PANDUAN SISWAZAH

PROGRAM DOKTOR PAKAR PATOLOGI
(PATOLOGI FORENSIK)

FAKULTI PERUBATAN
UNIVERSITI KEBANGSAAN MALAYSIA

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The National University of Malaysia

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PREFACE

What is this document

The purpose of this document is to serve as a guide for prospective applicants by providing the following information:

1. Overview of the Forensic Pathology postgraduate specialty

2. Outline of the Forensic Pathology postgraduate training programme in Faculty of Medicine, Malaysia National University (UKM).

How to use this guidebook

This guidebook serves as a resource that contains information on the training of Doctor of Pathology (Forensic Pathology) program. It provides detailed information on every aspect of the program, from the background, philosophy and mission of UKM to 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 Forensic Pathology and research courses are provided in separate guide book. 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 Forensic Pathology field.

Contents

1. INTRODUCTION

1.1 Background of Faculty of Medicine, UKM

The Faculty of Medicine, UKM was established on 30 May 1972 with the first Dean Dato' Dr. Amir Abbas. The purpose of establishing this Faculty is to provide opportunities for national students to follow medical courses and to produce many Malay and local doctors. This faculty started a pre-medical course at UKM Faculty of Science Jalan Pantai Baharu, Kuala Lumpur in May 1973 with a total of 44 students (39 males and 5 females). The preclinical medicine course began in May 1974 in the temporary building of the Faculty of Medicine on Jalan Raja Muda Abdul Aziz in the Kuala Lumpur Hospital Complex. On 27 February 1975, Health Minister Tan Sri Lee Siok Yew declared Kuala Lumpur Hospital as UKM's Faculty of Medicine Teaching Hospital for clinical year training.

At the beginning of its establishment, the Faculty of Medicine obtained the services of loan teachers from Indonesia for preclinical teaching and from Commonwealth countries for clinical teaching while waiting for UKM trainee lecturers to return from medical training abroad. The Doctor of Medicine Degree Final Examination was held for the first time from 19 to 31 March 1979 and out of 42 students who took the exam, 37 of them passed and got the Doctor of Medicine Degree. This is a glorious moment for the Faculty of Medicine in particular and UKM in general because it has successfully graduated the first Doctor of Medicine degree.

The faculty begun postgraduate programs in medical expertise from the 1981/82 session beginning with the Masters of Surgery (General Surgery) and Masters of Surgery (Orthopedics) followed by the Masters of Medical Science (MMedSc) and Doctor of Philosophy (PhD). UKM was the first Malaysian University to offer a clinical postgraduate Masters' programme. In the early 1990s, the Faculty planned to establish its own teaching hospital and on 2nd November 1993 construction of the UKM Hospital (HUKM) began on a 23-acre site on Jalan Tenteram, Bandar Tun Razak, Cheras. On 1st July 1997, HUKM was completed and commenced operations. The Dean's office and clinical departments have moved to the HUKM complex while the preclinical departments are still living in the Jalan Raja Muda Abdul Aziz campus and the students are staying at Kolej Tun Dr. Syed Nasir, Jalan Temerloh, Kuala Lumpur; while Year III, IV, and V learning is done at HUKM and the students stay at Kolej Tun Dr. Ishmael.

HUKM has a floor area of 200,000 square meters, because its construction is worth RM 327,822,000.00 and can accommodate 1054 patient beds. The faculty also offers nursing programs such as Bachelor of Nursing with Honours, Diploma in Nursing and Advanced Diploma in Midwifery. The faculty has also made strides by offering Advanced Masters programs such as Advanced Masters in Dermatology, Advanced Masters in Cardiology and Advanced Masters in Child and Adolescent Psychiatry. To date, the Faculty of Medicine has produced more than 4423 medical doctors and over 2100 clinical specialists.

Currently, UKM upholds five key values that form the framework for UKM to continue to excel and to be in forefront. Those values, briefly known as TERAS, are Talent, Ethics, Revitalize, Agile and Soul. These values form the basis for strategic planning and implementation of responsibilities by all UKM members. It is hoped that the TERAS values will strengthen UKM's efforts to become a university that is relevant to current developments and able to make modifications according to future needs. These TERAS values also aim to ensure that UKM graduates contribute to the development of the country and, at the same time, UKM is able to increase its survivability.

Recognizing that UKM is the institution of our community's hopes and aspirations, all in the University including the staffs and students themselves are welcome to study and understand the needs of the people through questions that are rooted in the life of nationals in line with UKM's role as the National Trust Leader. But this does not limit the University's reach to all developments and international upheavals. A university with a wide range of disciplines is believed to be able to transcend the psychology line that allows them to compete quickly in the global arena as well as provide answers and solutions to problems that hinder global life.

1.2 Background of UKM's Clinical Specialist Program

Pathology is the study of disease at the structural (organ), cellular (tissue and cell) level, and molecules (genes and proteins) and provide an understanding of the manifestations and disease complications. Therefore, Pathology is described as the "fundamentals of medicine" and "the science behind healing." In Malaysia, the field of Pathology has developed into several specialties, such as Anatomical Pathology, Forensic Pathology, Hematology, Chemical Pathology, Medical Microbiology, Medical Immunology and Genetic Pathology.

When the country gained independence, there was a huge shortage of expert medicine in health services to Malaysians. At first, The Faculty of Medicine of the University of Malaya (UM) was given a mandate in 1973 to train medical experts to meet the needs of the country. The MPath program was started at Universiti Kebangsaan Malaysia (UKM) in 1988 and Universiti Sains Malaysia (USM) in 1992. Group recruitment UKM's first MPath program started in 1988, while the group first MPath(Forens) program started in 1996, with 1 candidate who graduated in 1999.

In 1995, a joint combined curriculum and examination was established in the under the Joint Committee of Pathology Medical Masters (JBSP Pathology) and The Ministry of Higher Education (KPT), to ensure the same standards in Pathologist training and qualifications. The membership of this committee is composed of from representatives from Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Sains Malaysia (USM), Ministry of Health (KKM) and College of Pathologists, Academy of Medicine Malaysia (CPath AMM). In 2007 and then 2012, Universiti Putra Malaysia (UPM) and Universiti Teknologi MARA (UiTM) each started an MPath program and joined this coalition.

As of June 2024, there were a total of 55 Forensic Pathologists registered on the National Specialist Registry (NSR). The projected number of Forensic Pathologists required by 2030 for the MOH, the main stakeholder, is 120. Furthermore, the increase in the number of teaching hospitals, private hospitals and laboratories and Ministry of Defence hospitals will also increase the demand for Forensic Pathologists. In recent years, the number of deaths due to fatal infectious outbreak such as Covid-19, has significantly expanded the scope and pivotal roles of Forensic Pathologists, further contributing to the increased demand.

Forensic Pathology focuses on determining the cause of death by examining a corpse and is an application of medical jurisprudence. A forensic pathologist is a medical doctor who has basic training in anatomical pathology and has subsequently undertaken specialised training in forensic pathology. A post mortem is performed by a forensic pathologist, usually during the investigation of criminal law cases, and civil law cases in some jurisdictions. Forensic pathologists are also frequently asked to confirm the identity of a corpse. Apart from clinical duties, Forensic Pathologists also work closely with scientific and technical staff in the supervision and management of the laboratory department.

The forensic pathologist performs autopsies to determine the cause and manner of death of the deceased. The autopsy report contains an opinion about the pathological process, injury, or disease that directly

results in or initiates a series of events that lead to a person's death (also called the mechanism of death), the manner of death, the circumstances surrounding the cause of death, such as homicide, accidental, natural, suicide and undetermined. The autopsy also provides an opportunity for other issues raised by the death to be addressed, such as the collection of trace evidence or determining the identity of the deceased. The forensic pathologist examines and documents wounds and injuries, at autopsy, at the scene of a crime and occasionally in a clinical setting, such as rape investigation or deaths in custody. Forensic pathologists collect and examine tissue specimens under the microscope (histology), to identify the presence or absence of natural disease and other microscopic findings. They collect and interpret toxicological specimens of body tissues and fluids to determine the chemical cause of accidental overdoses or deliberate poisonings. Forensic pathologists work closely with the medico-legal authority for the area concerned with the investigation of sudden and unexpected deaths i.e. the police. They serve as expert witnesses in courts of law testifying in civil or criminal law cases.

1.3 Faculty Management

Dean

Prof. Dr. Marina Mat Baki
MD(UKM), MS ORL-HNS (UKM), PHD (UCL)

Deputy Dean (Undergraduates Studies)

Prof. Dr. Norazlina Bt. Mohamed
BSc.(Hons.)(UKM), PhD(UKM)

Deputy Dean (Postgraduates Studies)

Prof. Datin Dr. Norlinah Mohamed Ibrahim
MBBCh (Ire), BMedSci (Ire), MRCPI, FRCPE

Deputy Dean (Research & Innovation)

Prof Dr Syahrul Sazliyana Shaharir
MD(UKM), MMed(UKM)

Deputy Dean (Industry & Community Partnership)

Prof. Madya Dr. Ruslinda Mustafar
MD(UKM), MMed(UKM)

Assistant Dean (Quality & Strategy)

Prof Madya Dr. Teoh Seong Lin
B. Biomed. Sc (UKM),MmedSci (UKM),
PhD(Monash, Malaysia)

Assistant Dean (Teaching & Citra)

Prof. Madya Dr. Noor Akmal Shareela Ismail
BSc. (Hons.)(UKM), MSc. (Aberdeen), MMED Medical Education (UKM), Ph.D (Dundee)

Assistant Dean (Students & Alumni Affairs)

Dr. Syamsa Rizal Abdullah
B. Biomed. Sc (UKM), MSc.MBPDV (Liverpool), PhD (UKM)

Assistant Dean (Clinical Services)

Prof Madya Dr Adli Ali
MD(UUM), MMed(UKM),Dphil (Oxford)

Assistant Dean (Enterpreneurship)

Prof Madya Dr Azlan Helmy bin Abd Samat
MB BCHBao (Dublin), DrEmMed (UKM)

1.4 Department Management

1.4.1 Department of Pathology UKM

Head of Department

Prof. Madya. Dr. Suria Hayati Md Pauzi
MD(UKM), DrPath (Anatomic Pathology) UKM, AM(Mal)

Deputy Head of Department

Dr. Dian Nasriana Nasuruddin
MBBCh,BAO(Ireland), MPath(Chemical Pathology) UKM, PhD (UKM)

Lecturers

Profesor Dr. Faridah Mohd Nor
MD(UKM), MPath(UKM), PhD(Bradford,UK), Postdoctoral Fellowship (Oregon, US)

Profesor Dr. Raja Zahratul Azma Raja Sabudin
MBBS(Mal), MPath(Haematology)(UKM), AM(Mal)

Profesor Dr. Tan Geok Chin
MBBS(India), MPath(UKM), Phd(Imperial,UK), PedPath Fellowship(Int.Scholar,US), FAMM(Mal)

Prof. Madya. Dr. Hafiza Alauddin
MBBS(London), MPath(Haematology)UKM, AM(Mal) 8

Prof. Madya. Dr. Nurasyikin Yusof
MBChB(Bristol), MPath(Haematology)UKM, FRCPA(Australia), AM(Mal)

Prof. Madya. Dr. Suria Abdul Aziz
BMed.Sc.(Australia), MBBS(Australia), MPath(Haematology)UKM

Prof. Madya. Dr. Nordashima Abd Shukor
MD(USM), MPath(UKM), AM(Mal)

Prof. Madya. Dr. Wong Yin Ping
MD(UKM), DrPath(UKM), FIAC, AM(Ml)

Dr. Azlin Ithnin
MBBCh,BAO(Ireland), MPath(Haematology)(UKM), AM(Mal)

Dr. Nurwahyuna Rosli
MBBS (Melbourne), BMedSc (Melbourne), DrPath (UKM)

Dr. Wan Muhammad Azfar B. Wan Shuaib
MBBS(Manipal,India), DrPath (UKM)

Dr. Izzatul 'Aliaa Badaruddin
MBBS(Manipal,India), DrPath (UKM)

Dr. Asyraff bin Md Najib
MD (USU) DrPath(UKM)

1.4.2 Department of Diagnostic Laboratory Services

Head of Department

Dr Munirah Md Mansor
MBBS(Mal), DrPath (UKM), AM(Mal)

Specialist

Dr. Azyani Yahaya
MBBCh BAO(Ireland), DrPath(UKM)

Dr. Mohd Fikri Mustapa
MD(UGM), DrPath (UKM)

Dr. Qhasmira Abu Hazir
MBBS (UiTM), DrPath (UKM)

Dr. Lailatul Hadziyah Mohd Pauzy
BMed Sci (Uni of Nottingham), BMBS(Uni of Nottingham), DrPath(UKM)

1.4.3 Department of Medical Microbiology & Immunology

Head of Department

Prof. Madya. Dr. Asrul Abdul Wahab
MBBS(IIUM),MPath(Med.Microbiology)(UKM)

Deputy Head of Department

Dr. Zalina Ismail
MBBCh,BAO(Ireland), MPath(Med.Microbiology)(UKM)

Lecturers

Prof. Madya Dr. Tzar Mohd Nizam Khaithir LRCPSI, MBBCh,BAO(Ireland), MPath(Med.Microbiology)(UKM)

Prof. Madya Dr. Ramliza Ramli
MD(USM), MPath (Med.Microbiology)(UKM)

Prof. Madya Datin Dr. Noor Zetti Zainol Rashid
MBChB(Manchester), MPath(Med.Microbiology)(UKM), AM(Mal)

Prof. Madya Dr. Alfizah Hanafiah
BSc Biomed.Sci(Hons.)(UKM), PhD(Microbiology)(UKM)

Prof. Madya Dr. Ding Chuan Hun
MBBS(IMU), DrPath(Med.Microbiology)(UKM)

Datin Dr. Anita Sulong
MD(UKM), MPath(Med.Microbiology)(UKM)

Dr. Siti Norlia Othman
MBBCh,BAO(Ireland), MPath(Med.Microbiology)(UKM)

Dr. Umi Kalsom@Satariah Ali
MBBCh,BAO(Ireland), MPath(Med.Microbiology)(UKM

Dr. Muttaqillah Najihan Abdul Samat
MBBCh,BAO(Ireland), DrPath(Med.Microbiology)(UKM)

Dr. Wong Kon Ken
BSc. (Microbiology)(Hons.)(UKM), MSc (Med.Microbiology)(UKM), PhD (Med.Microbiology)(UKM)

Dr Asiyah Nordin
MBBS(IIUM), MD(UKM), DrPath(Med.Microbiology)(UKM)

Dr Jauhary Effendi Juma'at
MD(UKM), DrPath(Med.Microbiology)(UKM)

1.4.4 Department of Medical Parasitology & Entomology

Head of Department

Dr. Syamsa Rizal Abdullah
B. Biomed. Sc (UKM), MSc.MBPDV (Liverpool), PhD (UKM)

Lecturers

Prof. Madya. Dr. Emelia Osman
BSc. (UKM), MSc. (London), PhD (USM)

Dr. Azlin Muhammad @ Mohd. Yasin
MBBChBAO (Ireland), MPH (Tropical Medicine, Australia)

Dr. Anisah Nordin
DVM (UPM), M.Med.Sc. (UKM)

Dr. Aishah Hani Azil B.
Biomed. Sc. (UKM), MSc.BCPDV (Liverpool), Ph.D (Australia)

Dr. Zulkarnain Md Idris
BSc. (UKM), MSc. (USM), PhD (Karolinska Institutet, Sweden)

Dr. Wathiqah Wahid
MBBS (UM), M.Med.Sc. (UKM)

1.5 List of accredited Ministry of Health training centres

1. Hospital Kuala Lumpur
2. Hospital Tengku Ampuan Rahimah, Klang
3. Hospital Sultan Idris Shah, Serdang
4. Hospital Sg Buloh
5. Hospital Sultanah Aminah, Johor
6. Hospital Tengku Ampuan Afzan, Kuantan
7. Hospital Raja Permaisuri Bainun, Ipoh
8. Hospital Pulau Pinang
9. Hospital Sultanah Bahiyah, Alor Setar
10. Hospital Queen Elizabeth, Sabah

2. PHILOSOPHY, VISION, MISSION, GOAL

2.1 Philosophy, Vision, Mission and Educational Goal of UKM

Motto

Inspiring Futures, Nurturing Possibilities

Philosophy

UKM affirms the integration of faith in Allah and constructive knowledge; along with the amalgamation of theory and practice as the core fundamentals in the advancement of knowledge, the building of an educated society and the development of the university.

Vision

UKM is committed to be ahead of society and time in leading the development of a learned, dynamic and moral society.

Mission

To be the learning centre of choice that promotes the sovereignty of Bahasa Melayu and internationalises knowledge rooted in the national culture.

Educational goal

Graduates who appreciate national aspiration, who are competent, competitive and innovative

Value

Collegiality, Accountability, Merit, Innovation and Integrity; (KAMII: Keserakanan, Akauntabiliti, Merit, Inovatif dan Integriti)

2.2 Vision, Mission and Objectives of Faculty of Medicine, UKM

Vision

To become a knowledgeable and competitive medical academy hub based on knowledge, innovation and a team of dedicated medical professionals in building a healthy and informed society.

Mission

To provide education in medical professionals and high-quality services based on research, medical arguments, innovation and social sensitivity.

Objectives:

- To consolidate undergraduate medical education
- To expand postgraduate medical education
- To upgrade Medical Science programmes in thrust areas
- To expand continuing medical education
- To nurture quality research in areas thrust
- To strengthen and expand specialist services
- To ensure a conducive working environment and a healthy work culture

3. DOCTOR OF PATHOLOGY (FORENSIC PATHOLOGY) UKM

3.1 Program Administrative Committee

Head of Program	Prof Madya Dr Suria Hayati Md Pauzi
Program Coordinator	Profesor Dr. Faridah Mohd Nor

3.2 Graduate Program Management Committee (Quality, Accreditation, Revision)

Chairman	Profesor Dr. Faridah Mohd Nor
Member	Dr. Asyraff Md Najib

3.3 Program Description

The Doctor of Pathology (Forensic Pathology) UKM is a four-year educational program, which prepares the students to deliver advanced forensic pathology services at an expert level to the police and relevant agencies according to the Malaysian Law.

The programme is currently offered by UKM and a few other trainings Universities as Master of Pathology (Forensic Pathology). The running of the program is governed by the Ministry of Higher Education-based Jawatankuasa Bersama Sarjana Perubatan – Patologi [JBSP-Patologi] 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 entrepreneurial skills

5. Ethics and professionalism

The candidates are required to perform postmortem examination under lecturer's supervision, prepare postmortem report, visit to the scene of crime, perform histology and other laboratory analysis and attend court proceedings. Candidates are also required to undertake relevant elective postings to acquire advanced skills and knowledge.

The program's structure allows for exposure on forensic specific areas, such as Forensic Anthropology and Forensic Pediatric Pathology as part of the training. This extensive training ensures that graduates are well-rounded specialists and equipped with the foundational knowledge required for pursuing further sub-specialisation. The program's emphasis on continuous learning and professional development prepares trainees for leadership roles and advanced Forensic Pathology practice, ultimately enhancing the overall quality of medicolegal death investigation.

3.4 Program Educational Objective

The Doctor of Pathology (Forensic Pathology) program is designed to achieve the following Program Educational Objectives:

1. Applying knowledge and skills in an effective and judicious manner whilst demonstrating an appropriate attitude as Forensic Pathologists.
2. Competent in performing diagnostic laboratory Forensic Pathology procedures and reporting laboratory results.
3. Having good communication skills and leadership skills in managing health care services.
4. Work effectively in any Forensic Pathology organization or facilities.
5. Competent in conducting research in the medical sciences related to Forensic Pathology to strengthen evidence-based decision making.
6. Demonstrate critical thinking and self-directed learning as part of continuing medical education.
7. Demonstrate sensitivity towards ethical, religious, moral, cultural and traditional values of the community they serve.

3.5 Program Learning Outcome (PLO)

PROGRAM LEARNING OUTCOME **At the end of the programme, trainee will be able to:**		**MQF CLUSTERS OF LEARNING OUTCOME**	
PLO 1	Demonstrates advanced knowledge, understanding and practical skills and has the ability to develop or apply ideas in an evidence-based medicine context	Corresponds to MQF Cluster 1: Knowledge and Understanding	C1
PLO 2	Apply knowledge, understanding and practical skills to solve problems related to the field of study in new situations and multidisciplinary approaches	Corresponds to MQF • Cluster 2: Cognitive skills • Cluster 3: Practical skills	C2 C3a
PLO 3	Evaluating, developing new approaches and applying knowledge and practical skills in managing complex problems	Corresponds to MQF • Cluster 2: Cognitive skills • Cluster 3a: Practical skills	C2 C3a
PLO 4	Demonstrate leadership skills in managing clinical teams and services	Corresponds to MQF • Cluster 3b: Interpersonal skills • Cluster 3c: Communication skills • Cluster 3f: Leadership, autonomy and responsibility	C3b C3c C3f
PLO 5	Assess and make decisions in clinical situations even with limited resources considering social and ethical issues	Corresponds to MQF Cluster 2: Cognitive skills	C2

PLO 6	Communicate and present research findings and knowledge to peers and the community related to the field of expertise	Corresponds to MQF • Cluster 2: Congnitive skills • Cluster 3c: Communication skills	C2 C3c
PLO 7	Develop interests and pursue further training in areas of expertise for lifelong learning	Corresponds to MQF Cluster 5: Ethics and professionalism	C5
PLO 8	Practice safe clinical / diagnostic skills and recognize own limitations	Corresponds to MQF • Cluster 2: Cognitive skills • Cluster 3a: Practical skills	C2 C3a
PLO 9	Formulate and conduct scientific research independently.	Corresponds to MQF Cluster 3d: Digital skills	C3d
PLO 10	Showing concern and sensitivity to the needs of oneself, the family of the deceased, colleagues and the community	Corresponds to MQF Cluster 5: Ethics and professionalism	C5
*Interdependent areas such as principles of equality and diversity, operational perspectives and workforce safety are incorporated in the training curriculum.			

3.6 Program Structure

The Forensic Pathology program is an apprenticeship style training program which consist of two stages: Stage 1 and Stage 2.

The maximum allowable duration to complete the programme is seven years overall. Within this timeframe, Stage 1 must be completed within a maximum of two years, while Stage 2 must be completed within a maximum of five years.

3.6.1 Stage 1

The Stage 1 forensic pathology program follows the teaching program of the Stage 1 Anatomic Pathology program and has the similar learning objectives/outcomes and course content.

3.6.2 Stage 2

The Stage 2 Forensic Pathology program is a three-year educational program (year 2, 3 and 4), which focuses on the spiral acquisition of specialised knowledge and practical skills in Forensic Pathology through the handling of increasingly complex medicolegal cases and prepares the trainee to deliver advanced Forensic Pathology services at an expert level to the police and relevant agencies according to the Malaysian Law. Concurrent with this is the development of professional behaviours, conduct and character to achieve the competence level required of a specialist Forensic Pathologist.

Throughout these courses, a significant emphasis is placed on guided self-learning, with teaching and learning taking place through seminars, discussions, and presentations. Trainees also will actively engage in mortuary management systems, continuous medical education activities and conducting research project. Assessment of trainee learning will be conducted formatively via various workplace-based assessment methods and summatively at the exit of the program.

The trainee is expected to progressively acquire a range of knowledge, skills and values during the period of training, bringing them from an “observer” to a fully-competent independent Forensic Pathologist at the end of the program.

3.7 Framework of program structure

STAGE 1	STAGE 2		
Year 1	Year 2	Year 3	Year 4
2 Semesters (48 weeks)	2 Semesters (48 weeks)	2 Semesters (48 weeks)	2 Semesters (48 weeks)
Semester 1	Semester 3	Semester 5	Semester 7
TCL: Lectures	SCL: in-service training in mortuary at	SCL: in-service training in mortuary	SCL: in-service training in mortuary at

SCL: Practical, seminars, case study SDL: Completing logbook <u>Rotation</u> • 4 weeks in every Pathology discipline (Anatomic Pathology, Chemical Pathology) • Orientation (1 week) • Intensive course (2 weeks) • Study leave (1-3 weeks)	University Hospital or MOH Hospital with WBAs, seminar, case study. TCL: Research methodology and preparation of research proposal SDL: Casebook writing/ research proposal writing	at University Hospital or MOH Hospital with WBAs, seminar, case study. SDL: Perform research activity, casebook writeup, present research progress	University Hospital or MOH Hospital with WBAs, seminar, case study. SDL: Perform research activity, casebook/ thesis write-up, present research progress
Semester 2	**Semester 4**	**Semester 6**	**Semester 8**
Part 1 Professional Exam (2 weeks)	SCL: in-service training in mortuary at University Hospital or MOH Hospital with WBAs, seminar, case study. SDL: Perform research activity, casebook writeup	SCL: in-service training in mortuary at University Hospital or MOH Hospital with WBAs, seminar, case study. SDL: Perform research activity, casebook writeup	SCL: in-service training in mortuary at University Hospital or MOH Hospital with WBAs, seminar, case study. SDL: Perform research activity, casebook writeup *submission and assessment of dissertation Part 2 Professional Exam (2 weeks)

TCL: Teacher-centred Learning
WBAs: Workplace-Based Assessments
SCL:Student-centred Learning
SDL:Self-directed Learning

3.8 List of courses

Year	Semester 1	Semester 2
1	FFPM 6113 PRINCIPLES OF MEDICAL MICROBOLOGY FFPH6213 PRINCIPLES OF HAEMATOLOGY FFPA 6313 PRINCIPLES OF ANATOMIC PATHOLOGY FFPA 6413 PRINCIPLES OF CHEMICAL PATHOLOGY FFPA 6119 FUNDAMENTALS OF ANATOMIC PATHOLOGY I FFPQ6611 PERSONAL AND PROFESSIONAL DEVELOPMENT I	FFPF 612A SYSTEMIC PATHOLOGY FFPF 6529 PRINCIPLES OF FORENSIC PATHOLOGY AND FORENSIC SCIENCE FFFQ6621 PERSONAL AND PROFESSIONAL DEVELOPMENT II
	Semester 3	**Semester 4**
2	FFPF6134 GENERAL FORENSIC AND LABORATORY MANAGEMENT I FFPF6234 CRIME SCENE INVESTIGATION I FFPF6336 BASIC AUTOPSY I FFFQ6631 PERSONAL AND PROFESSIONAL DEVELOPMENT III FFPF6434 RESEARCH I (RESEARCH PROPOSAL)	FFPF6144 GENERAL FORENSIC AND LABORATORY MANAGEMENT II FFPF6244 CRIME SCENE INVESTIGATION II FFPF6346 BASIC AUTOPSY II FFFQ6641 PERSONAL AND PROFESSIONAL DEVELOPMENT IV
	Semester 5	**Semester 6**
3	FFPF6154 ADVANCED FORENSIC AND LABORATORY INVESTIGATION I FFPF6254 ADVANCED CRIME SCENE INVESTIGATION I FFPF6356 ADVANCED AUTOPSY I FFFQ6651 PERSONAL AND PROFESSIONAL DEVELOPMENT V FFPF6454 RESEARCH II (DATA COLLECTION & ANALYSIS)	FFPF6164 ADVANCED FORENSIC AND LABORATORY INVESTIGATION II FFPF6264 ADVANCED CRIME SCENE INVESTIGATION II FFPF6366 ADVANCED AUTOPSY II FFFQ6661 PERSONAL AND PROFESSIONAL DEVELOPMENT VI
	Semester 7	**Semester 8**
4	FFPF6174 ADVANCED FORENSIC AND LABORATORY INVESTIGATION III FFPF6274 ADVANCED CRIME SCENE INVESTIGATION III FFPF6376 ADVANCED AUTOPSY III FFFQ6671 PERSONAL AND PROFESSIONAL DEVELOPMENT VII FFPF6474 RESEARCH III (MANUSCRIPT WRITING & PRESENTATION)	FFPF6184 ADVANCED FORENSIC AND LABORATORY INVESTIGATION IV FFPF6284 ADVANCED CRIME SCENE INVESTIGATION IV FFPF6386 ADVANCED AUTOPSY IV FFFQ6681 PERSONAL AND PROFESSIONAL DEVELOPMENT II VIII

3.9 Course structure Stage 1 – Year 1

3.9.1 General objective

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

3.9.2 Specific objective

By the end of Year 1, trainee should be able to :

1) Acquire basic theoretical knowledge in Pathology.
2) Acquire basic practical competence in the performance and interpretation of common laboratory tests including autopsies.
3) Acquire basic knowledge in laboratory management including laboratory organization, quality control and laboratory safety.

The candidate shall undergo a rotation posting in the 4 major disciplines of 10 weeks duration each. The 4 major disciplines are: Anatomic Pathology, Hematology, Chemical Pathology and Medical Microbiology. An orientation course will be held at the beginning of the academic year and an intensive course during the academic year. During the postings, the trainee shall maintain a log book and perform to the supervisor's satisfaction a list of procedures.

3.9.3 Teaching program Stage 1

A. Student-Teacher Ratio

   Within the program, 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 Master of Pathology Guide to Trainee & Trainers 2016

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 arrange by the Department of Pathology and Department of Medical Microbiology & Immunology.

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.

I. Trainee need to fulfil the requirement to sit for Part 1 examination and pass the examination to proceed to Year 2 of training.

3.9.4 Framework of teaching & learning time in Stage 1

Orientation	1 week
Posting rotations	Haematology* (11 weeks) Anatomic Pathology* (11 weeks) Chemical Pathology* (11 weeks) Medical Microbiology* (11 weeks)
Intensive course	2 weeks
Study leave	1-3 weeks
Examination	2 weeks
Total	52** weeks

*Refer to Master of Pathology Guide to Trainee & Trainers 2016 for full description of each discipline
**Annual leave: 2 weeks/semester (4 weeks/academic year)

3.9.5 Course information – Year 1

FFPM6113 GENERAL PATHOLOGY (HEMATOLOGY) I

FFPM6123 GENERAL PATHOLOGY (HEMATOLOGY) II

Introduction

Phase 1 training focuses on understanding general pathology with some input on common systemic pathology. The competency technical requirement is generally at level 3 (mainly) and level 4 (for simple common diseases). Pathology is one of the branches of medicine related to the study of disease. In general, it means the study of changes in the structure or function of an organ caused by a disease. This study involves the analysis of body fluid or tissue samples in a pathology laboratory using analytical methods according to the type of test. The aim of this general pathology (hematology) I course is to give students an understanding of the basic theories of general pathology related to blood diseases.

Students will be posted in hematology department for 10 weeks. During the posting, students will be exposed to the theory and practical in hematology and transfusion medicine. There will be teaching sessions in the form of lectures, seminars, slides review, journal review, clinicopathological correlation sessions and small group discussion on selected topics. The student is also expected to learn independently and self-directed learning through case study, bench work and patient management.

Table: Course Learning Outcome, Taxonomy Level/ Programme Learning Outcome (PLO) mapping, TeachingLearning Methods, Assessment & Student-Learning Time (SLT)

CLO	**FFPM6113 PATOLOGI UMUM (HEMATOLOGI) I FFPM6123 PATOLOGI UMUM (HEMATOLOGI) II** At the end of the module, trainee will be able:	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method (100%)**		**SLT** (120)
				Theory exam	**Practical exam**	
1	To understand the basic sciences involving common haematological disorders and immunohaematological problems. (MQF C1-Knowledge)	C3/PLO 2	Lectures, seminars, case presentations and practical/ slide sessions	25		40
2	To understand principle of laboratory investigations, interpret results and make diagnosis of common haematological disorders	P4/PLO 1	Lectures, seminars, case presentations and practical/ slide sessions		50 (OSPE)	40

	and transfusion problems. (MQF C3a-Practical skill)					
3	To outline the principle of management of the above-mentioned problems. (MQF C1-Knowledge)	C4/PLO 3	Lectures, seminars, case presentations and practical/ slide sessions	25		40

FFPM 6213 PATOLOGI UMUM PATOLOGI ANATOMIK I

FFPM 6223 PATOLOGI UMUM PATOLOGI ANATOMIK II

Introduction

Phase 1 training focuses on understanding general pathology with some input on common systemic pathology. The competency technical requirement is generally at level 3 (mainly) and level 4 (for simple common diseases). Students will be posted in histopathology department for 10 weeks. The training focuses on understanding general pathology with some input on common systemic pathology. The competency technical requirement is generally at level 3 (mainly) and level 4 (for simple common diseases). There will be teaching sessions in the form of lectures, seminars, slides review, journal review, clinico-pathological correlation sessions and small group discussion on selected topics. The student is also expected to learn independently and self-directed learning through case study, bench work and patient management.

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

CLO	**FFPM 6213 PATOLOGI UMUM PATOLOGI ANATOMIK I** **FFPM 6223 PATOLOGI UMUM PATOLOGI ANATOMIK II** At the end of the module, trainee will be able:	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method (100%)**			**SLT** (120)
				Theory exam	**Practical exam**	**MSF/ Portfolio**	
1	Understand and apply the basic theoretical and practical knowledge in the fields of Anatomic Pathology and Forensic Pathology. (MQF C1-Knowledge)	C3/PLO1 l	Lectures, seminars, case presentations and practical/ slide sessions	50			60
2	Perform and interpret diagnostic pathology tests in the fields of Anatomic Pathology. (MQF C3a-Practical skill)	P4/PLO2	Lectures, seminars, case presentations and practical/ slide sessions		45		60
3	Display communication and	A4/PLO4	Lectures, seminars,			5	20

	teamwork skills in the provision of pathology patient care services.		case presentations and practical/ slide sessions				

FFPM 6313 PATOLOGI UMUM PATOLOGI KIMIA I

FFPM 6323 PATOLOGI UMUM PATOLOGI KIMIA II

Introduction

Stage 1 is of one-year course before embarking into becoming a chemical pathologist. Its syllabus is composed of fundamental biochemical knowledge which, will enable candidates to use most appropriately as applied to clinical requirements, i.e. diagnosis of disease and planning and monitoring of therapy. They will acquire knowledge of the common clinical disorders and understand the basic principles of laboratory utilization in the diagnosis and management of disease. They will also be taught on some of the common methods and instruments.

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

CLO	**FFPM 6313 PATOLOGI UMUM PATOLOGI KIMIA I** **FFPM 6323 PATOLOGI UMUM PATOLOGI KIMIA II** At the end of the module, trainee will be able:	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method (100%)**			**SLT** (120)
				Theory exam	**Practical exam**	**MSF/ Portfolio**	
1	To acquire knowledge and understanding in the clinical aspects of chemical pathology (MQF C1-Knowledge)	C3/PLO1 l	Lectures, seminars, case presentations and practical/ slide sessions	25			40
2	To acquire knowledge on the principles and applications in analytical techniques and instrumentation in chemical pathology (MQF C3a-Practical skill)	P4/PLO2	Lectures, seminars, case presentations and practical/ slide sessions		50		40
3	To acquire basic knowledge in the management of chemical pathology	C4/PLO4	Lectures, seminars, case presentations	25			40

	laboratory (MQF C1-Knowledge)		and practical/ slide sessions				

FFPM 6413 PATOLOGI UMUM MIKROBIOLOGI PERUBATAN I

FFPM 6423 PATOLOGI UMUM MIKROBIOLOGI PERUBATAN II

Introduction

Medical Microbiology component for Part I DrPath program consist of 10 weeks of teaching and learning session. Teaching methods include lectures, seminars, bench work and case discussion.

The 10-week formal program are consisting of the following components:

Components Duration	**Weeks**
Bacteriology	5
Mycology	1
Virology	2
Parasitology	1
Immunology	1

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

CLO	**FFPM 6413 PATOLOGI UMUM MIKROBIOLOGI PERUBATAN I** **FFPM 6423 PATOLOGI UMUM MIKROBIOLOGI PERUBATAN II** At the end of the module, trainee will be able:	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment method (100%)**			**SLT** (120)
				Theory exam	**Practical exam**	**MSF/ Portfolio**	
1	To describe the aetiology, epidemiology, pathogenesis, clinical manifestation, laboratory diagnosis, management, prevention and control of infectious diseases and immunological diseases (MQF C1-Knowledge)	C3/PLO4	Lectures, seminars, case presentations and practical/ slide sessions	50			50

2	To interpret basic laboratory tests for diagnosis of infectious diseases and immunological diseases. (MQF C3a-Practical skill)	P3/PLO3	Lectures, seminars, case presentations and practical/ slide sessions		45		50
3	To display good personal development and responsibility in professional and academic settings (MQF C4a-Personal skill)	A5/PLO7	Lectures, seminars, case presentations and practical/ slide sessions			5	20

FFFQ6611 PEMBANGUNAN PERSONAL & PROFESIONAL I

Introduction

This course aims to enable candidates to analyses and correctly choose various methods of decision-making according to the medical and health regulations.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome (PLO) mapping, TeachingLearning Methods, Assessment & Student-Learning Time (SLT)

CLO	**FFFQ6611 PEMBANGUNAN PERSONAL & PROFESIONAL I** At the end of the module, trainee will be able:	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment Method (100%)** **Report**	**SLT** (40)
1	To analyse the best practices in decision-making based on current and relevant theories; in particular, respecting the diversity of individuals involved in the process. (MQF C2- Cognitive skill)	C4/PLO4	Groupwork	100	40

FFFQ6621 PEMBANGUNAN PERSONAL & PROFESIONAL II

Introduction

This course aims to enable candidates to integrate and maintain the core and moral values required as a clinical practitioner, during treatment of patients and beyond.

Table: Course Learning Outcome, Taxonomy Level / Programme Learning Outcome (PLO) mapping, TeachingLearning Methods, Assessment & Student-Learning Time (SLT)

CLO	**FFFQ6621 PEMBANGUNAN PERSONAL & PROFESIONAL II** At the end of the module, trainee will be able:	**Taxonomy Level / PLO**	**Teaching Method**	**Assessment Method (100%)** **Presentation**	**SLT** (40)
1	Incorporate correct ethical and moral values required in the development of interpersonal capability with regards to treating patients and supporting members of the team. (MQF C3b-Interpersonal skill)	A4/PLO5	Case study	100	40

List of Recommended Materials and Resources – Stage 1

Hematology	• Victor Hoffbrand, Paresh Vyas, Elias Campo, Torsten Haferlach, Keith Gomez. 2019. Color Atlas of Clinical Hematology: Molecular and Cellular Basis of Disease. 5th Edition. Wiley. • B. J. Bain, I. Bates and M. A. Laffan. 2017. Dacie and Lewis Practical Haematology. 12th Edition. Elsevier. • Denise M. Harmening. 2012. Modern Blood Banking and Transfusion Practices. 6th Edition. F.A Davis Co. • Michael F. Murphy, David J Roberts. 2017. Practical Transfusion Medicine. 5th Edition. Wiley. • Pettit JE, Moss P and Hoffbrand AV. 2007. Essential Haematology. 5th Edition. Blackwell Scientific
Anatomic Pathology	• Robbins & Cotran Pathologic Basis of Disease 10th Edition (Published date May 2020) • Wheater's Basic Pathology: A Text, Atlas and Review of Histopathology by Geraldine O'Dowd (latest edition) @ Wheater's Basic Histopathology by Alan Stevens. James S. Lowe, Barbara Young., 6th edition, 2014 • Theory and Practice of Histological Techniques. Bancroft JD and Stevens A.. Churchill Livingstone., 7th edition, 2013 • The Practice of Surgical Pathology: A beginners's guide to the diagnostic process by Diana Weedman Molavi, 2008 • Rosai and Ackerman's Surgical Pathology. 11th edition. Elsevier (2017). • Lester, Susan C. Manual of Surgical Pathology. Third ed.: Mosby, 2010 35 • WHO Classification of Tumour Series
Chemical Pathology	• Marshall WJ &Bangert SK, Clinical Chemistry • Phillip Mayne, Clinical Chemistry: Diagnosis and Treatment. • Burtis CA, Ashwood ER & Bruns DE, Tietz Textbook of Clinical Chemistry and Molecular Diagnostics • Kaplan LA, Pesce AJ & Kazmierczak SC, Clinical Chemistry: Theory, Analysis, Correlation • Burtis, CA &Ashwood ER, Tietz Fundamentals of Clinical Chemistry,Walmsley, Cases in Chemical Pathology.
Medical Microbiology	• Cotran RS, Kumar V, Robbins SL, 2015: Robbin's Pathologic Basis of Disease. 9th Edition, Elsevier Saunders. • Fiona Roberts Elaine MacDuff . 2018. Pathology Illustrated. 8th Edition. Churchill Livingstone. • Richard V Goering, Hazel M Dockrell, Mack Zuckerman, Derek Wakelin, Ivan Roitt, Cedric Mims, Peter L Chiodini, 2018. Mims' Medical Microbiology. 6th Edition. Elsevier Saunders. • Fatmah Md. Salleh, Norhayati Moktar, Tengku Shahrul Anuar Tengku Ahmad Basri & Azlin Mohd. Yasin. 2016. Practical Guide to Laboratory Techniques in Medical Parasitology. Bangi: Penerbit UKM. • Noor Hayati Mohd Isa & Karis Misiran. 2015. Colour Atlas on Medical Parasitology. Shah Alam: UiTM Press.

	• Paniker, C.K. Jayaram (Author) & Sougata Ghosh (Editor). 2017. Paniker's Textbook of Medical Parasitology. Edisi ke-8. New Delhi: Jaypee Brothers Medical Publishers. • Sherris, J.C. 2010 (Ed). Sherris Medical Microbiology. An Introduction to Infectious Diseases. 5rd Edition. USA: McGraw-Hill Professional.
Personal and Professional Development	• Jonathan Herring. 2016. Medical Law and Ethics. Oxford: Oxford University Press. • Peter Tate, Francesca Frame. 2020. The Doctor's Communication Handbook 8th edition. CRC Press Taylor & Francis Group. • World Medical Association, Williams John Reynold. 2015. Medical ethics manual. World Health Communication Associates, UK. • Blake T, Whallett A.2016. Leadership and the medical registrar: how can organisations support these unsung heroes? Postgraduate Medical Journal; 92:735-740. • Malaysian Medical Council 2019. Code of Professional Conduct. https://mmc.gov.my/wp-content/uploads/2019/12/CODE-OFPROFESSIONAL-CONDUCT-2019-Amended-Version.pdf

3.10 Course Structure – Stage 2 – Year 2, 3 and 4

3.10.1 General objective

a) To attain competence in the performing, interpreting, reporting of forensic autopsies.
b) To be able to form expert opinion from forensic investigations which include the scene of death/crime, autopsies, laboratory results and other relevant findings.
c) To acquire a working knowledge of the organization and management of forensic pathology services appropriate to the socio-economic environment.

3.10.2 Specific objective

a) To attain competence in performing forensic autopsies.
b) To attain competence in interpretation of autopsy findings.
c) To attain competence in writing forensic autopsy reports.
d) To attain competence in gross and microscopic examination, interpretation and reporting of tissues obtained at forensic autopsy.
e) To attain competence in performing forensic frozen section.
f) To recognise forensic case, that requires referral and further consultation with senior colleagues, and takes appropriate action.
g) To attain competence in examining the scene of death/crime, advising the investigating officer on the collection of relevant samples and drawing initial conclusions to guide the direction of police investigation.
h) To acquire skill and competence in presenting forensic cases in a court of law.
i) To have exposure to management of a mass disaster.
j) To attain competence in collecting relevant samples and to perform certain procedures pertinent to forensic science and toxicology.
k) To acquire knowledge of laws related to medical and forensic practice in Malaysia.
l) To acquire knowledge of the management of a routine forensic pathology laboratory and its network.
m) To acquire knowledge on some of the medico-legal systems around the world.

3.10.3 Teaching program – Stage 2

A. The teacher: student ratio will be 1: 4
B. There will be no formal lectures. The student is expected to learn primarily through in-service training in an independent and self-directed manner through reading, laboratory, mortuary and field work.
C. There will be formal sessions in the form of seminars, journal review and small group discussion on selected topics.
D. Trainees are required to undertake relevant elective postings eg. to a forensic science laboratory, DNA fingerprinting laboratory and other forensic centres.
E. Trainees are expected to undertake all routine duties of a forensic pathologist including laboratory, mortuary and call duties.
F. The trainee is also required to plan, undertake and write up a research project and /or manuscript which has to be submitted by the end of the third year.
G. The trainee is also required to submit a case book consisting of 10 cases collected over the three-year period.
H. Trainee are required to meet the training requirements as delineated in the provided logbooks. Progress of logbook entries will be monitored regularly by the program coordinator and academic staffs.
I. 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.
J. An academic and research supervisor will be appointed to assist the trainee during the period of training
K. Continuous trainee assessment will be conducted using Workplacebased 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.
L. Trainee in the open system:
    - The university shall appoint an academic supervisor/honorary lecturer from the host institution to monitor and periodically provide progress reports (every six monthly) to the university.
    - Following an unsatisfactory report, trainee will be recalled to the university for counseling and appropriate corrective measures.
    - Trainee should attend formal teaching at the university, whenever possible.

3.10.4 Framework of teaching & learning time – Stage 2

Year 2

Orientation 1 week	Research Methodology Workshop 2 weeks	Laboratory, mortuary and field works 45 weeks	Leave 4 weeks (2 weeks every 6 months)
		Research project	

Year 3

Laboratory, mortuary and field works 46 weeks	Elective posting 2 weeks	Leave 4 weeks (2 weeks every 6 months)
Research project		

Year 4

Laboratory, mortuary and field works 40 weeks	Study leaves 6 weeks	Examination 2 weeks	Leave 4 weeks (2 weeks every 6 months)

3.10.5 Research

The trainee is expected to have general knowledge on conducting research and should be able to come up with a research proposal. 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 candidature and submit the dissertation at least three months before final examination for assessment. A research project is compulsory for the Forensic Pathology Stage 2 program and a prerequisite for graduation.

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. Out-campus candidate may have extra co-supervisor from their respective hospitals.

The dissertation must be written in English. The candidate can submit the dissertation/research report in UKM dissertation format or Manuscript ready format. The dissertation will be examined by designated examiners.

Research Courses (FFPF6434, FFPF6454, FFPF6474)

The research training is structured into three progressive courses:

• FFPF6434 – Research I: Research Proposal

• FFPF6454 – Research II: Data Collection & Analysis

• FFPF6474 – Research III: Manuscript Write-up & Presentation

Each course carries 4 credits (160 SLT hours) and must be completed sequentially.

Overall Objectives of Research Training

The research module aims to enable trainees to:

1. Develop skills in scientific literature review and critical appraisal.

2. Design and implement a clinically relevant research project in anatomical

pathology.

3. Apply appropriate research methodologies and statistical analysis.

4. Produce a manuscript suitable for submission to a peer-reviewed journal.

5. Present research findings to scientific and academic audiences.

Responsibilities of Trainees

Trainees are expected to:

1. Identify a relevant research topic in Forensic Pathology.

2. Conduct a systematic literature search using recognised databases (e.g.,

PubMed, Scopus).

3. Develop a research proposal with appropriate methodology.

4. Obtain ethics approval before commencing the study.

5. Collect and manage research data responsibly.

6. Perform appropriate statistical analysis.

7. Present findings in departmental research meetings or scientific conferences.

8. Submit a research dissertation as a prerequisite for eligibility to sit for the

examination

9. Encourage to prepare a manuscript suitable for publication.

Trainees must maintain documentation including:

3.10.6 Summary of program structure

Stage	Year	Academic activity	Assessment
1	Year 1	Haematology Posting Anatomic Pathology Posting Chemical Pathology Posting Medical Microbiology Posting Intensive Course	Continuous assessment (logbook) Part 1 Professional Exam (End of semester 2)
2	Year 2	• Research proposal • Postmortem duty, scene investigation and oncall • Academic exercises: CME, laboratory management activity, mortality meeting, conference	WBA: DOPS CBD ECE FPAA
	Year 3	• Research proposal • Postmortem duty, scene investigation and oncall • Elective postings • Academic exercises: CME, laboratory management activity, mortality meeting, conference	WBA: DOPS CBD ECE FPAA
	Year 4 Semester 7	• Research proposal • Postmortem duty, scene investigation and oncall • Elective postings • Academic exercises: CME, laboratory management activity, mortality meeting, conference	WBA: DOPS CBD ECE FPAA
	Year 4 Semester 8	• Research proposal • Postmortem duty, scene investigation and oncall • Elective postings • Academic exercises: CME, laboratory management activity, mortality meeting, conference • Study leave	Part 2 Exit Exam (End of semester 8)

3.11 Student Assessment

3.11.1 Stage 1 Continuous Assessment

I. In Stage 1, the trainee is required to maintain a log book to record all procedures performed and level of competence achieved. The log book is to be signed by a medical laboratory technologist, scientific officer (where relevant) or a supervising pathologist.
II. The log book/ final progress report shall be submitted to the Head of the Department of Pathology/Program Coordinator at the end of the last posting in Stage 1.
III. Unsatisfactory performance or non-fulfillment of requirements of Stage 1 training are grounds for barring a trainee from sitting the Stage I examination. Trainee found unsuitable for further training will be counseled to leave the Programme.
IV. In some disciplines, mini-tests may be conducted regularly. The purpose of such tests is formative i.e. to detect deficiencies so that remedial action may be undertaken. The marks will not be considered for the Stage I examination.
V. Supervisory reports (academic) will also be part of the assessment process. These reports provide feedback on the trainee's academic progress, performance, and areas for improvement. They are completed by the trainee's academic supervisor and contribute to the overall assessment of the trainee's readiness to progress to the next stage of training.

Prerequisites for sitting the Part 1 Examination

To be eligible to sit the Part 1 Examination the trainee must have:

i. Satisfactorily completed all postings in Stage I (Year 1). The supervisor is required to certify that the progress of the trainee has been satisfactory throughout the Stage and that the trainee is eligible to sit for the Stage I Examination.
ii. Satisfactorily completed all the required tasks as set out in the log book to the supervisor’s satisfaction. The log book must be submitted to the Head of Department of Pathology/Program Coordinator for inspection at the end of the last rotation posting.
iii. Satisfactorily completed all assignments [where applicable].

3.11.2 Stage 1 Summative Assessment

Examination format & distribution of marks (Professional Part 1 Examination)

The Part 1 examination comprises

a. Theory papers

b. Practical papers

The allocation of marks in the Part 1 examination shall be as follows:

Theory 50%

Practical 50%

The breakdown of each theory examination information as follows:

THEORY	60% ANATOMIC PATHOLOGY 40% FORENSIC PATHOLOGY
ONE BEST ANSWER (OBA)	25 QUESTIONS
EXTENDED MATCHING QUESTIONS (EMQ)	15 QUESTIONS
ESSAY	3/4 QUESTIONS
SHORT ESSAY QUESTION	1 QUESTION

The breakdown of practical examination are as follows:

Practical	Component
OBJECTIVE STRUCTURED PRACTICAL EXAMINATION (OSPE)	15 SLIDES 5 GROSS PATHOLOGY

Allocation of marks in the Theory & Practical component:

Theory	50%
Practical	50%
Total	100

Criteria for pass

The candidate must obtain an overall score of 50% AND

a. Score ≥ 50% for the theory components and obtain ≥ 50% for the practical components.

Repeat examinations:

a. A candidate who has failed is allowed to repeat the examination after 6 months and may progress to the next semester.

b. A candidate is allowed a maximum of two repeat examination.

Requirements of trainee to advance to Stage 2

Requirement	Criteria	Evidence
Completion of Training Period	Completed the designated training period (24 weeks/semester)	Attendance and leave records
Satisfactory Performance	Demonstrates satisfactory performance in all required assessments and evaluations.	Posting assessment records
Compliance with Training Program Policies	Adheres to all policies and guidelines outlined in the training program.	Attendance record at the • Orientation programme of the university • Intensive course
Supervisor Recommendation	Supervisor recommends trainee's readiness for advancement to the next stage of training.	Supervisor report (every semester)
Successful Completion of Part I Examinations	Trainee has passed Part I examination.	Examination result/transcript
Performance Review	Overall performance is reviewed and deemed satisfactory by program management committee	Report by Head of Programme

3.11.3 Stage 2 Assessment

The trainee will undergo supervised competency-based training in Forensic Pathology with the aim of progression to obtain high level of competency. Trainees will undergo both formative and summative assessments.

Formative assessment

Formative assessments in Forensic Pathology training will be largely workplace-based assessments (WBAs). This is the appraisal of the trainee's professional skills and attitudes that evidences their actual performance in the workplace. These are for the continuous provision of feedback and identification of areas for improvement, and are carried out throughout the training period. The assessment tools for workplace-based assessment include Forensic Pathology Autopsy Assessment (FPAA), Directly Observed Practical Skills (DOPS), CaseBased Discussion (CBD) as well as Observed Professional Activity (OPA), adapted from The Royal College of Pathologist of Australasia (RCPA).

The WBAs that are involved in DrPath Forensic Pathology training are as follows:

WBA		Description
FPAA	Forensic Pathology Autopsy Assessment	FPAA is an assessment of the ability to perform a forensic autopsy and give diagnostic opinions on the full range of issues and cases encountered by a specialist forensic pathologist in daily practice.
DOPS	Directly Observed Practical Skills	The emphasis of DOPS assessments is provision of feedback that supports the development of competency and proficiency. The assessment typically takes 15-20 minutes, with an additional 5 minutes for feedback.
CBD	Case-Based Discussions	CBDs provide the trainer the means of reviewing a trainee's practice or their thoughts about practice. It enables trainers to explore the thinking of their trainee, share understanding, and develop professional thinking. Each assessment should typically take 15-20 minutes with an allowance of an additional 5-10 minutes for feedback provision by the assessor.
OPA	Observed Professional Activity	The purpose is to indicate the trainee's ability to perform a range of professional activities that are required of forensic pathologists. OPA assessments provide feedback to trainees regarding their progress by highlighting strengths and areas for improvement.

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 ensures 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 committees will be headed by the Head of the program. 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 and 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

3.11.4 Exit Process

Trainees may only sit for the Final (exit) examination on completion of a minimum of THREE (3) years of supervised training in Forensic Pathology, in a forensic laboratory and mortuary approved for Forensic Pathology training by the local governing body for postgraduate training and the university. Trainee must show evidence of the progressive competence to reach the level of unsupervised practice as a Forensic Pathologist. The progressive acquisition of the following criteria and the evidence are as follows:

Criteria of progressive acquisition of competence at the end of the training	**Evidence of training**
Medical and scientific knowledge relevant to Forensic Pathology	Part I examination result WBA assessment records
Forensic Pathology practice-based skills	WBA assessment records
Interpersonal and communication skills	PPA Assessment records
Professionalism and ethical principles in practice	WBA and PPA Assessment records
Confidence in providing opinion to aid in medicolegal investigation	Supervisor report, Progress review report
Laboratory and mortuary management skills such as with regards to laboratory information systems, safety, quality assurance and laboratory accreditation, and aspects of health economics	WBA assessment records
Ability to appraise the scientific literature and conduct research	Research supervisor report, Research courses assessments, manuscript assessment

Prerequisites for sitting the Part 2 Examination

To be eligible to sit for the Final Examination the trainee must have satisfactory progression in the training program is a training prerequisite for admission to the Final (exit) examination. Satisfactory progression encompasses all of the following criteria as follows:

Requirement	Criteria
Completion of Training Period	Completed the designated training period of 4 years at least 85% of attendance. Completion of case collection (400 cases in logbook)
Formative Assessment	100% at least at satisfactory level
Research project	Submitted a research project report/ dissertation accompanied by the supervisor's report. The research project report should be submitted at 3 months before the Final Examination. A revision of the research project report may have to be undertaken if necessary.
Supervisor report	100% at least at satisfactory level
Performance Review Report	Overall performance is reviewed and deemed satisfactory by program administration committee

Summative Assessment

PROFESSIONAL PART 2 EXAMINATION (EXIT EXAMINATION)

The Part 2 examination will be held at the end of Year 4 and comprises:

a. Theory papers

b. Practical papers

c. Viva

The allocation of marks in the Stage II examination shall be as follows:

Component	Description
Theory	Paper 1
	Paper 2
Practical	Long Case
	Short Case
	Forensic Histological Examination
Research	Submission of manuscript/ research dissertation
Viva	viva

Criteria for pass:

a. Candidate must obtain an overall score of 50%

b. Candidate must pass BOTH the theory and practical components (The pass mark for each component is 50%).

c. Attending the viva is COMPULSORY

Repeat examinations:

a. Repeat examination after six months

A candidate may be allowed to repeat the examination after six months if he has an overall score of 50% or more but has failed either the theory OR the practical component

In this repeat examination, the candidate will be examined in the failed component and be given a viva-voce. The trainee must achieve satisfactory continuous assessment to be eligible to sit for examination.

The candidate is only allowed to repeat examination twice consecutively for the same component (theory or practical). Upon failure of the second repeat attempt, the candidate is required to repeat both theory and practical components after a period of 6 months to 1 year based on conjoint exam board decision.

b. Repeat examination after one year.

A candidate may be allowed to repeat the examination after one (1) year if:

i. obtained an overall score of less than 50% OR

ii. failed BOTH the theory and practical components OR

iii. an overall score of 50% or more, but has failed either the theory or the practical component and the conjoint exam board found that overall performance of the candidate is not satisfactory.

In this repeat examination, the candidate will be examined in the theory and practical components and be given a viva-voce. The trainee must achieve satisfactory continuous assessment to be eligible to sit for examination

c. A candidate is allowed a maximum of four repeat examinations.

The maximum duration permitted for the completion of the entire course is SEVEN (7) years.

4. Roles & Responsibilities

i. Registration

Trainee 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 is must be completed early of every semester.

ii. Orientation and Familiarisation:

Trainee 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 trainee 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:

Trainee should actively participate in mortuary and laboratory training sessions, and follow the regulations and safety protocols. Trainee 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:

Trainee 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 Forensic Pathology.

vi. Professionalism and Ethics:

Trainee 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. Progress Monitoring:

Trainee are expected to attend all progress meetings with the programme coordinator. Trainee 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:

Trainee 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-Graduation Commitments:

Graduates are urged to seek professional growth and specialisation in Forensic Pathology 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.

5. 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 Trainee 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 12 74 months, 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 (refer Appendix IV). 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 75 strongly encouraged to inform the Program Coordinator in advance of their enrollment so that accommodations, if needed, can be made.

6. 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.

7. PROGRAMME MONITORING & REVIEW

The program will be monitored and reviewed at specified intervals in accordance to 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 (Jawatankuasa Perancangan dan Pembangunan Akademik - JPPA), an entity entrusted with the responsibility of monitoring and reviewing academic program 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 (Sistem Penilaian Pengajaran Kursus - 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 to the next semester courses. The other input for program monitoring and review is obtained from self-review procedures as well as feedback from external sources such as stakeholders and external assessors.

9. QUALITI 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.