate in the orientation program provided by the university and department. They are expected to be familiar with the program structure, faculty, facilities, and expectations, and to thoroughly understand the curriculum, course schedule, and program policies.

iii. Responsibilities:
It is the responsibility of trainees to attend all lectures, seminars, and practical sessions as outlined in the program curriculum, actively engage in academic discussions, complete assignments, projects, and assessments within specified deadlines, and maintain a high standard of academic integrity and ethical conduct. Each candidate will be assigned one academic and research supervisor at the beginning of year 2.

iv. Laboratory Training:
Trainees should actively participate in laboratory training sessions, and follow the regulations and safety protocols. Throughout laboratory and clinical rotations, trainees are expected to collaborate with healthcare professionals, maintaining professionalism, confidentiality, and effective communication. Candidate's performance in the daily routine work in the laboratory will be observed and monitored.

v. Continuing medical education:
Trainees should engage in continuous learning, attend workshops, conferences, and seminars to enhance their knowledge and skills, and seek opportunities for additional certifications or specialized training to stay updated with the latest advancements in Haematology.

vi. Professionalism and Ethics:
Trainees must adhere to the highest standards of professionalism, integrity, and ethical conduct. This includes respecting patient confidentiality and privacy in clinical, laboratory, and research activities, and following the professional code of conduct and standards set by the university, hospital and medical professional bodies.

vii. Monitoring the Progress:
Trainees are expected to attend all progress meetings with the programme coordinator. Trainees must engage regularly with academic/research supervisors to discuss progress and updates, as well as address any concerns that arise.

viii. Completion of Programme Requirements:
Trainees must fulfill all program requirements, including logbooks completion, laboratory/clinical rotations, and research components, preparing and submitting case reports and a dissertation as required. Failure to complete may result in candidates being barred from sitting examinations.

ix. Post-Graduate Commitments:
Graduates are urged to seek professional growth and specialization in Haematology while contributing to the field through ongoing research, publications, and participation in relevant professional organizations.

x. Alumni Engagement:
Graduates are encouraged to stay connected with the program, contribute to the alumni network, share experiences and insights with current students, and attend alumni events while supporting the program's initiatives.

REGULATIONS AND MONITORING

i. VACATION / LEAVE

Trainees are allowed to take 14 days leave per semester or 28 days per year.

ii. SICK LEAVE

Trainees are allowed to take **14 days sick leave per year.**

iii. REGISTRATION (Excerpt from UKM Regulations for Graduate Studies 2021)

Students must register within the period prescribed by the University. Existing students shall register within the prescribed period at the beginning of each semester/session.

Existing students who fail to register within four (4) weeks of the commencement of the semester/session without obtaining permission in writing from the Dean/Director will be given the status of "Dismissed due to failure to register". Students may appeal in writing to the Dean/Director to continue their studies, subject to a period not exceeding two (2) consecutive semesters and will be charged the processing fee and late registration fine as prescribed by the University.

iv. DEFERMENT OF PROGRAMME

Trainees can apply for deferment of the programme based on acceptable reasons. The duration of deferment will not be counted as part of the programme. The trainee must submit in writing, together with supporting documents (where appropriate) the request to defer to the Dean/ Deputy Dean of Graduate Studies with the approval of the Head of Department. The letter must be accompanied by a completed request for deferral form.

Trainees are allowed to defer for not more than two semesters (12 months) throughout the duration of the course. For any deferment for more than 12months, the appeal shall be subjected to the university senate's approval. It is the responsibility of the candidate to inform his/her sponsor (i.e. Ministry of Health) about their decision.

v. WITHDRAWAL FROM THE PROGRAMME

A trainee who wishes to withdraw from the program must submit in writing the decision to withdraw to the Dean/Deputy Dean of Graduate Studies with the approval of the Head of Department. The letter must be accompanied by the submission of a completed withdrawal form. It is the responsibility of the candidate to inform his/her

sponsor (i.e. Ministry of Health) about their decision.

vi. DISMISSAL OF STUDENTS (Excerpt from UKM Regulations for Graduate Studies 2021)

(1) The Senate reserves the right to take appropriate action including suspending or dismissing a student at any time if the student is found to have:

(a) Provided false information during admission or during the study period or to obtain a degree;
(b) A mental or physical disability certified by a physician;
(c) Failed to maintain good academic performance as prescribed by the University;
(d) Exceeded the study period allowed under sub-regulation 8(1).

(2) Each student is subject to the Universities and University Colleges Act 1971, the Constitution of Universiti Kebangsaan Malaysia, other rules and regulations in force or applicable including the Universiti Kebangsaan Malaysia (Discipline of Students) Regulations 1999, the Universiti Kebangsaan Malaysia Intellectual Property Policy 2010, the Universiti Kebangsaan Malaysia Publishing and Writing Integrity Ethics Policy and other regulations related thereto.

(3) Any student who commits a disciplinary offense including harassing or threatening a supervisor or a member of the graduate secretariat, contacting or harassing or threatening the External Examiner and/or Internal Examiner in connection with the evaluation of their dissertation/thesis and/or committing research misconduct is subject to action under Universiti Kebangsaan Malaysia (Discipline of Students) Regulations 1999.

vii. APPEAL

All trainees are entitled to exercise their right to appeal in situations, as delineated in Part VII, the UKM Regulations for Graduate Studies 2021. Trainees must adhere to and comply with all regulations stipulated therein.

viii. DISABILITIES

Candidates who have a documented disability or medical conditions are strongly encouraged to inform the Program Coordinator in advance of their enrollment so that accommodations, if needed, can be made.

SUPPORT SERVICES AVAILABLE FOR TRAINEES

Support services are available for trainees to utilize. These services aim to address various needs and challenges encountered during training, ensuring trainees receive adequate support and guidance. Examples of available support services may include academic mentorship programs, access to learning materials and resources, counseling service, research facilities, students' representation council etc. Trainees are encouraged to utilize these services as needed to enhance their learning experience, address any concerns or difficulties, and foster personal and professional growth.

PROGRAMME MONITORING & REVIEW

The programme will be monitored and reviewed at specified intervals in accordance with the requirements of the Malaysian Qualification Framework, quality management standard MS ISO 9001:2008 for Management of Undergraduate and Postgraduate Studies as well as accreditation by professional bodies.

The curriculum review is done at the department and faculty levels, involving various committees such as the Curriculum Review Committee with the input of National Postgraduate Medical Curriculum committee. The curriculum will be reviewed at the faculty level and subsequently at the university level via Planning and Development Committee (JPPA), an entity entrusted with the responsibility of monitoring and reviewing academic programmes and to propose necessary changes for the approval of the Senate of UKM. The approved curriculum will be sent to Ministry of Higher Education for final approval before it is implemented.

Monitoring of the programme through students' feedback is done using the on-line Course Teaching Evaluation System (SPPK). This is an on-line evaluation system that enables UKM students to evaluate each course on the aspects of course content, course handling and facilities. Trainees are required to complete the course evaluation before registering for the next semester courses. The other input for programme monitoring and review is obtained from self review procedures as well as feedback from external sources such as stakeholders and external assessors.

QUALITY ASSURANCE AND ACCREDITATION

The programme has developed a quality assurance committee to coordinate and implement quality activities as directed by the Quality Unit at the faculty and university level. The committee is responsible to coordinate and also involved in institutional audit at the faculty and university level such as MS ISO 9001, institutional audit and also programme evaluation and accreditation exercises by the professional bodies.

Accreditation and reaccreditation exercise will follow the university policy which states that it should be conducted every FIVE (5) years, or as determined by the MQA and MMC.