

**REGULATIONS FOR THE  
POSTGRADUATE CERTIFICATE IN  
MOLECULAR AND DIAGNOSTIC PATHOLOGY  
(PCMDPath)**

*(See also General Regulations)*

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**M.135 Admission requirements**

To be eligible for admission to the courses leading to the Postgraduate Certificate in Molecular and Diagnostic Pathology, a candidate shall:

- (a) comply with the General Regulations;
  - (b) hold a Bachelor's degree with honours or a degree of MBBS of this University, or another qualification of equivalent standard from this University, or from another University or comparable institution accepted for this purpose; and
  - (c) satisfy the examiners in a qualifying examination, if required.
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**M.136 Award of certificate**

To be eligible for the award of the Postgraduate Certificate in Molecular and Diagnostic Pathology, a candidate shall

- (a) comply with the General Regulations; and
  - (b) complete the curriculum and satisfy the examiners in accordance with the regulations set out below.
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**M.137 Length of curriculum**

The curriculum shall last for two years on a part-time basis, with 88 hours of prescribed work. The maximum period of study should not exceed four years.

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**M.138 Completion of curriculum**

To complete the curriculum, a candidate shall:

- (a) follow instruction in the syllabuses prescribed for the 3-module programme and complete satisfactorily all required written or practical work; and
- (b) satisfy the examiners in the course by continuous assessments and by examinations at the end of each module of the teaching programme.

A candidate who fails to fulfil the requirements within the prescribed maximum period of study shall be recommended for discontinuation under the provision of General Regulation G12, except that a candidate who is unable because of illness or circumstances beyond his/her control to complete the requirements within the prescribed maximum period of study, may apply to the Board of Studies for permission to extend his/her period of studies.

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**M.139 Examinations**

There will be an examination after the completion of each module. A candidate who has failed to satisfy the examiners in any part of the examinations may be permitted

- (a) To attend a supplementary examination; or
- (b) To repeat the course(s) and to re-take the prescribed examination(s).

## **M.140 Examination results**

At the conclusion of the examination, the candidates will be notified of the examination result. A candidate who has shown exceptional merit at the whole examination may be awarded a mark of distinction and this mark shall be recorded in the candidate's transcript.

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## **SYLLABUS FOR THE POSTGRADUATE CERTIFICATE IN MOLECULAR AND DIAGNOSTIC PATHOLOGY**

The curriculum comprises 1) lectures, 2) tutorial/practical and 3) self-assessment exercises. Candidates should complete two of the three Molecular Pathology Modules and one of the two Diagnostic Pathology Modules offered, with passing of the examination of these modules.

### **PATH6001 Principles and Techniques of Molecular Pathology (24 hours)**

This module will cover the following topics: Introduction to molecular pathology and genetics; Principles of electrophoresis and immunoblotting; Principles of automated DNA sequencing and various methods of genotyping and mutation analysis; Human identity by DNA typing; Principles and applications of Quantitative-PCR; Basic concepts in conventional cytogenetics and molecular cytogenetics; In-situ hybridization techniques (ISH, FISH, CISH, SISH); Principles and applications of flow cytometry; Emerging technologies (epigenetics, gene expression profiling, stem cells); Laboratory management issues in molecular testing.

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### **PATH6002 Clinical Applications of Molecular Testing (24 hours)**

This module provides an overview of the Principles of HPV testing, its clinical relevance and the various methods of genotyping; Hepatitis B virus infection – testing for viral load and HBV DNA mutants detection; Quantification of EBV DNA plasma for EBV associated diseases; BCR/ABL kinase mutation detection for chronic myelogenous leukaemia and related disorders; KRAS mutation detection for colorectal cancer; EGFR mutation in lung cancer; In-situ hybridization tests: EBER; Kappa/Lambda; HER2 amplification in breast cancer; FISH test for early bladder cancer detection; PCR for gene rearrangements and translocations for haematolymphoid malignancies and soft tissue tumors; RET and Menin gene mutation detection for Multiple endocrine neoplasia syndrome; c-kit mutation detection for gastrointestinal stromal tumors; Gene expression profiling for haematolymphoid malignancies; Laboratory management issues in molecular testing.

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### **PATH6003 Fundamentals of Genetic Testing for Hereditary Disorders (24 hours)**

This course provides a comprehensive introduction to Molecular Genetics; Genetic testing for Thalassaemia; Genetic testing for familial colorectal cancer; Genetic testing for familial breast and ovarian cancer; Molecular genetics in Paediatrics; Molecular genetics in Neurological diseases; Laboratory management issues in molecular testing.

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### **PATH6004 Chemical Pathology, Immunology, Diagnostic Haematology and Transfusion Medicine (40 hours)**

This module will cover topics on the Renal and Liver function tests; Cardiac Markers; Tumor markers; Clinical Toxicology; Expanded Newborn Screening; Pharmacogenetics, Drug Safety and Personalized Medicine; Biochemical diagnosis of adrenal disorders; Immunochemistry Tests; Autoantibody Tests; Diagnostic Haematology Test; Transfusion Medicine; Laboratory Management.

**PATH6005 Essential Anatomical Pathology for Clinicians (40 hours)**

Topics include Haematolymphoid malignancies: relevance of classification; Tumors of the respiratory tract and pleural cavity; Tumors of the Central Nervous System; Urologic oncology; Tumors of the breast; Endocrine tumors; Soft tissue and bone tumors; Cytological, histopathological and molecular devices for diagnosis and management of gynaecological pathology; Endometrial adenocarcinoma and its precursors and mesenchymal lesions of the uterine corpus; Tumors of the ovary and fallopian tube; Squamous and glandular lesions of the cervix: cytology and histology; Gestational trophoblastic diseases; Diseases of the vulva and vagina; Endometriosis and lesions of secondary Mullerian system; Renal biopsy procedure and specimen handling; Interpreting renal biopsies for glomerular, tubular, interstitial and vascular diseases; Classification of lupus nephritis; Banff classification of renal transplant rejection; Glomerular diseases in transplanted kidney; Laboratory management.