



**UNIVERSITI  
MALAYA**

*Faculty of Medicine*



FACULTY OF  
MEDICINE

# **POSTGRADUATE GUIDEBOOK**

**SESSION 2020/2021**



## **DISCLAIMER**

Every attempt is made to ensure that the Information in this Handbook is correct at the time of production.

The University may from time need to make changes and improvement to the contents.

(March, 2021)

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Welcome to the Faculty of Medicine.

You are entering the next phase of your higher education at a time when the world is undergoing such significant changes due to the COVID pandemic that has impacted our lives in so many dimensions. The higher education sector in particular has had to undergo a massive transformation to adapt to the changes needed

to minimise the transmission of infection by observing the necessary public health measures such as physical distancing mostly aided by conducting classes on line.

To this end the Faculty has taken various measures to ensure that the delivery of programmes will have minimal disruption. Faculty training and subscription to on line programs that provide excellent resources which can supplement bedside teaching are just some examples of the steps taken to ensure that we continue to deliver the best programs.

Whether you are pursuing a Clinical Masters in Medicine or a graduate research program ie an MSc, PhD or DrPH, you are now part of the largest Faculty in the University, joining over 2470 full-time and part-time undergraduate and postgraduate students including more than 400 postgraduate researchers.

To those pursuing the Clinical Masters program, the University Malaya Medical Centre will provide you with a very rich and vast experience and hands on training in clinical medicine. The large number of highly experienced and motivated academicians and specialists will help ensure that you receive the best training and prepare you for your years ahead as a specialist.

For those undertaking a research based postgraduate programme the Faculty is involved in a wide array of research programmes that range from the bench to the bedside and at the population and policy level. The Faculty offers you a stimulating study and research environment and facilities to help you reach your goals. Additionally the Faculty of Medicine has developed a vast network of international collaborations which provide further opportunities for you to enrich your learning and research experience.

I wish you every success and enjoyment in your time here and warmly welcome you to the Faculty.

A handwritten signature in black ink, likely belonging to Professor Dato' Dr. Adeeba Binti Kamarulzaman. The signature is stylized and cursive, written on a white background.

**PROFESSOR DATO' DR. ADEEBA BINTI KAMARULZAMAN**  
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The world as we know it has changed. As we welcome you to the Faculty of Medicine, you will find that the typical transition period that occurs upon introduction to your postgraduate life will be a unique one. In these unprecedented times, it is imperative that we are sensitive to your needs by focusing on increased quality communication and ensure an enriching experience by providing support, flexibility and safety in a comfortable practice, learning and training environment.

As you journey through your studies in the largest faculty in University of Malaya, there will be many opportunities to learn new skills, meet new people and experience a range of learning environments that we offer within the many programmes here.

Our goal is to prepare you as our next generation of specialists, scientists, academicians, and industry practitioners with rewarding careers. This will set the foundation for us all to be involved in the building of a healthy society through education, discovery, collaboration and research.

As healthcare and other industry needs have changed, we place emphasis on curriculum design that is relevant to the current times. We hope your time with us will drive you into the pursuit of excellence that is fortified by positive social values so you may go forth and serve your community and population productively.

I am looking forward to meeting you. Welcome to the Faculty of Medicine.

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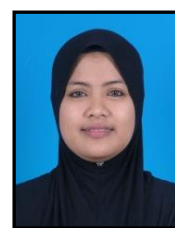
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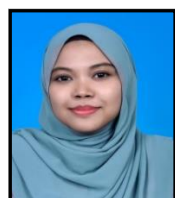
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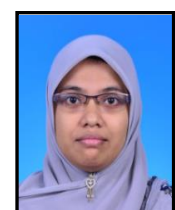
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**Profesor Kehormat**

**Professor Dr Tin Tin Su** MBBS (Ygn), MSc. CHHM (Heidelberg), Dr Med (Heidelberg) (Profesor Kehormat)

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**Dr Nur Afiah Mohd Salleh** BSc. (UM, Kuala Lumpur), MPH (LSHTM, London), PhD (UBC, Vancouver)

**Dr Mahmoud Danaee** BSc. Agr.Eng. (FMU, Iran), MSc Biometry. (TMU, Iran); PhD Biotechnology. (UPM)



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Associate Professor Dr Khong Tak Loon MBBS (Edin), MSc Surg Sc (Lond), MD (Lond), FRCS (UK)

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Dr Ang Chin Wee MBChB(UK), MD(UK), FRCS(UK)

Dr Lim Hiong Chin MBBS (IMU), MSurg (Mal)

Dr Mohammad Reza bin Abdul Aziz MBBS (Ireland), MRCI (Ire)

**Breast Unit:**

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Dr Teoh Li Ying MBBS (Mal), MSurg (Mal)

Dr Suniza binti Jamaris MBBS (Mal), MS (Mal)

Dr Teh Mei Sze MD(USM), MSurg(Mal), MRCS (Edin)

Dr Tania Islam MBBS (Chittagong), PhD (Jap)

**Hepatobiliary Unit:**

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Associate Professor Dr Koh Peng Soon MS (Mal)

Dr Koong Jun Kit MBBS (IMU), MRCS (Ire) MS (Mal)

**Endocrine Unit:**

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**Vascular Unit:**

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Dr Anand a/l Sanmugam MD (UPM), MSurg (Mal)

Dr Srihari Singaravel MBBS (Chennai India), MS (Pediatric Surgery) (Mal)

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Dr Ahmad Nazran bin Fadzil MBChB (Leic), MS (Mal)

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Graduates of the University of Malaya will be able to:

1. Demonstrate knowledge and skills in their field of study, appropriate research and professional practices, and the processes of critical thinking, creative thinking, and problem solving.
2. Use effective methods including contemporary technology to manage information, to achieve diverse professional goals aligned with professional standards and make decisions based on appropriate data and information.
3. Engage in continuous self-improvement and professional growth, support the professional development of others, and display positive leadership and professional behaviours and disposition for effective practice.
4. Communicate effectively with other professionals, and the community, and project a coherent vision of social responsibilities.
5. Appreciate and continue to be guided by the University's core values of integrity, respect, academic freedom, open-mindedness, accountability, professionalism, meritocracy, teamwork, creativity and social responsibility.



## **VISION**

To be an internationally renowned institution of higher learning in research, innovation, publication and teaching.

## **MISSION**

To advance knowledge and learning through quality research and education for the nation and for humanity.



## **VISION**

To become a Centre of Excellence in Medicine

## **MISSION**

To become a premier medical centre that is world renown and to provide excellent health care, education, and research programmes delivered with efficiency, sensitivity and enthusiasm.



The University of Malaya was established on 8 October 1949 as a national institution to serve the higher educational needs of the Federation of Malaya and of Singapore. In 1960, the Government of the Federation of Malaya indicated that the Kuala Lumpur Division of the University of Malaya should become the national University in the Federation with effect from the beginning session 1962/63. Likewise, the Singapore Division should become the national University of Singapore. Steps to achieve the establishment of these two separate universities were finalized during the year 1961 and the University of Malaya was established on 1<sup>st</sup> January 1962. The student population at that time was about 330. Since then, the University has grown and developed rapidly. Today, the student population has grown to almost 30,000.

### **Establishment of the Faculty of Medicine at the University of Malaya**

Up to the 1950's, the Faculty of Medicine, University of Singapore, which was known previously as King Edward VII College of Medicine had been the only medical school in Malaya and Singapore. The output of doctors at that time was small: 60 per year. Many Malaysians had to go overseas to seek undergraduate medical education. It was not until 1960 that a determined effort was made to double the intake of students to 120 per year in Singapore. In 1960, a board of studies of the University of Malaya was appointed to study the feasibility of establishing a medical school with its own teaching hospital. The board recommended the early establishment of both.

To this end, the Government agreed and the Ministries of Education and of Health provided the necessary capital funds. In 1962, a Dean for the Faculty of Medicine was appointed.



**FIRST BATCH- 1969**

The first batch of medical students was admitted to the Faculty in 1964. A year earlier, these students, 40 of them, were placed in the Faculty of Science as pre-medical students. Construction of the faculty building began in July 1963, was completed in 10 months, so that the pioneer students were able to begin their course in May 1964. The building programme continued and the second phase was ready in time for Year II teaching the following May. Throughout this period, planning, building, ordering and receiving of equipment, recruitment of staff, organization of the Faculty, and discussions on the curriculum continued unrelentingly. Phase I of the University Malaya Medical Centre consisting of the main block together with podium or “technical box” (operating theatres, radio-diagnostic, accident and emergency, polyclinic, pharmacy, central sterile supply, cafeteria, administration and medical records) was completed in December 1966, and the first wards were opened as on March 1967. Phase II of the Hospital consisting of Paediatric, Maternity and Rehabilitation Units was completed in December 1967, and became functional in March 1968. The total construction period for the Medical Centre consisting of the faculty departments, hospital (740 beds), Hostel for Clinical Students, Nurses Quarters with Nursing School and Central Animal House was three and a half years. Over the past three decades, the medical centre has expanded tremendously, and today it has 900 beds (the number will be increased to 1200 beds after renovation).

### **Philosophy of the Faculty of Medicine**

The philosophy of the Faculty is to mould students to be competent, highly-skilled and knowledgeable health professionals, who can work with others as a team, who are caring and concerned about their patients and society, and who can emerge as leaders in their community.

**FOR TERM SYSTEM ONLY  
(52 WEEKS INCLUDING INTRODUCTION WEEK,  
REVISION AND EXAM)**

<b>Courses/Placement</b>	<b>-</b>	<b>01.06.2020 – 30.11.2020</b>
<b>Revision / Exam part I/II/III/Final*</b>	<b>-</b>	<b>September/October/November 2020</b>
<b>Courses / Placement</b>	<b>-</b>	<b>01.12.2020 – 31.5.2021</b>
<b>Revision / Exam I/ II/ III/ Final*</b>	<b>-</b>	<b>Mac/April/May 2021</b>

\* Examination Schedule according to the program of study

## FOR SEMESTER SYSTEM ONLY

SEMESTER I					NOTE
Introduction Week	1 week	05.10.2020	-	09.10.2020	*  Awal Muharam on 10.08.2021  Agong's Birthday on 07.06.2021  Malaysia Day on 16.09.2020  Deepavali on 14.11.2020  Maulidur Rasul on 29.10.2020  Christmas on 25.12.2020  New Year on 01.01.2021  Chinese New Year on 12 & 13.02.2021  Federal Territory Day on 01.02.2021  Thaipusam on 28.01.2021  Labour Day on 01.05.2021  Wesak Day on 26.05.2021  Nuzul Aquran on 29.04.2021  Hari Raya Aidilfitri on 13 & 14.05.2021  Hari Raya Aidiladha on 20.07.2021  Awal Muharam on 10.08.2021  National Day on 31.08.2021
Lectures	5 weeks*	12.10.2020	-	15.11.2020	
Mid Semester I Break	1 week	16.11.2020	-	22.11.2020	
Lectures	9 weeks*	23.11.2020	-	24.01.2021	
Examinations Semester I	3 weeks*	25.01.2021	-	14.02.2021	
Semester I Break	3 weeks*	15.02.2021	-	07.03.2021	
----- 22 weeks =====					
SEMESTER II					
Introduction Week	1 week	01.03.2021	-	05.03.2021	
Lectures	10 weeks*	08.03.2021	-	16.05.2021	
Mid Semester II Break	1 week	17.05.2021	-	23.05.2021	
Lectures	4 weeks*	27.05.2021	-	20.06.2021	
Revision Week	1 week	21.06.2021	-	27.06.2021	
Examinations Semester II	3 weeks*	28.06.2021	-	18.07.2021	
----- 20 weeks =====					
SESSION BREAK					
Session Break	11 weeks*	19.07.2021	-	03.10.2021	
SPECIAL SEMESTER					
Lectures	7 weeks*	26.07.2021	-	12.09.2021	
Examination Semester	Special 1 week	13.09.2021	-	19.09.2021	
Break	2 weeks*	20.09.2021	-	03.10.2021	
----- 10 weeks =====					



**Name of Programme :** Master of Anaesthesiology  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Anaesthesiology programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate;
- and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

The programme of study comprises three stages as follows:

- (1) Stage I in the first year of study encompassing clinical training in basic skills in anaesthesia and resuscitation for patient management
- (2) Stage II comprising training in the second and third year of study in:
  - (a) clinical anaesthesiology and in non-anaesthesiology postings undertaken in rotation such as general medicine, radiology, emergency medicine, or any other posting as may be approved by the Department responsible for the candidate's programme of study; and
  - (b) Research methodology, including the conduct of a research project in any field of anaesthesia, intensive care or pain management.

- (3) Stage III comprising clinical training in the fourth year in specialised fields of anaesthesiology or intensive care or of anaesthesiology and intensive care.
- (4) A candidate is required to maintain a log book throughout his period of study to document tasks undertaken.

## **5. Registration**

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she has -
  - (a) a minimum of two years experience in clinical anaesthesiology in a hospital recognised by the Faculty and passed any one of the examinations listed below-
    - (i) the Primary Examination of the Royal College of Anaesthetists;
    - (ii) the Primary Examination of the Australian and New Zealand College of Anaesthetists;
    - (iii) the Primary Examination for the degree of Master of Medicine in Anaesthesia of the National University of Singapore;
    - (iv) the Part II Examination of the Royal College of Anaesthetists;
    - (v) the Final Examination of the College of Anaesthetists Ireland; or
    - (vi) any other examination as may be approved from time to time by the Senate on the recommendation of the Faculty; or
  - (b) a minimum of three years clinical anaesthesiology experience in a hospital recognised by the Faculty, but has not passed any of the above examinations.

## **6. Attendance**

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her programme of study in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

- (1) A candidate is required to submit his/her log book and posting reports not later than one month before the Final Examination.
- (2) A candidate is required to submit his/her research report not later than six months before the Final Examination.

## **10. Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination
  - (b) the Final Examination
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has –
  - (a) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she passed any one of the examinations listed below:
    - (v) the Primary Examination of the Royal College of Anaesthetists;
    - (vi) the Primary Examination of the Australian and New Zealand College of Anaesthetists;
    - (vii) the Primary Examination for the degree of Master of Medicine in Anaesthesia of the National University of Singapore;
    - (viii) the Part II Examination of the Royal College of Anaesthetists;
    - (v) the Final Examination of the College of Anaesthetists Ireland; or
    - (vi) any other examination as may be approved from time to time by the Senate on the recommendation of the Faculty.
  - (b) submitted his/her log book and posting reports not later than one month before the Final Examination; and
  - (c) completed and submitted his/her research report six months prior to the Final Examination.
- (3)
  - (a) The Part I Examination shall be held at the end of the first year of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.
  - (b) The examination for the Written Section will be held within six weeks before examination for the Oral Section.
  - (c) Passing marks for every section is at least 50%. The aggregate passing mark for each examination is at least 50%.

- (d) Only candidates who passed the examination for the Written Section qualifies to sit for the Oral Section. However, candidates who scored 50% of total marks in the Written Section may be allowed to sit the Oral Section.

(4) Examination Subjects and Allocation of Marks

(a) Part I Examination

The subjects of the Part I examination and the marks to be allocated to each subject shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
<b>A. Written Section</b>		
Subject: Pharmacology		
MBGE6101 Paper I	Multiple Choice Questions	15
MBGE6102 Paper 2	Essay and Short Answer Questions	15
	Total	<u>30</u>
Subject: Physiology and Clinical Measurements		
MBGE6104 Paper I	Multiple Choice Questions	15
MBGE6105 Paper 2	Essay and Short Answer Questions	15
	Total	<u>30</u>
	Total written section	<u>60</u>
<b>B. Oral Section</b>		
MBGE6121 (Pharmacology)	Viva Voce 1	<u>20</u>
MBGE6122	Viva Voce 2	<u>20</u>
	Total oral section	<u>40</u>
	Total part 1 Examination	<u>100</u>

(b) Final Examination

The sections of the Final examination and the marks to be allocated to each sections shall be as follows:

Component	Description	Allocation of Marks (Maximum)
<b>A. Written</b>		
MBGE6236 Paper 1	Multiple Choice Questions	20
MBGE6237 Paper 2	Essay Questions	20
<b>B. Clinical</b>		
MBGE6243	- Long Case	20
MBGE6250	- Viva-Voce	<u>40</u>
	Total	<u>100</u>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has:

- (a) Part I Examination
  - (i) On his/her first attempt, sat for both subjects; and
  - (ii) Obtained at least 50% of total marks of the examination; and
  - (iii) Obtained at least 50% marks for each oral examination.

- (b) Final Examination

Obtained 50% or more of the marks for each component of the Examination.

The written Examination will be held within six (6) weeks prior to the clinical Examination. Only candidate that passes the written Examination (component A), will be allowed to sit the Clinical Examination (Component B). A candidate who fails the clinical Examination will have to Re-Sit the written Examination before attempting the Clinical Examination again.

- (6) Repeating an Examination

- (a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a Re-examination on three separate occasions at six monthly intervals.
    - (ii) The Part I Re-Examination shall consist of the same subjects and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
    - (iii) The candidate has to re-sit the failed subject.
    - (iv) Candidate who failed the examination for the oral section is allowed to repeat the oral examination section for two consecutive re-examinations.
    - (v) Candidate who failed the second re-examination is required to re-sit all relevant components in Part I examination.
    - (vi) A candidate who fails the Re-examination on the third occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

- (b) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a Re-examination on separate occasions at six monthly intervals until the maximum period of study is reached.
    - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.

Candidates that have passed the written examination but failed the clinical examination are only required to sit/repeat the clinical examination. The results of the written examination are valid only for one year.

- (iii) A candidate who fails the Re-examination on the final occasion ie at maximum period of study shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (c) A candidate who has passed the Re-examination for the Examinations above shall be deemed to have passed the prescribed Examinations.

## **11. Award of Degree**

No candidate shall be recommended for the award of the Degree of Master of Anaesthesiology unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### **(1) Award of Pass with Distinction for the Examination**

A candidate may be awarded a Pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### **(2) Award of the Degree with Distinction**

A candidate may be awarded the degree of Master of Anaesthesiology with Distinction if he/she –

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF ANAESTHESIOLOGY  
PROGRAMME SCHEDULE**

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"> <li>Clinical training in specialized fields of Anaesthesiology and/or intensive Care</li> </ul>	Final Examination
<b>S T A G E  II</b>	Year 3  Year 2	<ul style="list-style-type: none"> <li>Clinical Anaesthesiology and Non-Anaesthesiology Posting in rotation</li> </ul>	Part I Examination
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>Basic Anaesthesiology</li> </ul>	Registration (Entrance Evaluation)



**Name of Programme :** Master of Clinical Oncology  
**Faculty :** Faculty of Medicine

**1. Classification of Programme**

The Master of Clinical Oncology is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

**2. Entry Requirements**

**(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least two years of post-full registration clinical experience approved by the Senate including one year in one or more of the following disciplines:

Internal medicine  
Any Surgical Specialty  
Obstetrics and Gynaecology  
Paediatrics

\*This one year (minimum) must have been undertaken within the last 5 years from the point of entry into the programme.

**(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

**3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

**4. Structure of Programme**

The programme of study comprises two stages as follows:

- (1) Stage I in the first year of study comprising:
  - (a) teaching in basic oncological sciences, cancer pathology, radiotherapy physics and medical statistics;
  - (b) clinical training with continuous assessment and log book
- (2) Stage II in the second, third and fourth years of study comprising:

- (a) clinical training with continuous assessment to cover all aspects of “non-surgical” cancer treatment for different tumour sites with emphasis on radiation oncology and use of systemic therapy;
- (b) research; and
- (c) documentation in a log book of procedures and clinical skills undertaken.

## **5. Registration**

Registration for the programme of study shall commence the week prior to the start of the session.

## **6. Attendance**

During his programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for the candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

- (1) A candidate is required to submit his/her log book not later than two months before the Final Examination.
- (2) A candidate is required to submit his/her research report not later than two months before the Final Examination.

## **10. Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination;
  - (b) the Part II Examination; and
  - (c) the Final Examination
- (2) No candidate shall be admitted to the Part II Examination unless he/she has passed the Part I Examination at least six months before the Part II Examination.

- (3) No candidate shall proceed to the Final Examination unless he/she has
- passed the Part II Examination;
  - submitted his/her log book not later than two months before the Final Examination; and
  - completed and submitted the research report not later than two months before the Final Examination.
- (4) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of twenty four months of Stage II of the programme of study. The Final Examination shall be held at the end of the thirty six months of Stage II of the programme of study.
- (5) Examination Components and Allocation of Marks
- Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

No	Subject Description	Component/Description/Allocation of Marks (Maximum)		
		Short Answer Questions	Multiple Choice Questions	Marks Total
1.	MAGT6107 Radiotherapy Physics	100	100	200
2.	MAGT6108 Medical Statistics	100	100	200
3.	MAGT6109 Molecular Biology	100	100	200
4.	MAGT6110 Pathology	100	100	200
5.	MAGT6111 Pharmacology	100	100	200
6.	MAGT6112 Radiobiology	100	100	200
<b>Grand Total</b>				<b>1800</b>

- Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Mark (Maximum)
A. Written		
MAGT6236	Paper 1 Multiple Choice Questions	100
MAGT6237	Paper 2 Case Orientated Questions	100
	Total	200
B. MAGT6243	Clinical Cases	100
C. MAGT6250	Viva Voce	100
	<b>Grand Total</b>	<b>400</b>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. MAGT6371	Research report	100
B. MAGT6386	Log Book continuous assessment	<u>100</u>
Total		<u>200</u>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribe below if he/she has obtained:

(a) Part I Examination

50% or more of the aggregate combined marks for the components in each Subject of the Examination and not less than 45% of the marks for each component in the Subject.

A candidate who does not fulfill the above requirement for a Subject shall be deemed to have failed the Subject concerned but shall be credited with the Subject or Subjects he/she has passed and be required to repeat only the Subject that he/she has failed.

(b) Part II Examination

50% or more of the marks for each component of the Examination.

(c) Final Examination

50% or more of the marks for each component of the Final Examination.

(7) Repeating an Examination

(a) Part I Re-Examination

(i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.

(ii) The Part I Re-Examination shall consist of all previously failed subjects and shall be assessed and graded in the same manner as prescribed for the Part I Examination.

(iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

(i) A candidate who has failed the Part II Examination may be permitted to re-sit for examination after 6 months. Resit for examination is allowed on two separate occasions only.

- (ii) The Part II Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part II Examination.
  - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (c) Final Re-Examination
  - (i) A candidate shall be re-examined in only the component that he/she has failed.
  - (ii) A candidate who has failed in the research report and or log book continuous assessment component may be referred for further work in the component that he/she has failed, over a period of time to be determined by the Committee of Examiners except that such periods of time as determined shall not exceed six months on any one occasion. At the end of the prescribed period the candidate shall be required to submit the research report and/or relevant document for re-examination. A candidate who fails to submit the research report and/or the relevant document by the end of the prescribed period for re-examination shall be deemed to have failed the Examination.
  - (iii) A candidate shall be permitted to re-submit the research report and/or the relevant document for re-examination on not more than one occasion.
  - (iv) A candidate who fails the component(s) after the re-submission shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with approval of Senate.
- (d) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Clinical Oncology unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Part II Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations at the first attempt;
- (b) has not repeated any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Clinical Oncology with Distinction if he/she has passed with Distinction in both the Part I and Part II Examinations.

**MASTER OF CLINICAL ONCOLOGY  
PROGRAMME SCHEDULE**

<b>S T A G E  II</b>	Year 4	<ul style="list-style-type: none"> <li>Clinical training as per year 2 and 3, and in addition, the undertaking of a research project.</li> </ul>	Final Examination
	Year 3	<ul style="list-style-type: none"> <li>Clinical training with continuous assessment to cover all aspects of non-surgical cancer treatment for different tumour sites with emphasis on radiation oncology and use of systemic therapy.</li> </ul>	Part II Examination
	Year 2		
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>Teaching in basic oncological sciences, cancer pathology, radiotherapy physics and medical statistics, and ongoing clinical training with continuous assessment.</li> <li>Documentation in a log book of procedures and clinical skills undertaken will be done throughout the whole duration of the programme.</li> </ul>	Part I Examination
			Registration (Entrance Evaluation)

**Name of Programme :** Master of Emergency Medicine  
**Faculty :** Faculty of Medicine

**1. Classification of Programme**

The Master of Emergency Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

**2. Entry Requirements**

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

**3. Duration of Study**

- (1) The minimum duration of study shall be four (4) years.
- (2) The maximum duration of study shall be seven (7) years.

**4. Structure of Programme**

- (1) The programme of study comprises three stages which are stage I in the first year, stage II in the second year and the third year and stage III in year the fourth year. These three stages are as follows:
  - (a) Stage I is to be carried out at University of Malaya. It comprises:
    - (i) The study of basic sciences relevant to the practice of Emergency Medicine.
    - (ii) Clinical postings under supervision with the emphasis on emergency situations in the specialties of Anaesthesia and Emergency Medicine.
  - (b) Stage II is to be carried out at University of Malaya or other centres recognised by Master of Medicine Conjoint Committee (Specialty). It comprises clinical postings in second year and third year:
    - (i) Clinical postings in second year comprises of postings internal medicine, general surgery, emergency medicine and paediatric.



- (ii) Clinical postings in third year comprise postings in emergency medicine, obstetric and gynaecology, radiology, otorhinolaryngology, ophthalmology, elective, orthopaedic surgery and neurosurgery.
  - (iii) A Research Project must be started during the early phase of Stage II.
  - (iv) Must passed the Advanced Cardiac Life Support Course (ACLS), Advanced Trauma Life Support Course (ATLS), Paediatric Advanced Life Support Course (PALS) and/or equivalent courses recognized by Faculty.
- (c) Stage III comprise of posting in Emergency Medicine in University of Malaya.
- (2) A candidate is required to keep a log book throughout his period of study to document tasks undertaken.

## **5. Registration**

Registration for the programme of study shall commence the week prior to the start of the academic session.

## **6. Attendance**

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the total period of training does not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for the candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

- (1) A candidate is required to submit one case report for each posting not later than one month before the Final Examination.
- (2) A candidate is required to submit his/her log book and posting reports every six months for assessment by the Department responsible for the candidate's programme of study.

- (3) A candidate is required to submit his/her research report not later than six months before the Final Examination.

## 10. Examinations for the Degree

- (1) The examinations leading to the Degree shall be as follows:
- (a) the Part I Examination; and
  - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has:
- (a) passed the Part I Examination.
  - (b) completed and submitted his/her research report six months prior to the Final Examination.
  - (c) passed the 'Advanced Cardiac Life Support Course (ACLS)', 'Advanced Trauma Life Support Course (ATLS)', 'Paediatric Advanced Life Support Course (PALS)' and/or other courses recognized by the Faculty.
  - (d) submitted two (2) case reports for every postings not later than one month before the Final Examination.
  - (e) submitted his/her log book not later than one month before the Final Examination.
  - (f) achieved satisfactory report in each continuous assessment.
- (3) The Part I Examination shall be held at the end of Stage I. The Final Examination shall be held at the end of Stage III of the programme of study.
- (4) Examination Components and Allocation of Marks
- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A.	Supervisors' reports	Satisfactory reports
	Continuous Assessment	
	Case write-ups	
	Log book assessment	
	Participation in the Continuous Medical Education (CME)	
B.	Written	
	MEGV6101	Paper 1 Multiple Choice Questions 400
	MEGV6102	Paper 2 Multiple Essay Questions <u>200</u>
		Total <u>600</u>
C.	Clinical	
	MEGV6111	Objective Structured Clinical Examination 200

MEGV6121

Viva Voce

200  
Total 400

**Grand Total 1000**

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. Continuous Assessment	Supervisors' reports Case write-up Log book assessment Participation in the Continuous Medical Education (CME)	Satisfactory reports
B. Written		
	MEGV6236 Paper 1 Multiple Choice Questions	200
	MEGV6237 Paper 2 Multiple Essay Questions	50
	MEGV6238 Paper 3 Short Answer Type Questions	<u>150</u>
		Total <u>400</u>
C. Clinical		
	MEGV6243 Objective Structured Clinical Examination	150
	MEGV6244 Short Cases	300
	MEGV6250 Viva Voce	<u>150</u>
		Total <u>600</u>

**Grand Total 1000**

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the examination prescribed below if he/she has obtained:

(a) Part I Examination

50% or more for each of the components in the examination.

(b) Final Examination

- (i) 50% or more for each of the components in the examination.
- (ii) The candidate must pass the research project.

(6) Repeating an Examination

(a) Part I Re-examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six (6) monthly intervals.
- (ii) A candidate is required to pass the written component before being allowed to sit for the clinical component.

- (iii) A candidate who has failed the Part I Examination written component is required to re-sit the written and clinical components for two separate occasions at six (6) months intervals.
  - (iv) A candidate who has failed the Part I Examination Clinical component but has passed the written component is allowed to sit the clinical component only for two separate occasions at six (6) months interval.
  - (v) A candidate who has failed the Part I Examination written component for three occasion shall be deemed to have failed the Part I Examination and shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of Senate.
  - (vi) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the re-examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of Senate.
- (b) Final Re-examination
- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six (6) monthly intervals.
  - (ii) The Final Re-examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
  - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the course except in special circumstances and on the recommendation of the Faculty and with the approval of the Senate.
- (c) A candidate who has passed the re-examination for the examinations shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Emergency Medicine unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination and the Final Examination if he/she has obtained 75% or more of the aggregate marks in each of the prescribed examinations. No candidate shall be eligible for the award of a Pass with Distinction based on the performance at a re-examination.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree with Distinction if he/she:

- (a) has passed with Distinction in the Part I Examination and the Final Examination;
- (b) has not failed or repeated any portion of the course or Examination.

## MASTER OF EMERGENCY MEDICINE PROGRAMME SCHEDULE

<b>S T A G E  III</b>	Year 4 (at UM)	<ul style="list-style-type: none"> <li>comprise of posting in Emergency Medicine in University of Malaya</li> <li>A research report to be submitted at least 6 months before Final Examination</li> </ul>	Final Examination
<b>S T A G E  IIb</b>	Year 3 (at UM or other centres)	<ul style="list-style-type: none"> <li>Clinical postings in               <ul style="list-style-type: none"> <li>Emergency Medicine;</li> <li>Obstetrics and Gynaecology;</li> <li>Radiology;</li> <li>Otorhinolaryngology;</li> <li>Ophthalmology;</li> <li>Elective;</li> <li>Orthopaedic surgery;</li> <li>Neurosurgery.</li> </ul> </li> <li>Must passed the Paediatric Advanced Life Support Course (PALS), Advanced Cardiac Life Support Course (ACLS), Advanced Trauma Life Support Course (ATLS) and/or equivalent courses recognized by Faculty</li> </ul>	
<b>S T A G E  IIa</b>	Year 2 (at UM or other centres)	<ul style="list-style-type: none"> <li>clinical postings in:               <ul style="list-style-type: none"> <li>internal medicine,</li> <li>general surgery</li> <li>emergency medicine</li> <li>paediatrics.</li> </ul> </li> <li>A Research Project must be started during the early phase in this stage</li> </ul>	
<b>S T A G E  I</b>	Year 1 (at UM)	<ul style="list-style-type: none"> <li>The study of basic sciences relevant to the practice of Emergency medicine</li> <li>Clinical postings under supervision with the emphasis on emergency situations in the specialties of Anaesthesia and Emergency Medicine</li> </ul>	Part I Examination  Registration (Entrance Evaluation)

**Name of Programme :** Master of Family Medicine  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Family Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation conducted by the Faculty of Medicine.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

#### **(1) The programme of study comprises three stages as follows:**

##### **(a) Stage I:**

Clinical rotation in the first year of study in a hospital formally recognized by the Faculty in the following disciplines:

General Medicine;  
Paediatrics; and  
Obstetrics & Gynaecology

##### **(b) Stage II:**

- (i) Six months of speciality posting, one month each in the following discipline:

Psychological medicine  
Surgery  
Orthopaedic Surgery  
Ophthalmology  
Otorhinolaryngology  
Elective (e.g. dermatology)

- (ii) Eighteen (18) months of clinical training in Family Medicine in the second and third year of study in centres formally recognized by the Faculty.

(c) Stage III:

- (i) One year of advanced training in Family Medicine in the fourth year of study at a primary care setting, either in a health clinic or university-based primary care clinic.
- (ii) family case studies;
- (iii) keeping of a Practice Diary of selected cases from his clinical training; and
- (iv) research

- (2) A candidate is required to maintain a log book throughout his/her period of study to document tasks undertaken.
- (3)
  - (a) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or been exempted from the Part I Examination.
  - (b) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed the Part II Examination.

## 5. Registration

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she possesses a postgraduate qualification in Family Medicine or any other such qualification recognised by the Senate.

## 6. Attendance

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## 7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.

- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

- (1) A candidate is required to submit his/her log book and posting reports for the respective period of study not later than 4 weeks prior to the Part I Examination. A candidate is also required to submit a family case study not later than 4 week prior to the Part I Theory Examination.
- (2) A candidate is required to submit his/her log book and posting reports for the respective period of study before the Part II Examination.
- (3) A candidate is required to submit his/her posting reports, family case studies, a practice diary and research report for the respective period of study not later than one month before the Final Examination.

## **10 Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination;
  - (b) the Part II Examination; and
  - (c) the Part III Examination
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has satisfactorily completed and submitted his/her log book, family case study and posting reports for the respective period of study not later than 4 weeks before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has -
  - (a) passed or has been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she possesses a postgraduate qualification in Family Medicine or any qualifications of equivalent standard recognised by the Senate; and
  - (b) satisfactorily completed and submitted his/her posting reports of the respective period of study before the Part II Examination.
- (4) No candidate shall be permitted to sit for the Part III Examination unless he/she has -
  - (a) passed the Part II Examination; and
  - (b) satisfactorily completed and submitted his/her prerequisite documents not later than one (1) month before the Part III Examination.



- (i) A candidate whose prerequisite documents are deemed unsatisfactory may be referred for further work over a period of time to be determined by the Department except that such period of time as determined shall not exceed one year on any one occasion. At the end of the prescribed period the candidate shall be required to submit the prerequisite documents for re-examination.
  - (ii) A candidate who fails to submit satisfactory prerequisite documents by the end of the prescribed period shall be deemed to have failed the prerequisite component.
  - (iii) A candidate is permitted to re-submit the prerequisite documents on not more than two occasions. Practice diary must be submitted not later than one (1) month before the Part III Examination.
  - (iv) After the maximum number of prerequisite submissions is over, the candidate is considered to have failed the final exam and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (5) The Part I Examination shall be held at the end of the first year of the programme of study. The Part II Examination shall be held at the end of the third year of the programme of study. The Part III Examination shall be held at the end of the fourth year of the programme of study.
- (6) The Component A for Part I Examination will be held not later than four (4) weeks before the examination for Component B. Those who fail the Component A will not be allowed to take the Component B.

The Component A for Part II Examination will be held not later than four (4) weeks before the examination for Component B. Those who fail the Component A will not be allowed to take the Component B.

(7) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks and percentage values to be allocated to each component shall be as follows:

Component		Description	Allocation of Marks (Maximum)	
A.	Written MMGK6101	Multiple Choice Questions Paper (MCQ)		
			Total	60%
B.	Clinical MMGK6126	Objective Structured Clinical Examination (OSCE)		
			Total	100%

(b) Part II Examination

The components of the Part II Examination and the marks and percentage values to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A.	Written	
	MMGK6238 Multiple Choice Questions Paper (MCQ)	16%
	MMGK6239 Patient Management Problems (PMP)	24%
	Total	40%
B.	Clinical	
	MMGK6255 Objective Structured Clinical Examination (OSCE)	60%
	Total	60%

(c) Part III Examination

The components of the Part III Examination and the marks and percentage values to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
MMGK6381	Viva Voce/Practice Diary	100%

(8) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

- (a) Part I Examination  
50% or more of the marks for each component of the Examination.
- (b) Part II Examination  
50% or more of the marks for each component of the Examination.
- (c) Part III Examination  
50% or more of the marks for each component of the Examination.

(9) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Component A of the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) A candidate who has passed the Component A of the Part I Examination but failed Component B may be permitted a re-examination of Component B at six monthly intervals.
- (iii) The total number of attempts for all components of Part I Examination shall not exceed three (3) times. A candidate who fails the examination on the third attempt shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed Component A of the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) A candidate who has passed Component A of the Part II Examination but failed Component B may be permitted a re-examination of Component B on two separate occasions at six monthly intervals.
- (iii) A candidate who fails the re-examination for Component A of the Part II Examination on the third attempt shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (iv) A candidate who passes the re-examination for Component A of the Part II Examination on the third attempt is allowed to sit the Component B for three times. A candidate who fails Component B of the Part II Examination on the third attempt shall be deemed to have failed the Part II Examination and shall not be permitted to repeat programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(c) Part III Re-Examination

- (i) A candidate who has failed the Part III Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part III Re-Examination shall consist of the components that the candidate had failed in and shall be assessed and graded in the same manner as prescribed for the Part III Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part III Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

- (d) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Family Medicine unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination, the Part II Examination or the Part III Examination if he/she -

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
- (b) has not failed in any component of the prescribed Examination; and

- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.
- (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Family Medicine with Distinction if he/she -

- (a) has passed with Distinction in the Part II Examination and the Part III Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF FAMILY MEDICINE  
PROGRAMME SCHEDULE**

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"> <li>Advanced Training in Family Medicine</li> </ul>	Part III Examination
<b>S T A G E  II</b>	Year 3  Year 2	<ul style="list-style-type: none"> <li>Clinical Training in Family Medicine – 18 months</li> <li>Six months of speciality posting, one month each in the following discipline: <ul style="list-style-type: none"> <li>Psychological medicine</li> <li>Surgery</li> <li>Orthopaedic Surgery</li> <li>Ophthalmology</li> <li>Otorhinolaryngology</li> <li>Elective (e.g. dermatology)</li> </ul> </li> </ul>	Part II Examination
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>Clinical Training by rotation in:- <ul style="list-style-type: none"> <li>General Medicine</li> <li>Paediatrics</li> <li>Obstetrics and Gynaecology</li> </ul> </li> </ul>	Part I Examination  Registration (Entrance Evaluation)

**Name of Programme :** Master of Internal Medicine  
**Faculty :** Faculty of Medicine

**1. Classification of Programme**

The Master of Internal Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

**2. Entry Requirements**

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

**3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

**4. Structure of Programme**

(1) The programme of study comprises three stages as follows:

- (a) Stage I in the first year comprising:
  - (i) the study of basic sciences relevant to the practice of internal medicine; and
  - (ii) clinical clerkship under supervision with emphasis on emergency medicine.
- (b) Stage II in the second and third year comprising:
  - (i) rotational postings of three months duration each in the following eight disciplines of clinical medicine:

Cardiology  
Nephrology  
Neurology  
Respiratory Medicine  
Gastroenterology and Hepatology  
Haematology and Oncology  
Endocrinology  
Rheumatology and Infectious Diseases and Dermatology

and

(ii) a research project

(c) Stage III in the fourth year comprising posting in an approved subspeciality or in general medicine in the Faculty or a recognised centre outside the Faculty

(2) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed the Part I Examination.

(3) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed the Part II Examination.

## **5. Registration**

Registration for the programme of study shall commence the week prior to the start of the academic session.

## **6. Attendance**

During his/her programme of study -

(1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;

(2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

(1) The supervisor for the candidate shall be appointed not later than two months after the registration of the candidate.

(2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## 9. Submission

- (1) A candidate is required to submit four (4) case report one month before the Part II Examination.
- (2) A candidate is required to submit his/her research report not later than one month before the Final Examination.

## 10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination;
  - (b) the Part II Examination; and
  - (c) the Final Examination
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has completed, submitted and performed satisfactorily in the continuous assessment prescribed by the Department.
- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has -
  - (a) passed the Part I Examination; and
  - (b) performed satisfactorily in the Stage II of the programme of study consisting of evaluations by the supervisors and obtaining satisfactory grades on four case reports in publishable format. Submission of all 4 case reports before sitting Part II Examination.
- (4) No candidate shall be permitted to proceed to the Final Examination unless he/she has submitted his/her Research Report not later than one month before the Final Examination.
- (5) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of the third year of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.
- (6) The theory examination will be held 6 weeks before the clinical examination. The Theory examination is usually held in March/April and September/October. The Clinical examination will be held after the theory paper which is in May/June and November/December.
- (7) Examination Components and Allocation of Marks
  - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. Written		
MPGF6104	Paper 1 One Best Answer	35%
MPGF6105	Paper 2 Problem Solving Questions	<u>25%</u>
	Total	<u>60%</u>

B. MPGF6111	Objective Structured Clinical Examination	40%
	Total	<u>40%</u>
	<b>Grand Total</b>	<b><u>100%</u></b>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. Written		
MPGF6239	Paper 1	One Best Answer
MPGF6240	Paper 2	Multiple Essay Question
MPGF6238	Paper 3	Objective Structured Practical Examination
	Total	<u>40%</u>
B. MPGF6243	Clinical and Viva Voce	
MPGF6244	Clinical 1	Long Case
MPGF6245	Clinical 2	Short Cases
MPGF6250	Viva Voce	
	Total	<u>60%</u>
	<b>Grand Total</b>	<b><u>100%</u></b>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. MPGF6371	Research Report	100
B. MPGF6381	Viva Voce	<u>100</u>
	Total	<u>200</u>

(8) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations mentioned below if he/she has obtained:

(a) Part I Examination:

- (i) 50% or more of the marks for each component of the Examination.
- (ii) Must pass at least 2 OSCE cases from Component B (MPGF6111).

The theory examination will be held 6 weeks before the clinical examination. Only candidates that passes the theory examination, Component A, will be allowed to sit the clinical examination, i.e. Component B. A candidate who fails the clinical examination will not



have to re-sit the theory examination before attempting the clinical examination again.

(b) Part II Examination:

- (i) 50% or more of the marks for each component of the Examination; and
- (ii) Must pass at least 2 short cases from Component B (MPGF6245); and
- (iii) 2 or more short cases should not have a score of less than 3/10; and
- (iv) obtain at least 45% in the long case (MPGF6244)

The theory examination will be held 6 weeks before the clinical examination. Only candidates that passes the theory examination, Component A, will be allowed to sit the clinical examination, i.e. Component B. A candidate who fails the clinical examination will not have to re-sit the theory examination before attempting the clinical examination again.

(c) Final Examination:

50% or more of the marks of the Final Examination.

(9) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed Component A (written) of the Part I Examination may be permitted a re-examination for Component A (written) on two separate occasions at six monthly intervals.
- (ii) A candidate who has pass Component A (written) of the Part I Examination but failed Component B (clinical and viva) of the Part I Examination may be permitted a re-examination on two separate occasions within two years of passing the theory, at six monthly intervals without having to re-sit Component A (written) of the Part I Examination.
- (iii) A candidate who has pass Component A (written) of the Part I Examination but attempts for Component B (clinical and viva) of the Part I Examination after two years of passing component A, he/she will have to re-sit Component A (written) of the part I Examination.
- (iv) A candidate who fails the re-examination for Component A (written) of the Part I Examination on the third trial shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (v) A candidate who pass the re-examination for Component A (written) of the Part I Examination on the third trial is allowed to sit for Component B (clinical and viva) of the Part I Examination for three times. If candidate fails Component B (clinical and viva) of the Part I

Examination on the third trial shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed Component A of the Part II Examination (written) may be permitted a re-examination for Component A on two separate occasions at six monthly intervals.
- (ii) A candidate who has pass Component A of the Part II Examination (written) but failed Component B of the part II examination (clinical and viva) may be permitted a reexamination on two separate occasions within two years of passing the theory, at six monthly intervals without having to re-sit Component A (written) of the Part II Examination.
- (iii) A candidate who has pass Component A (written) of the Part II Examination but attempts for Component B (clinical and viva) of the Part II Examination after two years of passing Component A, he/she will have to re-sit component A (written) of the Part II Examination.
- (iv) A candidate who fails the re-examination for Component A (written) of the Part II Examination on the third trial shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (v) A candidate who pass the re-examination for Component A (written) of the Part II Examination on the third trial is allowed to sit for Component B (clinical and viva) of the Part II Examination for three times. If candidate fails Component B (clinical and viva) of the Part II Examination on the third trial shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(c) Final Re-Examination

- (i) A candidate whose research report is deemed unsatisfactory by the Committee of Examiners may be referred for further work over a period of time to be determined by the Committee of Examiners except that such periods of time as determined shall not exceed six months on any one occasion. At the end of the prescribed period the candidate shall be required to submit the research report for re-examination. A candidate who fails to submit his research report by the end of the prescribed period for re-examination shall be deemed to have failed the research report.
- (ii) A candidate shall be permitted to submit the research report for re-examination on not more than two occasions.
- (iii) A candidate who fails in the research report on the second resubmission shall be deemed to have failed the Final Re-Examination and shall not be permitted to repeat the programme of study except in

- special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (d) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

## **11. Award of Degree**

No candidate shall be recommended for the award of the Degree of Master of Internal Medicine unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations and the Final Assessment.

### **(1) Award of Pass with Distinction for the Examination**

A candidate may be awarded a Pass with Distinction in the Part I Examination, the Part II Examination or the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) not less than 70% of the marks in the respective clinical examination for the Part I and the Part II Examination;
- (c) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### **(2) Award of the Degree with Distinction**

A candidate may be awarded the degree of Master of Internal Medicine with Distinction if he/she –

- (a) has passed with Distinction in the Part I Examination, Part II Examination and the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (d) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF INTERNAL MEDICINE  
PROGRAMME SCHEDULE**

S T A G E  III	Year 4	<ul style="list-style-type: none"> <li>Speciality training in one of the small speciality fields with at least 6 months in General Medicine</li> </ul>	Final Examination
	Year 3  Year 2	<ul style="list-style-type: none"> <li>Rotational posting in small specialities</li> </ul>	Part II Examination (theory examination will be held 6 weeks before the clinical examination)
	Year 1	<ul style="list-style-type: none"> <li>Applied Basic Medical Sciences and General Medicine and Emergency Medicine</li> </ul>	Part I Examination (theory examination will be held 6 weeks before the clinical examination)
I			Registration (Entrance Evaluation)

**Name of Programme :** Master of Obstetrics and Gynaecology  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Obstetrics and Gynaecology Programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry Qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or equivalent medical qualifications approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

- (1) The programme of study comprises of two stages as follows:
  - (a) Stage I comprising:
    - (i) twelve (12) months of training in basic Clinical Obstetrics and Gynaecology.
    - (ii) plan and commence research project(s).
  - (b) Stage II comprising advanced clinical training in Obstetrics and Gynaecology for a period of thirty six (36) months during which the candidate shall:

- (i) achieve satisfactory progress in the continuous assessment process from the department and supervisor;
  - (ii) keep a log book of cases managed under supervision and practical procedures performed and certified satisfactory by the supervisor; and
  - (iii) submit research report(s) or published article duly certified as satisfactory by the assessor(s) not later than six (6) months before the Final Examination.
- (2) A candidate is required to pass Part I Master of Obstetrics and Gynaecology Degree prior to Advancement to Stage II of the programme.
- (3) Candidate may undertake a maximum of six (6) months of elective training in a relevant discipline within/ outside department as approved by the Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Malaya.

## **5. Registration**

Registration for the programme of study shall commence the week prior to the start of the academic session.

## **6. Attendance**

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project(s) must be approved by the Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Malaya and the ethics committee (where project is undertaken) prior to its commencement.

## **9. Submission**

- (1) A candidate is required to submit his/her research report(s) or published article duly certified as satisfactory by the assessor(s) not later than six (6) months before the Final Examination.

- (2) A candidate is required to submit a log book of cases managed under supervision and practical procedures performed and certified satisfactory by the supervisor at least three (3) months before the Final Examination.

## 10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
- (a) the Part I Examination;
  - (b) the Final Examination
- (2) No candidate shall be permitted to sit for the Final Examination unless he /she has -
- (a) pass the Part I Examination;
  - (b) achieve satisfactory progress in the continuous assessment process from the department and supervisor;
  - (c) submit a log book of cases managed under supervision and practical procedures performed and certified satisfactory by the supervisor at least three (3) months before the Final Examination; and
  - (d) submit research report(s) or published article duly certified as satisfactory by the assessor(s) not later than six (6) months before the Final Examination.
- (3) The Part I Examination shall be held at about of twelve (12) months into Stage I of the programme of study. The Final Examination shall be held at the end of the final year of the Stage II programme of study.
- (4) Examination Components and Allocation of Marks
- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. Written		60%
MGGG6103	Multiple Choice Questions	
MGGG6104	Essay	
B. Clinical		40%
MGGG6105	Objective Structured Clinical Evaluation	
MGGG6106	Viva	
Total		100%

- (b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows (using the close marking system):

Subject	Description	Allocation of Marks
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(Maximum)			
A. Written			
MGGG6236	Paper 1	Multiple Choice Questions	40%
(Obstetrics)		Modified Essay Questions	
		Short Answer Questions	
MGGG6237	Paper 2	Multiple Choice Questions	
(Gynaecology)		Modified Essay Questions	
		Short Answer Questions	
B. MGGG6243	Clinicals I		
(Obstetrics)		Long Case	40%
		Short Cases	
MGGG6244			
(Gynaecology)		Long Case	
		Short Cases	
C. MGGG6255	Clinicals II	Objective Structured Clinical	20%
		Evaluation	
MGGG6281	Viva Voce	Obstetrics	
MGGG6282		Gynaecology	
			Total 100%

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained -

(a) Part I Examination

- (i) 50% or more of the aggregate marks of the written components (Component A); and
- (ii) 50% or more of the aggregate marks of the clinical components (Component B).

(b) Final Examination

- (i) 50% or more of the aggregate marks of the written components (Component A); and
- (ii) 50% or more of the aggregate marks of the clinical components (Component B); and
- (iii) 50% or more of the aggregate marks of the clinical components (Component C).

Candidate must pass the written components (Component A) before being allowed to sit the clinical components.

Candidate must pass both the Long Case and Short Case sections separately (Component B).



Candidates also fail the Component B if they fail three or more cases in any of the six clinical cases regardless of the aggregate marks obtained.

The candidate shall be informed of the results of written components (Component A) at least two weeks before commencement of the clinical components.

(6) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a reexamination on two separate occasions after a period of six months.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the manner as prescribed for in the Part I Examination.
- (iii) A candidate who fails the Part I Re-Examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

- (i) Candidate who has passed the written components (Component A) but failed the clinical components (Component B and/ or Component C), is allowed to have TWO (2) more attempt in the subsequent clinical components, without having to repeat the written components (Component A).

Failing this third attempt of clinical components (Component B and/ or Component C) or failed to appear for the examination for any reason, the candidate will have to resit the whole Final Examination Master of Obstetrics and Gynaecology (Component A, B and C).

- (ii) There is no limit on the total attempts in Final Examination, as long as the candidate is still within the maximum duration of study which shall be seven years from the first date of registration.
- (iii) After the maximum duration study is over the candidate is considered to have failed the Final Examination and shall not be permitted to repeat the programme of study.

- (c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the respective prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Obstetrics and Gynaecology unless he/she has successfully completed all parts of the course, fulfilled the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Obstetrics and Gynaecology with Distinction if he/she -

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF OBSTETRICS AND GYNAECOLOGY  
PROGRAMME SCHEDULE**

<b>S T A G E  II</b>	Year 4	<ul style="list-style-type: none"> <li>▪ Advanced Clinical training in Obstetrics and Gynaecology for a period of thirty six (36) months</li> </ul>	Final Examination
	Year 3		
	Year 2		
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>▪ Twelve (12) months of training in basic Clinical Obstetrics and Gynaecology which may include a maximum six (6) months of elective training in a relevant discipline.</li> </ul>	Part I Examination   Registration (Entrance Evaluation)

Name of Programme : Master of Ophthalmology  
Faculty : Faculty of Medicine

### 1. Classification of Programme

The Master of Ophthalmology programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### 2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### 3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### 4. Structure of Programme

(1) The programme comprises three stages as follows:

- (a) Stage I, in the first year of study, comprising training in the basic medical sciences, basic ocular sciences, basic ophthalmology and related medical and surgical disciplines;
- (b) Stage II, in the second and third year of study, comprising clinical ophthalmology training, medical postings and preparation of a case studies report for the number of cases which shall be as determined by the Department from time to time; and
- (c) Stage III, in the fourth year of study comprising advanced clinical training in Ophthalmology and a research project.

- (2) A candidate shall keep a log book throughout his/her period of study to document tasks undertaken.
- (3) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or been exempted from the Part I Examination.
- (4) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed the Part II Examination.

## **5. Registration**

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) All candidates must complete the minimum 4 years of training for the programme of the study

## **6. Attendance**

During his/her programme of study –

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

A candidate is required to submit his/her -

- (1) case studies report not later than two months before the Final Examination and research report not later than six months before the Final Examination; and
- (2) log book one month before the Final Examination.

## **10. Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:

- (a) the Part I Examination;
  - (b) the Part II Examination; and
  - (c) the Final Examination.
- (2) No candidate shall be permitted to sit for the Part II Examination unless –
- (a) he/she has passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she –
    - (i) has passed Part III Examination for the membership of the Royal College of Ophthalmologists (London); or
    - (ii) has passed Part III Examination of Royal College of Surgeons of Edinburgh; or
    - (iii) holds a degree or diploma of equivalent standard acceptable to the Senate.
  - (b) his/her protocol for the research report presented and accepted by the department 6 months before the Part II Examination.
  - (c) he/she has submitted the first draft of the case report 3 months before the Part II Examination.
- (3) No candidate shall be permitted to appear for the Final Examination unless he/she has-
- (a) passed the Part II Examination;
  - (b) submitted the research report not later than six months and the case studies report not later than two months before the Final Examination; and
  - (c) submitted the log book that has been certified as satisfactory by the Department one month before the Final Examination.
- (4) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of the second year of Stage II of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.
- (5) Examination Components and Allocation of Marks
- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description		% contribution to total marks	
A. Written				
MHGM6101	Paper 1	Multiple Choice Questions	}	30
MHGM6102	Paper 2	Multiple Choice Questions		
MHGM6103	Paper 3	Essay Questions		
			Total	<u>50</u>
B. Practical				
MHGM6122	Viva Voce			15

MHGM6126	OSPE	Objective Structured Practical Examination	<u>15</u>
		Total	<u>30</u>
C. Refraction			
MHGM6111	Clinical Refraction		10
MHGM6127	OSPE	Objective Structured Practical Examination (Optics and Refraction)	<u>10</u>
			<u>20</u>
		<b>Grand Total</b>	<b><u>100</u></b>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Component	Description	% contribution to total marks
A. Written		
MHGM6236	Paper 1	Multiple Choice Questions
MHGM6237	Paper 2	Essay Questions
MHGM6238	Paper 3	Essay Questions
	Total	<u>40</u>
B. Clinical		
MHGM6243	Long Case	Ophthalmology
MHGM6244	Short Cases1	Ophthalmology
MHGM6245	Short Cases2	General Medicine in relation to Ophthalmology
	Total	<u>40</u>
C. Viva Voce		
MHGM6251	Viva 1	Ophthalmology
MRGM6252	Viva 2	General Medicine in relation to Ophthalmology
	Total	<u>20</u>
	<b>Grand Total</b>	<b><u>100</u></b>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. MHGM6371	Case Studies	Based on Case Studies, Report the number to be determined by the Department
		100
B. MHGM6372	Research Report	
		<u>100</u>
	Total	<u>200</u>

(6). Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribe below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the marks for each component of the Examination.

b) Part II Examination

- (i) 50% or more of the marks for each component of the Examination;
- (ii) The theory examination (Component A) will be held 1 month before the clinical and viva examination (Component B & C). Only candidates who pass the Component A will be allowed to sit for Component B & C.
- (iii) A candidate who fails the Component B and / or C will not have to re-sit the Component A. Both components B and C have to be repeated.

(c) Final Examination

50% or more of the marks for each component for the Examination.

(7) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed the Component A (theory) of the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) A candidate who passes the Component A but failed Component B (Clinical) and/or C (Viva) may be permitted for re-examination on two separate occasions within two years of passing Component A, at six months intervals without having to re-sit Component A of the Part II Examination.
- (iii) A candidate who fails Component B only or Component C only, will have to re-sit both components of the re-examination.
- (iv) A candidate who passes Component A but attempts for Component B & C after two years of passing Component A, will have to re-sit Component A of the re-examination.

- (v) A candidate who fails the re-examination for Component A on the third trial shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Senate.
  - (vi) A candidate who passes the re-examination for Component A on the 3rd trial is allowed to sit for Component B & C for three times. A candidate who fails Component B & C for the third trial shall be deemed to have failed the Part II examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Senate.
  - (vii) A candidate must pass the Part II examination before/on the sixth year of the the study to enable one year of study before the Final Assessment.
- (c) Final Re-Examination
- (i) A candidate whose research report or case studies report is deemed unsatisfactory by the Committee of Examiners may be referred for further work in his research report or case studies report over a period of time to be determined by the Committee of Examiners except that such period of time as determined shall not exceed six months on any occasion. At the end of the prescribed period the candidate shall be required to submit his research report or case studies report for re-examination. A candidate who fails to submit his research report or case studies report by the end of the prescribed period for re-examination shall be deemed to have failed the research report or case studies report.
  - (ii) A candidate shall be permitted to submit research report or case studies report either separately or combined for re-examination on not more than two occasions.
  - (iii) A candidate who fails the research report or case studies report taken separately or combined after the second re-examination shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (d) A candidate who has passed the re-examination for the examinations shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Ophthalmology unless he/she has successfully completed all parts of the course and has passed the prescribed Examinations, and the Final Assessment.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination, the Part II Examination or the Final Examination if he/she -



- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
  - (b) has not failed in any component of the prescribed examination; and
  - (c) has not repeated the prescribed examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.
- (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Ophthalmology with Distinction if he/she -

- (a) has passed with Distinction in the Part II Examination and the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF OPHTHALMOLOGY  
PROGRAMME SCHEDULE**

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"> <li>▪ Advanced clinical Ophthalmology</li> </ul>	Final Examination
<b>S T A G E  II</b>	Year 3  Year 2	<ul style="list-style-type: none"> <li>▪ Clinical Ophthalmology</li> <li>▪ Clinical Ophthalmology</li> </ul>	Part II Examination
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>▪ Basic Sciences</li> <li>▪ Basic Ocular Sciences</li> <li>▪ Basic Ophthalmology</li> </ul>	Part I Examination
			Registration (Entrance Evaluation)

**Name of Programme :** Master of Orthopaedic Surgery  
**Faculty :** Faculty of Medicine

**1. Classification of Programme**

The Master of Orthopaedic Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

**2. Entry Requirements**

- (1) Entry qualifications
  - (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
  - (b) At least one year of post-full registration clinical experience approved by the Senate.
- (2) Other requirements
  - (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
  - (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

**3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

**4. Structure of Programme**

- (1) The programme of study comprises two stages as follows:
  - (a) Stage I comprising twenty four (24) months in Orthopaedic Surgery providing teaching/training in basic and applied medical sciences, principles of surgery, basic orthopaedic surgery and orthopaedic traumatology.
  - (b) Stage II comprising twenty four (24) months in Orthopaedic Surgery including rotation through the following sub-specialities:
    - Spinal Surgery
    - Orthopaedic Oncology
    - Paediatric Orthopaedics
    - Upperlimb and reconstructive and micro surgery
    - Arthroscopy sports and joint reconstructive surgery

Arthroplasty  
Orthopaedic Traumatology  
Limb Lengthening and reconstructive surgery

- (2) A candidate is required to keep a log book throughout his/her period of study to document tasks undertaken.
- (3) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed the Part I Examination.

**5. Registration**

Registration for the programme of study shall commence the week prior to the start of the academic session.

**6. Attendance**

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

**7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

**8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

**9. Submission**

- (1) A candidate is required to submit his/her log book not later than two months prior to the Final Examination.
- (2) A candidate is required to submit his/her research report not later than six months before the Final Examination.

**10. Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination; and
  - (b) the Final Examination

A candidate may be exempted from the Part I examination if he or she has passed:

- (i) Part I Fellowship Examination of The Royal Australasian College of Surgeons;  
or
  - (ii) Basic Sciences Examination Orthopaedic Surgery (BSE Orth). From Exam November 2014.
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has submitted-
- (a) his/her log book consisting of surgery observed, assisted and performed for the duration of the course and ten reports on cases managed under supervision in various subspecialties, to be certified by his supervisor and deemed satisfactory by a panel of assessors to be appointed by Head of Department responsible for the candidate's programme of study, not later than two months before the Final Examination; and
  - (b) His/her research report not later than six months before the Final Examination. The research report must be certified as satisfactory by a panel of assessors to be appointed by Head of Department responsible for the candidate's programme of study before the candidate is permitted to sit the Final Examination.
  - (c) no candidate should be permitted to sit for the Final Examination unless candidate has :
    - (i) Attended and complete the "Orthopaedic Clinical Master Research Program" from session 2015/2016 onward
    - (ii) Completed log book
    - (iii) Submitted acceptable case report for each subspecialty
    - (iv) Passed 4 end of posting subspecialty test
    - (v) Passed operative skill assessment
- (3) The Part I Examination shall be held at the end of the first six (6) months of Stage I of the programme of study. The Final Examination shall be held at the end of Stage II of the programme of study.
- (4) Examination Components and Allocation of Marks
- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Section	Description	Allocation of Marks (Maximum)
A. Written		
MRGJ6104	Multiple Choice Questions	100
	Total	100
B. MGRJ6124	OSCE	100
MRGJ6125	Viva Voce 1 - Anatomy	100
MRGJ6126	Viva Voce 2 - Physiology	100
MRGJ6127	Viva Voce 3 - Pathology	100

A candidate who obtains less than 50% or 50 marks in the Section A (written) of the Part 1 Examination will not be permitted to sit for the Section B (OSCE and Viva Voce).

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MRGJ6236	Paper 1 Essay	50
MRGJ6237	Paper 2 Essay	50
MRGJ6238	Paper 3 Best Answer Question (BAQ)	<u>100</u>
	Total	<u>200</u>
B. Clinical		
MRGJ6243	Long Cases	100
MRGJ6244	Short Cases	<u>100</u>
	Total	<u>200</u>
C. Viva Voce and OSCE		
MRGJ6251	OSCE Pathology, Biomechanics and implants, Orthotics and prosthetics, Imaging	100
MRGJ6252	Viva Voce 1 Principles of Orthopaedic Surgery	100
MRGJ6253	Viva Voce 2 Operative Orthopaedics	<u>100</u>
	Total	<u>300</u>
	<b>Grand Total</b>	<b><u>700</u></b>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:-

(a) Part I Examination

(1) Section A

- (i) The total marks for this Component A examination is 100 marks. The passing mark for this Component is 50 marks or 50%
- (ii) Only those candidates who passed Component A will be allowed to proceed to Component B

(2) Section B

- (i) The total marks for this OSCE examination is 100 marks. The passing mark for this OSCE examination will be 70 marks or 70%.
- (ii) The total marks for all the three viva voces is 300 marks (100 marks each).

- (iii) The passing mark for each viva voce will be 50 marks or 50%
- (iv) The overall passing marks for the three viva voces will be 150 marks or 50%

Special Rules:

- (i) 40 or less in any section is an unredeemable fail
- (ii) 41 – 49 in 2 sections is an unredeemable fail

(b) Final Examination

50% or more of the marks for each component of the Examination

A minimum mark of 40% for both long cases and short cases in the clinical component

(6) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

- (c) A candidate who has passed the re-examinations for the shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Orthopaedic Surgery unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Orthopaedic Surgery with Distinction if he/she -

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF ORTHOPAEDIC SURGERY  
PROGRAMME SCHEDULE**

<b>S T A G E  II</b>	Year 4	<ul style="list-style-type: none"><li>Training in Orthopaedic Surgery including rotation through the following subspecialties and a research report:  Spinal Surgery Orthopaedic Oncology Paediatric Orthopaedics Upperlimb and reconstructive and micro surgery Arthroscopy sports and joint reconstructive surgery Arthroplasty Orthopaedic Traumatology Limb Lengthening and reconstructive surgery</li></ul>	Final Examination
	Year 3		
<b>S T A G E  I</b>	Year 2	<ul style="list-style-type: none"><li>Orthopaedic Surgery (Basic and Applied Medical Sciences, Principles of Surgery, Basic Orthopaedic Surgery and traumatology)</li></ul>	Part I Examination (At the end of the first six months of Stage I)
	Year 1		Registration (Entrance Evaluation)

**Name of Programme :** Master of Otorhinolaryngology – Head & Neck Surgery  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Otorhinolaryngology – Head & Neck Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.  
(Priority to candidate's who has completed six (6) months in General Surgery as a Medical Officer after the internship training in any government hospitals).

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

- (1) The programme of study comprises two stages as follows –
  - (a) Stage I comprising –
    - (i) eighteen months of study (for foreign candidates and Malaysians who have not done six (6) months of surgical posting prior to the entry of this programme); or
    - (ii) twelve (12) months of study (for Malaysian candidates who have completed the six (6) months of surgical posting prior to the entry of this programme) in Basic Otorhinolaryngology including:



- (A) six (6) months in Basic and Applied Medical Sciences and Principles of Surgery; and
- (B) six (6) months in General Surgery (for foreign candidates and Malaysians who have not done six months (6) of surgical posting prior to the entry of this programme); and
- (C) the keeping of a log book of the candidate's surgical procedures.

(b) Stage II comprising –

- (i) thirty (30) months of study (for foreign candidates and Malaysians who have not done six (6) months of surgical posting prior to the entry of this programme); or
- (ii) thirty six (36) months of study (for Malaysian candidates who have completed the six (6) months of surgical posting prior to the entry of this programme) in Advanced Otorhinolaryngology including rotational postings in Oral and Maxillo-facial Surgery, Neuro-surgery and Plastic and Reconstructive Surgery and a research project in the field of Otorhinolaryngology.

- (2) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or been exempted from the Part I Examination.

## 5. Registration

Registration for the programme of study shall commence the week prior to the start of the academic session.

## 6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## 7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## 8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## 9. Submission

A candidate is required to submit his/her research report and log book not later than three months before the Final Examination.

## 10. Examinations for the Degree

(1) The Examinations leading to the degree shall be as follows:

- (a) the Part I Examination; and
- (b) the Final Examination

(2) No candidate shall be permitted to sit for the Final Examination unless he/she has -

- (a) submitted his/her research report and log book not later than three months before the Final Examination; and
- (b) passed the Part I examination. In the event of the candidate taking the third attempt for the Part I examination, a minimum of 3 years is required, to sit for the final examination after this attempt; or
- (c) been exempted from the Part I Examination.

A candidate may be exempted from the Part I Examination if he/she has passed –

(A) Final Examination for the Membership of any one of the following Royal Colleges:

The Royal College of Surgeons of Edinburgh  
The Royal College of Surgeons of England  
The Royal College of Physicians and Surgeons of Glasgow  
The Royal College of Surgeons in Ireland  
or

(B) Sections B and C or Part II Examinations for Fellowship of any one of the following Royal Colleges:

The Royal College of Surgeons of Edinburgh  
The Royal College of Surgeons of England  
The Royal College of Physicians and Surgeons of Glasgow  
The Royal College of Surgeons in Ireland  
or

(C) Part I Examination of the Royal Australasian College of Surgeons.

(3) The Part I Examination shall be held at the end of the first six months of Stage I of the programme of study. The Final Examination shall be held at the end of Stage II of the programme of study.

(4) Examination Components and Allocation of Marks

- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MIGL6101	Paper 1 Essay	300
MIGL6102	Paper 2 Multiple Choice Questions	200
MIGL6103	Paper 3 Multiple Choice Questions	<u>200</u>
	<b>Total</b>	<b>700</b>
B. MIGL6121	Viva Voce	
MIGL6122	Anatomy	100
MIGL6123	Physiology and Principles of Surgery	100
MIGL6124	Pathology (including Medical Microbiology)	<u>100</u>
	<b>Total</b>	<b><u>300</u></b>
	<b>Grand Total</b>	<b><u>1000</u></b>

A candidate who obtains less than 50% in the theory component of the Part I Examination will not be permitted to sit for the viva voce.

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MIGL6236	Paper 1 Essay and Short Answer Type Questions	100
MIGL6237	Paper 2 Multiple Choice Questions	<u>100</u>
	<b>Total</b>	<b>200</b>
B. MIGL6243	Clinical	
MIGL6244	Long Case	100
C. MIGL6245	Short Cases	
MIGL6246	Otology	100
MIGL6247	Rhinology	100
MIGL6248	Laryngology	100
MIGL6249	Head & Neck Surgery	<u>100</u>
	<b>Total</b>	<b>400</b>
D. MIGL6250	Viva Voce	
MIGL6251	Otology including Audiology and Otoneurology	100
MIGL6252	Rhinolaryngology and Head & Neck Surgery	<u>100</u>
	<b>Total</b>	<b><u>200</u></b>
	<b>Grand Total</b>	<b><u>900</u></b>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

- (a) Part I Examination
    - (i) 50% or more of the aggregate combined marks of all the components for the examination; and
    - (ii) 50% or more of the marks for each component of the Examination; and
    - (iii) A minimum mark of 45% in each viva; and
    - (iv) At least two vivas with a mark of 50% or more
  - (b) Final Examination
    - (i) 50% or more of the marks for each component of the Examination; and
    - (ii) Not less than 50% marks in three short cases; and
    - (iii) Not less than 40% marks in any short cases; and
    - (iv) 40.00% and above marks in Multiple Choice Questions (MIGL6237); and
    - (v) Not less than 40% marks in each viva component.
- (6) Repeating an Examination
- (a) Part I Re-Examination
    - (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
    - (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination. However, a candidate who has passed the written components previously will not be required to resit these components at the subsequent Part I Re-Examination.
    - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances and on the recommendation of the Faculty of Medicine and with the approval of Senate.
  - (b) Final Re-Examination
    - (i) A candidate who has failed the Final Examination may be permitted a re-examination within seven (7) academic years at six monthly intervals.
    - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination. However, a candidate who passed Component A in the previous Final Examination, is allowed not to resit Component A, **only twice** in the next semester (six monthly) exam.

- (iii) A candidate who fails the re-examination beyond seven (7) academic years shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

## **11. Award of Degree**

No candidate shall be recommended for the award of the Degree of Master of Otorhinolaryngology – Head & Neck Surgery unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### **(1) Award of Pass with Distinction for the Examination**

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### **(2) Award of the Degree with Distinction**

A candidate may be awarded the degree of Master of Otorhinolaryngology - Head & Neck Surgery with Distinction if he/she -

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF OTORHINOLARYNGOLOGY – HEAD & NECK SURGERY  
PROGRAMME SCHEDULE**

<b>S T A G E  II</b>	Year 4	<ul style="list-style-type: none"> <li>Training comprising thirty (30) months of study in Advance Otorhinolaryngology including rotational posting in Oral and Maxillo-facial Surgery, Neuro-surgery and Plastic and Reconstructive Surgery and a research project in the field of Otorhinolaryngology.</li> </ul>	Final Examination
	Year 3		
	Year 2		
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>Basic Otorhinolaryngology (18 months) including:                             <ul style="list-style-type: none"> <li>(i) Basic and Applied Medical Sciences and Principles of Surgery (6 months)</li> <li>(ii) General Surgery (6 months)</li> </ul> </li> </ul>	Part I Examination (At the end of the first six months of Stage I)  Registration (Entrance Evaluation)

**Name of Programme :** Master of Paediatrics  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Paediatrics programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in Entrance Evaluation recognised by the Faculty.
- (c) A pass in the Entrance Evaluation is valid for two years to enrol into the program.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years except in special circumstances.

### **4. Structure of Programme**

#### **(1) The programme of study comprises three stages as follows:**

- (a) Stage I comprising basic clinical training in Basic Medical Sciences and General and Emergency Paediatrics;
- (b) Stage II in the second and third year comprising of
  - (i) advanced training in the field of Paediatrics; and
  - (ii) a research project;and

- (c) Stage III comprising further advanced training in the field of Paediatrics and completion of the research project.
- (2) A candidate is required to keep a log book throughout his/her period of study to document tasks undertaken.
- (3) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or has been exempted from the Part I Examination.
- (4) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed the Part II Examination.

## **5. Registration**

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for the second year of Stage II of the programme of study if he/she has passed the Part II (theory-a&b) Examination for the Membership of –
  - (a) the Royal College of Paediatrics and Child Health;
  - (b) the Royal College of Physicians of the United Kingdom;
  - (c) the Royal College of Physicians of Ireland; or
  - (d) the equivalent of qualifications listed in (a), (b) or (c) above as approved by the Senate.

## **6. Attendance**

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.



## **9. Submission**

- (1) A candidate is required to submit his/her log book for the respective period of study not later than one month before the Part I and Part II Examinations and the Final Examination.
- (2) A candidate is required to submit his/her research report not later than two (2) weeks before the Final Examination.

## **10. Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) Part I Examination;
  - (b) Part II Examination; and
  - (c) Final Examination.
- (2) No candidate shall be permitted to take the Part I Examination unless he/she has –
  - (a) satisfactorily completed Stage 1 of the programme of study;
  - (b) obtained written certification from the Head of Department responsible for his/her programme of study to confirm that he/she has satisfactorily completed the prescribed training under supervision; and
  - (c) submitted his/her log book not later than one month before the Part I Examination.
  - (d) completed one year of enrolment into the program (first attempt), but not later than two years after enrolment into the program.
- (3) Part II Examination
  - (a) Candidate shall be permitted to take the Part II Examination after: –
    - (i) satisfactorily completed Stage II of the programme of study;
    - (ii) obtaining written certification from the Head of Department responsible for his programme of study to confirm that he/she has satisfactorily completed the prescribed training under supervision; and
    - (iii) submitting his/her log book not later than one month before the Part II Examination; and
  - (b) The first attempt of the Part II Examination can be taken six weeks after passing the Part I Examination but not later than three years after the enrolment into the program.
- (4) No candidate shall be permitted to proceed to the Final Examination unless he/she has –
  - (a) satisfactorily completed Stage III of the programme of study;

- (b) obtained written certification from the Head of Department responsible for his/her programme of study to confirm that he has satisfactorily completed the prescribed training under supervision;
- (c) submitted his/her research report not later than two months before the Final Examination;
- (d) submitted his/her log book not later than one month before the Final Examination; and
- (e) passed the Part II Examination.

(5) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MLGH6101 Paper 1	Multiple Choice Questions	300
MLGH6102 Paper 2	Modified Essay Questions/ (Long MEQ & Short MEQ)	250
	Slides	<u>50</u>
	Total	<u>600</u>

(b) Part II Examination

Part II Examination consists of the following components:

- 1 Classical Long Case
- 1 Observed Long Case
- 5 Short Cases
- 1 Communication station
- 1 Emergency station

(c) Final Examination

The component of the Final Examination and the marks to be allocated for the component shall be as follows:

MLGH6371	Research report	100
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(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50% or more of the aggregate combined marks for all the components of the Part I Examination.

(b) Part II Examination

- (i) total marks  $\geq 100$  and
- (ii) Passes in either classical long case or observe long case

#### Allocation of Marks

Clear pass	12
Pass	10
Bare fail	8
Fail	4

#### (c) Final Examination

50% or more of the marks in the research report.

### (7) Repeating an Examination

#### (a) Part I Re-Examination

- (i) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (ii) There is no restriction to the total number of attempts, but the candidate must pass Part I Examination within three years upon enrolment into the programme.
- (iii) A candidate who fail the Part I examination within three years upon enrolment into the program shall be deemed to have failed the Part I examination and shall not be permitted to continue the program except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

#### (b) Part II Re-Examination

- (i) A candidate who has failed the Part II examination may be permitted to sit for the examination at six monthly interval.
- (ii) The candidate has to resit the whole examination (1 Long Case, 1 Long observed case, 5 Short Cases, 1 Communication Station and 1 Emergency Station).
- (iii) There is no limit to the number of attempts for Part II examination, but the total duration of the course must not exceed seven years inclusive of the final year for the research project.
- (iv) Part II Examination should be completed within two years after passing Part I. If the trainee failed to pass Part II more than two years after passing Part I, they have to re-sit the Part I, provided they do not exceed the overall training duration of seven years.

#### (c) Final Re-Examination

- (i) A candidate whose research report is deemed unsatisfactory by the Committee of Examiners may be referred for further work in his/her research report over a period of time to be determined by the Committee of Examiners except that such period of time as determined

shall not exceed six months on any one occasion. At the end of the prescribed period the candidate shall be required to submit his/her research report for re-examination. A candidate who fails to submit his/her research report by the end of the prescribed period for reexamination shall be deemed to have failed the research report.

- (ii) A candidate shall be permitted to submit his/her research report for re-examination on not more than two occasions.
- (iii) A candidate who fails the research report after the second re-examination shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (d) A candidate who has passed the Re-Examination for the Examinations shall be deemed to have passed the prescribed Examinations.

## **11. Award of Degree**

No candidate shall be recommended for the award of the Degree of Master of Paediatrics unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations and the Final Assessment.

### **(1) Award of Pass with Distinction for the Examination**

A candidate may be awarded a Pass with Distinction in the Part I Examination, the Part II Examination or the Final Examination if he/she -

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (d) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### **(2) Award of the Degree with Distinction**

A candidate may be awarded the degree of Master of Paediatrics with Distinction if he/she -

- (a) has passed with Distinction in the Part II Examination and the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty

**MASTER OF PAEDIATRICS  
PROGRAMME SCHEDULE**

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"> <li>Advanced Training in Paediatrics and completion of research project</li> </ul>	Final Examination
	Year 3  Year 2	<ul style="list-style-type: none"> <li>Advance training in Paediatrics and preparation of research project</li> </ul>	Part II Examination
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>Clinical Training in Basic Medical Science, General and emergency Paediatrics</li> </ul>	Part I Examination  Registration (Entrance Evaluation)

Name of Programme : Master of Paediatric Surgery  
Faculty : Faculty of Medicine

**1. Classification of Programme**

The Master of Paediatric Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

**2. Entry Requirements**

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least two years of post-full registration clinical experience in surgery (inclusive of subspecialties) approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation.

**3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

**4. Structure of the Programme**

The programme of study comprises of two stages as follows:

- (1) Stage I in the first year of study comprising Applied Basic Sciences and General Principles of Surgery and/or subspecialties in Surgery.
- (2) Stage II in the second, third and fourth years of study comprising:
  - (a) Six (6) months in Paediatric Medicine, with rotation postings in Neonatology, Paediatric Intensive Care and Paediatric Oncology. This part of the programme should be completed in the second year of the programme.
  - (b) Subsequent 2½ years (30 months): Training in Applied Basic Sciences relevant to Paediatric Surgery, including Embryology, Principles and Practice of Paediatric Surgery, and clinical problems in Paediatric Surgery with rotation

postings in the University or other accredited Paediatric Surgery Unit. The last six months should be spent in the University.

(c) Research project report or case book:

At the beginning of Stage II, a candidate should either

- (i) undertake a research project and submit a research report not later than three months before the Final Examination; or
- (ii) submit a case book of 12 interesting cases in detail with review of the literature not later than three months before the Final Examination.

## 5. Registration

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of this programme provided he/she has:
  - (a) a Master's degree in Surgery or a Fellowship of one of the Royal Colleges of Surgeons or an equivalent qualification approved by Senate; or
  - (b) three (3) years of supervised training as a Medical Officer in Surgery, a log book certified by the consultant and passed the Part I Examination of Master of Surgery or FRCS or MRCS Part II.

## 6. Attendance

During his/her programme of study –

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided that the total extended period of training shall not exceed the maximum period of candidature.

## 7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two (2) months after the candidate has commenced training in the outside location.

## 8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## 9. Submission

- (1) A candidate is required to submit his/her log book and posting reports every six months for assessment by the Department responsible for the candidate's programme of study.
- (2) A candidate is required to submit his/her research report not later than six (6) months before the Final Examination.

## 10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination; and
  - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she has passed:
  - (a) Section A or the Primary Fellowship of the following Royal Colleges:
    - (i) The Royal College of Surgeons of Edinburgh
    - (ii) The Royal College of Surgeons of England
    - (iii) The Royal College of Physicians and Surgeons of Glasgow
    - (iv) The Royal College of Surgeons in Ireland
    - (v) The Royal Australasian College of Surgeonsor
  - (b) Final Examination for the Membership of any one of the following Royal Colleges:
    - (i) The Royal College of Surgeons of Edinburgh
    - (ii) The Royal College of Surgeons of England
    - (iii) The Royal College of Physicians and Surgeons of Glasgow
    - (iv) The Royal College of Surgeons in Ireland
    - (v) The Royal Australasian College of Surgeons
    - (vi) Master of Surgery (University of Malaya) or its equivalent approved by the Senateor
  - (c) Section B and C of the Primary Fellowship of any one of the following Royal Colleges:
    - (i) The Royal College of Surgeons of Edinburgh
    - (ii) The Royal College of Surgeons of England
    - (iii) The Royal College of Physicians and Surgeons of Glasgow
    - (iv) The Royal College of Surgeons in Ireland
- (3) The Part I Examination shall be held at the end of stage I of the programme of study. The Final Examination shall be held at the end of Stage II of the programme of study.



(4) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MSGU6101 Paper 1	Multiple Choice Questions	150
MSGU6102 Paper 2	Short Answer Type Questions	<u>150</u>
	Total	300
B. MSGU6121 Viva Voce	Applied Anatomy	100
	Applied Physiology & Principles of Surgery	100
	Applied Pathology (including Microbiology)	<u>100</u>
	Total	<u>300</u>
C. Continuous Assessment		<u>400</u>
	<b>Grand Total</b>	<b><u>1000</u></b>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to the various components of the Final Examination shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MSGU6236 Paper 1	Short Answer Type Questions & Essays (Applied Basic Sciences in Paediatric Surgery)	100
MSGU6237 Paper 2	Short Answer Type Questions & Essays (Principles and Practice of Paediatric Surgery)	100
MSGU6238 Paper 3	Short Answer Type Questions & Essays (Problems in Paediatric Surgery)	<u>100</u>
	Total	<u>300</u>
B. MSGU6243	Clinical Long Case	150
MSGU6244	Short Cases	150
MSGU6245	Ward Rounds	<u>250</u>
	Total	550
C. MSGU6250	Viva Voce	150
D. Continuous Assessment		<u>500</u>
	<b>Grand Total</b>	<b><u>1500</u></b>

(3) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the aggregate combined marks of all the components for the examination; and
- (ii) 50% or more of the marks for each component for the examination.

(b) Final Examination

- (i) 50% or more of the aggregate combined marks of all the components for the examination; and
- (ii) 50% or more of the marks for each component for the examination.
- (iii) Sufficient standard in his/her research report or case book.

(6) Repeating an Examination

(a) Part I Re-examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Part I Re-examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of Senate.

(b) Final Re-examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Final Re-examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of Senate.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Paediatric Surgery unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she-

- (a) has obtained 75% or more of the aggregate combined marks in each of the prescribed Examinations;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Paediatric Surgery with Distinction if he/she -

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

## MASTER OF PAEDIATRIC SURGERY PROGRAMME SCHEDULE

<b>S T A G E  II</b>	Year 3 & 4 (24 months)	<ul style="list-style-type: none"> <li>Applied Basic Sciences in Paediatric Surgery including Embryology, Principles &amp; Practice of Paediatric Surgery, and clinical problems in Paediatric Surgery with rotation in the University or other accredited Paediatrics Surgery Unit. The last six months should be spent in the University.</li> </ul>	Final Examination
	Year 2 (6 months)	<ul style="list-style-type: none"> <li>To conduct a research project / keep a case book. To submit a report six months before the Final Examination.</li> </ul>	
	Year 2 (6 months)	<ul style="list-style-type: none"> <li>6 months in Paediatric Medicine with rotation posting in Neonatology; Paediatric Intensive Care and Pediatric Oncology. This part of the programme should be completed in the second year of the programme.</li> <li>To start a research project or keep a case book.</li> </ul>	
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>12 months of Applied Basic Sciences &amp; General Principles of Surgery and/or subspecialties in Surgery.</li> </ul>	Part I Examination (12 months after registration)   Registration (Entrance Evaluation)

**Name of Programme :** Master of Pathology  
(Anatomical Pathology)/ (Haematology) / (Chemical Pathology) /  
(Medical Microbiology) / (Forensic Pathology)

**Faculty :** Faculty of Medicine

### 1. Classification of Programme

The Master of Pathology (Anatomical Pathology) / (Haematology) / (Chemical Pathology) / (Medical Microbiology) / (Forensic Pathology) programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study. After completion of the relevant programme of study specified in this schedule, a candidate shall be eligible for the award of the Master of Pathology in a speciality of the candidate's choice, as the case may be.

### 2. Entry Requirements

- (1) Entry qualifications
  - (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
  - (b) At least one year of post-full registration clinical experience approved by the Senate.
- (2) Other requirements
  - (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
  - (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### 3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### 4. Structure of Programme

- (1) The programme of study comprises two stages as follows:
  - (a) Stage I encompassing:
    - (i) clinical training in the first year of study by rotational posting in each of the following four disciplines of Pathology:
      - (A) Anatomical Pathology including Autopsy
      - (B) Haematology including Transfusion Medicine;

- (C) Chemical Pathology including Immunology; and
    - (D) Medical Microbiology (Bacteriology, Mycology, Immunology, Virology) with Parasitology.
  - and
  - (ii) tasks as stipulated in the log book including posting reports.
- (b) Stage II encompassing three years of study comprising:
  - (i) advanced training in one of the following disciplines of Pathology:
    - (A) Anatomical Pathology,
    - (B) Haematology;
    - (C) Chemical Pathology,
    - (D) Medical Microbiology;
    - (E) Forensic Pathology;
  - and
  - (ii) a research project
- (2) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or has been exempted from the Part I Examination.

## 5. Registration

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she has
  - (a) the Master of Medical Science in Clinical Pathology Degree of the University or an equivalent qualification approved by the Senate.
  - (b) passed the Part I Examination for the Membership of the Royal College of Pathologists, United Kingdom; or
  - (c) passed the Part I Examination for the Fellowship of the Royal College of Pathologists of Australasia.

## 6. Attendance

During his/her programme of study:

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## 7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.

- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department in the Faculty responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

- (1) A candidate is required to submit his/her log book and posting reports not later than one month before the Part I Examination.
- (2) A candidate is required to submit his/her research report not later than three months before the Final Examination.

## **10. Examinations for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination; and
  - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has satisfactorily completed all the postings prescribed for the first year of the programme of study, completed all the required tasks as set out in the log book and has submitted the log book and posting reports to the Department of Pathology not later than one month before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Final Examination unless he/she has –
  - (a) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he possesses one of the following qualifications:
    - (i) The degree of Master of Medical Science in Clinical Pathology of the University or an equivalent qualification approved by Senate;
    - (ii) The Part I Examination for the Membership of the Royal College of Pathologists, United Kingdom; or
    - (iii) The Part I Examination for the Fellowship of the Royal College of Pathologists of Australasia.
  - (b) submitted his/her Research Report not later than three months before the Final Examination.
- (4) The Part I Examination shall be held at the end of the Stage I of the programme of study. The Final Examination shall be held at the end of the final year of the Stage II programme of study.
- (5) Examination Components and Allocation of Marks
  - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

- \*MMH Master of Pathology (Haematology)
- \*MMK Master of Pathology (Medical Microbiology)
- \*MMJ Master of Pathology (Anatomical Pathology)
- \*MMG Master of Pathology (Forensic Pathology)
- \*MMI Master of Pathology (Chemical Pathology)

Component	Description	Allocation of Marks (Maximum)
A. Written		
*MKGA6104 Paper 1	Multiple Choice & Essay Questions	150
*MKGA6105 Paper 2	Multiple Choice & Essay Questions	<u>150</u>
	Total	300
B. *MKGA6111 Practical		
*MKGA6112 Paper 1	Objective Structured Examination	150
*MKGA6113 Paper 2	Objective Structured Examination	<u>150</u>
	Total	300
	<b>Grand Total</b>	<b><u>600</u></b>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
*MKGA6238 Paper 1	Essay or Short Answer Questions	225
*MKGA6237 Paper 2	Essay or Short Answer Questions	<u>225</u>
	Total	450
B. *MKGA6243 Practical	Objective Structured Questions, Speciality Practicals and Others	450
C. *MKGA6250 Viva Voce		<u>100</u>
	<b>Grand Total</b>	<b><u>1000</u></b>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the aggregate combined marks of the written and practical components of the Examination;
- (ii) at least 50% of the marks for the written component and not less than 40% of the marks in the written component for each discipline of Pathology; and



- (iii) at least 50% of the marks for the practical component and not less than 40% of the marks in the practical component for each discipline of Pathology.
  - (b) Final Examination
 

50% or more of the aggregate combined marks for all the components of the Examination and not less than 50% of the marks for the written and practical components of the Examination.
- (7) Repeating an Examination
  - (a) Part I Re-Examination
    - (i) A candidate who has failed the Part I Examination may be permitted only one re-examination after a period of one year.
    - (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
    - (iii) A candidate who fails the re-examination shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
  - (b) Final Re-Examination
    - (i) A candidate who has failed the Final Examination may be permitted a re-examination after a period of one year.
    - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
    - (iii) A candidate who fails the Final Re-Examination on the second occasion shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
    - (iv) Notwithstanding regulations 10(7)(b) above, a candidate who has failed because of either the written or practical component of the Final Examination may be permitted a re-examination on four separate occasions at six monthly intervals. Under the circumstances, the re-examination shall comprise the written or practical component that the candidate has failed in the main Examination or the first re-examination and the viva voce. The examination shall be in the discipline of Pathology initially chosen by the candidate for the main Examination.
  - (c) A candidate who has passed the re-examination for the Examinations above shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Pathology (Anatomical Pathology/ Haematology/ Chemical Pathology/ Medical Microbiology/ Forensic Pathology) unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Pathology (Anatomical Pathology/ Haematology/ Chemical Pathology/ Medical Microbiology/ Forensic Pathology) with Distinction if he/she –

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**Master of Pathology (Anatomical Pathology) / (Haematology) /  
(Chemical Pathology) / (Medical Microbiology) / (Forensic Pathology)  
Programme Schedule**

S T A G E  II	Year 4	<ul style="list-style-type: none"><li>▪ Specialisation in any one Pathology discipline, including Anatomic Pathology, Haematology, Chemical Pathology, Medical Microbiology, Forensic Pathology, Immunology, and</li><li>▪ Research Project in the chosen discipline</li></ul>	Final Examination
	Year 3		
	Year 2		
S T A G E  I	Year 1	Intensive Course (3 weeks)	Part I Examination
		<table><tr><td>Posting for 10 weeks in each of these disciplines</td><td><ul style="list-style-type: none"><li>• Anatomic Pathology</li><li>• Haematology</li><li>• Chemical Pathology</li><li>• Medical Microbiology/Parasitology</li></ul></td></tr></table>	
Posting for 10 weeks in each of these disciplines	<ul style="list-style-type: none"><li>• Anatomic Pathology</li><li>• Haematology</li><li>• Chemical Pathology</li><li>• Medical Microbiology/Parasitology</li></ul>		
			Registration (Entrance Evaluation)

Name of Programme : Master of Psychological Medicine  
Faculty : Faculty of Medicine

### 1. Classification of Programme

The Master of Psychological Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### 2. Entry Requirements

- (1) Entry qualifications
  - (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
  - (b) At least one year of post-full registration clinical experience approved by the Senate.
- (2) Other requirements
  - (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
  - (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### 3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### 4. Structure of Programme

- (1) The programme of study comprises three stages as follows:
  - (a) Stage I, in the first year of study comprising:
    - (i) clinical training in basic attitudes;
    - (ii) training in clinical skills and management in psychiatry;
    - (iii) training in basic sciences relevant to psychiatry and training in psychiatric management and
    - (iv) preparation of two case protocols in general psychiatry.
  - (b) Stage II, in the second and third year of study comprising:
    - (i) training in clinical psychiatry and rotational postings in psychiatric subspecialties;
    - (ii) preparation of case protocols for the number of cases which shall be determined by the department from time to time.

- (c) Stage III, in the forth year of study comprising advanced training in psychiatry and completion of research project
  - (2) No candidate shall be permitted to proceed to Stage II of the programme study unless he/she has passed the Part I Examination.
  - (3) No candidate shall be permitted to proceed to Stage III of the programme study unless he/she has passed the Part II Examination.
- 5. Registration**
- Registration for the programme of study shall commence the week prior to the start of the academic session.
- 6. Attendance**
- During his/her programme of study –
- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
  - (2) a candidate who has been absent for a period exceeding forty-two days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.
- 7. Supervision**
- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
  - (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.
- 8. Title of Research**
- The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study. The research proposal shall be submitted to the ethics committee not later than four months before the Part II Examination.
- 9. Submission**
- (1) A candidate is required to submit two case protocols for Stage I of the programme of study not later than three months before the Part I Examination.
  - (2) A candidate is required to submit case protocols for Stage II of the programme study not later than three months before the Part II Examination.
  - (3) A candidate is required to submit a research report not later than three months before the Final Examination.
- 10. Examinations for the Degree**
- (1) The Examinations leading to the degree shall be as follows:
    - (a) the Part I Examination
    - (b) the Part II Examination
    - (c) the Final Examination

- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has satisfactorily completed and submitted case protocols for Stage I of the programme not later than three months before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has:
- passed the Part I Examination; and
  - satisfactorily completed and submitted case protocols for Stage II not later than three months before the Part II Examination and obtained 50% or more of the average marks of these case protocols.
- (4) No candidate shall be permitted to sit for the Final Examination unless he/she has:
- passed the Part II Examination; and
  - satisfactorily completed and submitted research report not later than three months before the Final Examination.
- (5) The Part I examination shall be held at the end of the first year of the programme study. The Part II examination shall be held at the end of the third year of the programme study and the Final examination shall be held at the end of the fourth year of the programme study.
- (6) The written component For Part I & II examination will be held before the clinical examination. Those who fail the written component will not be allowed to take the clinical examination. They shall be considered as have failed the examination.
- (7) Examination Components and Allocation of Marks:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MNGC6101 Paper 1	Multiple Choice Questions	40
MNGC6102 Paper 2	Multiple Choice Questions	60
MNGC6103 Paper 3	Short Essay Questions	100
B. Clinical		
MNGC6111 Short Case	Psychiatry	100
<b>Grand Total</b>		<b><u>300</u></b>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MNGC6236 Paper 1	Essay Questions and Critical Review Paper	100
MNGC6237 Paper 2	Short Notes Questions	100
Total		200
B. Clinical		
MNGC6244 Long Case	Psychiatry	100
MNGC6245 Short Case	Psychiatry	50
MNGC6246 Short Case	Medicine/Neurology	50
Total		200
<b>Grand Total</b>		<b><u>400</u></b>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

(i) MNGC6261 Research report	70
MNGC6250 Dissertation Viva	<u>30</u>
Total	100

OR If the candidate's research work has been accepted for publication in an indexed scientific journal (at least SCOPUS) he/she shall be exempted from submission of research report and dissertation viva 100.

(ii) MNGC6247 Consultation Viva	<u>100</u>
<b>Grand Total</b>	<b><u>200</u></b>

(8) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the written component
- (ii) 50% or more of the average marks from the clinical component; and
- (iii) not less than 45% of the marks in any of the clinical case of the clinical component.

(b) Part II Examination

- (i) 50% or more of the written component
- (ii) 50% or more of the clinical long case Psychiatry
- (iii) 50% or more of the average marks from the clinical short cases: and
- (iv) not less than 45% of the marks in any of the clinical shortcases

(c) Final Examination

50% or more of the marks in all component of the examination.

(9) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination. However if a candidate had achieved at least 50% (100/200) of the total marks of the "Written" component during the prior examination, he/she shall be exempted from sitting for the written component during the Re-examination.
- (iii) A candidate who has passed written component but fail clinical component may be permitted a re-examination of clinical component only.

- (iv) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (b) Part II Re-Examination
  - (i) A candidate who has failed the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
  - (ii) The Part II Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part II Examination.
  - (iii) A candidate who has passed written components but fail clinical component may be permitted a re-examination of clinical component only.
- (c) Final Re-Examination
  - (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
  - (ii) The Final Re-Examination shall consist of only the failed component(s) and shall be assessed and graded in the same manner as prescribed for the Final Examination.
  - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (e) A candidate who has passed the re-examination for the Examinations above shall be deemed to have passed the prescribed Examinations.
- (10) Supervisory Report
 

In the event that a candidate get an unsatisfactory report, the Department concerned may set up a special committee to deliberate and recommend the candidate to be terminated from the course, to repeat the year, to defer for 6 months or to be permitted for sitting in the examination.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Psychological Medicine unless he/she has successfully completed all parts of the course, fulfilled the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination, the Part II Examination or the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;

- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.
- (2) Award of the Degree with Distinction

A candidate may be awarded the degree with Distinction if he/she –

- (a) has passed with Distinction in the Part I Examination, Part II Examination and Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF PSYCHOLOGICAL MEDICINE  
PROGRAMME SCHEDULE**

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"> <li>Advanced training in psychiatry and completion of research project</li> </ul>	Final Examination
<b>S T A G E  II</b>	Year 3  Year 2	<ul style="list-style-type: none"> <li>Training in clinical psychiatry and rotational postings in psychiatric sub-specialties</li> <li>Preparation of case protocols for the number of cases which shall be determined by the department from time to time</li> </ul>	Part II Examination
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>Clinical training in basic attitudes</li> <li>Training in clinical skills and management in psychiatry</li> <li>Training in basic sciences relevant to psychiatry and training in psychiatric management</li> <li>Preparation of two cases protocols in general psychiatry</li> </ul>	Part I Examination  Registration (Entrance Evaluation)



**Name of Programme :** Master of Radiology  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Radiology programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

The programme of study comprises three stages as follows:

#### **(1) Stage I in the first year of study comprising:**

- (a) basic training in Radiological Medical Physics, Radiological Anatomy and Radiography, Radiological Technique, Contrast Media and Drugs, Basic Trauma Radiology and any other disciplines of Radiology that may be determined by the Department from time to time;
- (b) training in cognate subjects of radiology that may be determined by the department from time to time; and
- (c) the keeping of a log book by the candidate to document radiological procedures performed by him.

#### **(2) Stage II in the second and third year of study comprising:**

- (a) training in all aspects of diagnostic radiology, imaging techniques and interventional radiology;

- (b) training in cognate subjects as may be determined by the Department from time to time;
  - (c) the keeping of a log book by the candidate to document radiological procedures performed by him; and
  - (d) the commencement of a research project.
- (3) Stage III in the fourth year of study comprising:
- (a) advanced training in all aspects of diagnostic radiology, imaging techniques and interventional radiology;
  - (b) advanced training in cognate subjects as may be determined by the Department from time to time;
  - (c) case studies; and
  - (d) a research project.

## **5. Registration**

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she possesses qualification an equivalent to Part I Master of Radiology recommended by Faculty and acceptable to the Senate.

## **6. Attendance**

During his/her programme of study -

- (1) A candidate may be permitted to undertake part or all of his/her training in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part or all of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## 9. Submission

- (1) A candidate is required to submit a log book of radiological procedures performed, certified by his/her supervisor for the respective period of study one month before the Part I Examination.
- (2) A candidate is required to submit a log book consisting of special radiological procedures observed and performed, certified by his/her supervisor for the respective period of study two months before the Part II Examination.
- (3) A candidate is required to submit a research report and a case studies report for the respective period of study three months before the Final Examination.

## 10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination;
  - (b) the Part II Examination; and
  - (c) the Final Examination
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has submitted a log book of radiological procedures performed, certified by his/her supervisor for the respective period of study one month before the Part I examination.
- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has -
  - (a) submitted a log book of special radiological procedures, observed and performed, certified by his/her supervisor for the respective period of study one month before the Part II Examination; and
  - (c) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he possesses qualification an equivalent to Part I Master of Radiology recommended by Faculty and acceptable to the Senate.
- (4) No candidate shall be permitted to sit for the Final Examination, unless he/she has -
  - (a) passed the Part II Examination; and
  - (b) submitted the case studies report and the research report three months before the Final Examination;
- (5) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of stage II of the programme of study. The Final Examination shall be held at the end of stage III of the programme of study.
- (6) Examination Components and Allocation of Marks
  - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Components		Description	Allocation of Marks (Maximum)
A.	MQGN6102	MCQ Multiple Choice Questions Paper	100

B.	MQGN6121	Viva Voce	100
C.	MQGN6126	OSCE Objective Structured Clinical Examination	100
D.	MQGN6127	OSPE Objective Structured Practical Examination	<u>100</u>
Total			<u>400</u>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Components	Description	Allocation of Marks (Maximum)
A.	Written	
	MQGN6236 Paper 1 SBA	100
	MQGN6237 Paper 2 SBA	100
B.	MQGN6266 Film Reporting	100
C.	MQGN6250 Viva Voce	<u>100</u>
Total		<u>400</u>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Components	Description	Allocation of Marks (Maximum)
A.	MQGN6371 Case Studies Report	100
B.	MQGN6372 Research report	100
C.	MQGN6374 Viva Voce	100
D.	MQGN6373 Rapid Film reporting	<u>100</u>
Total		<u>400</u>

(7) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50 % or more of the marks for each component of the Examination.

A candidate who does not fulfill the above requirement for a component shall be deemed to have failed the component concerned but shall be credited with the component or components he/she has passed and be required to repeat only the component that he has failed.

(b) Part II Examination

60% or more of the marks of component A.

50% or more of the marks for components B, C of the Examination

A candidate who does not fulfill the above requirement for a component shall be deemed to have failed the component concerned but shall be credited with the component or components he has passed and be required to repeat only the component that he/she has failed.

(c) Final Examination

50 % or more of the marks for each component of the Examination.

A candidate who does not fulfill the above requirement for a component shall be deemed to have failed the component concerned but shall be credited with the component or components he/she has passed and be required to repeat only the component that he/she has failed.

(8) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same component and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who has passed one or more of the component of the Part I Examination shall be deemed to have passed those component and shall not be required to repeat those component.
- (iv) A candidate shall be required to repeat those component that he/she has failed in the Part I Examination.
- (v) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances and on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part II Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part II Examination.
- (iii) A candidate who has passed one or more of the components of the Part II Examination shall be deemed to have passed those components and shall not be required to repeat those components.
- (iv) A candidate shall be required to repeat those components that he/she has failed in the Part II Examination.
- (v) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances and on the recommendation of the Faculty of Medicine and with the approval of Senate.

(c) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (iii) A candidate who has passed one or more of the components of the Final Examination shall be deemed to have passed those components and shall not be required to repeat those components.
- (iv) A candidate shall be required to repeat those components that he/she has failed in the Final Examination.
- (v) A candidate whose research report and/or case studies report is deemed unsatisfactory by the Committee of Examiners may be referred for further work over a period of time to be determined by the Committee of Examiners except that such periods of time as determined shall not exceed six months on any one occasion. At the end of the prescribed period the candidate shall be required to submit the research report and/or case studies report for re-examination. A candidate who fails to submit his research report and/or case studies report by the end of the prescribed period for re-examination shall be deemed to have failed the research report and/or the case studies report.
- (vi) A candidate shall be permitted to resubmit the research report and/or case studies report for re-examination either singly or jointly on not more than two occasions.
- (vii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Radiology unless he/she has successfully completed all parts of the course, fulfilled the minimum duration of study and has passed the prescribed Examinations and the Final Assessment.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination, the Part II Examination or the Final Examination if he/she -

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
- (b) has not failed in any module of the Part I Examination, or component of the Part II Examination or the Final Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Radiology with Distinction if he/she -

- (a) has passed with Distinction in the Part II Examination and the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF RADIOLOGY  
PROGRAMME SCHEDULE**

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"><li>Advanced training in all aspects of Diagnostic Radiology, Imaging Technique and Interventional Radiology</li></ul>	Final Examination
<b>S T A G E  II</b>	Year 3 Year 2	<ul style="list-style-type: none"><li>Training in all aspect of Diagnostic Radiology, Imaging Technique and Interventional Radiology</li></ul>	Part II Examination
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"><li>Basic training in Radiological Medical Physics, Radiological Anatomy and Radiography, Radiological Technique, Contrast Media and Drugs, Basic Trauma Radiology and any other disciplines of Radiology.</li></ul>	Part I Examination  Registration (Entrance Evaluation)

**Name of Programme :** Master of Rehabilitation Medicine  
**Faculty :** Faculty of Medicine

**1. Classification of Programme**

The Master of Rehabilitation Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

**2. Entry Requirements**

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least two years of post-full registration clinical experience approved by the Senate of which at least one year is spent in in-patient care.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

**3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

**4. Structure of Programme**

The programme of study comprises two stages as follows:

(1) Stage I in the first year of study covering:

- (a) Basic and Applied Sciences of Rehabilitation Medicine;
- (b) Principles, Concepts and Practice of Rehabilitation Medicine;
- (c) Rotational postings in disciplines related to Rehabilitation Medicine;
- (d) The keeping of a log book by the candidate to document tasks undertaken
- (e) Continuous assessments as prescribed by the Department

(2) Stage II of study covering:

- (a) Rotational postings in specialised Rehabilitation Medicine disciplines and disciplines related to Rehabilitation Medicine;



- (b) research report;
  - (c) assignments;
  - (d) the keeping of a log book by the candidate to document tasks undertaken;  
and
  - (e) continuous assessments as prescribed by the Department.
- (3) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or been exempted from the Part I Examination.

## **5. Registration**

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she has passed the Part I Examination for any one of the following degrees of the University or has obtained an equivalent qualification recognised by the Senate:

Master of Internal Medicine  
 Master of Family Medicine  
 Master of Orthopaedic Surgery  
 Master of Paediatrics  
 Master of Surgery

## **6. Attendance**

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate
- (2) A consultant shall be appointed a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

## **9. Submission**

- (1) A candidate is required to submit his/her log book and assignments for the respective period of study not later than one month before the Part I Examination

- (2) A candidate is required to submit his/her log book and assignments for the respective period of study not later than one month before the Final Examination
- (3) A candidate is required to submit his/her research report not later than three months before the Final Examination.

## 10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination;
  - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has –
  - (a) satisfactorily completed the continuous assessments prescribed by the Department; and
  - (b) submitted his/her log book and assignments deemed satisfactory by the Department not later than one month before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Final Examination unless he/she has –
  - (a) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he has passed the Part I Examination for any one of the following degrees of the University or has obtained an equivalent qualification recognised by the Senate:
 

Master of Internal Medicine  
Master of Family Medicine  
Master of Orthopaedic Surgery  
Master of Paediatrics  
Master of Surgery
  - (b) Satisfactorily completed the components of the continuous assessments as specified by the Department;
  - (c) Submitted his/her log book and assignments deemed satisfactory by the Department not later than one month before the Final Examination; and
  - (d) Submitted a research report on an aspect of Rehabilitation Medicine not later than three months before the Final Examination. A candidate must obtain a pass grade in the research report before he/she is permitted to sit for the Final Examination.
- (4) Examination Components and Allocation of Marks
  - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MTGP6101 Paper 1	Multiple Choice Questions	150

MTGP6102	Paper 2	Short Answer Type Questions	150
			Total <u>300</u>
B. Practical			
MTGP6126	Paper 3	Objective Structural Practical Examination	200
C. Clinical			
MTGP6121		Clinical	500
			<b>Grand Total <u>1000</u></b>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component		Description	Allocation of Marks (Maximum)
A. Written			
MTGP6236	Paper 1	Essay	100
MTGP6237	Paper 2	Short Answer Type Questions	100
MTGP6238	Paper 3	Multiple Choice Questions	<u>100</u>
			Total 300
B. Practical			
MTGP6286	Paper 4	Objective Structured Practical Examination	200
C. Clinical			
MTGP6243		Clinical	350
D. Viva Voce			
MTGP6250		Viva Voce	<u>150</u>
			<b>Grand Total <u>1000</u></b>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50% or more of the marks for each component.

The theory examination (Written and Practical) will be held before the Clinical Examination. Only candidates that passes the Theory Examination will be allowed to sit the Clinical Examination.

Theory Examination consist of two component which are:

- (i) Component A (Written) : Paper MCQ and SAT
  - (A) 50% or more of the total marks
  - (B) Compulsory to pass

- (ii) Component B (Practical) : Paper OSPE
  - (A) 50% or more of the marks
  - (B) Compulsory to pass

Clinical Examination is:

- (i) Component C (Clinical): Short Case & Long Case
  - (A) 50% or more of the total marks
  - (B) Compulsory to pass all the clinical cases

A candidate who fails the clinical exam will not have to re-sit the theory examination before attempting the clinical examination again.

(b) Final Examination

50% or more of the marks for each component of the Final Examination.

The theory examination (Written and Practical) will be held before the Clinical Examination (Clinical and Viva Voce). Only candidates that passes the Theory Examination will be allowed to sit the Clinical Examination.

Theory Examination consist of two component which are:

- (i) Component A (Written): Paper Essay, MCQ & SAT
  - (A) 50% or more of the total marks
  - (B) Pass 2 out of 3 of the papers
- (ii) Component B (Practical): Paper OSPE
  - (A) 50% or more of the marks
  - (B) Compulsory to pass

Clinical Examination consist of two component which are:

- (i) Component C (Clinical): Short Case & Long Case

Short Case

- (A) 50% or more of the total marks
- (B) Pass 2 out of 3 of the cases

Long Case

- (A) 50% or more of the total marks
- (B) Compulsory to pass

- (ii) Component D (Viva Voce):

- (A) 50% or more of the total marks
- (B) Compulsory to pass

A candidate who fails the clinical exam will not have to re-sit the theory examination before attempting the clinical examination again.

(6) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

- (c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

**11. Award of Degree**

No candidate shall be recommended for the award of the Degree of Master of Rehabilitation Medicine unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she -

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

A candidate may be awarded the degree of Master of Rehabilitation Medicine with Distinction if he/she –

- ## MASTER OF REHABILITATION MEDICINE PROGRAMME SCHEDULE

<b>S T A G E  II</b>	Year 4	(a) Rotational postings in specialised Rehabilitation Medicine disciplines and disciplines related to Rehabilitation Medicine.	Final Examination
	Year 3	(b) Research report.	
	Year 2	(c) Assignments.	
	(36 months)	(d) The keeping of log book by the candidate to document tasks undertaken.	
		(e) Continuous assessments as prescribed by the Department.	
<b>S T A G E  I</b>	Year 1 (12 months)	(a) Basic and Applied Sciences of Rehabilitation Medicine.	Part I Examination
		(b) Principles, Concepts and Practice of Rehabilitation Medicine.	
		(c) Rotational postings in disciplines related to Rehabilitation Medicine.	
		(d) The keeping of a log book by the candidate to document tasks undertaken.	
		(e) Continuous assessments as prescribed by the Department	
			Registration (Entrance Evaluation)

**Name of Programme :** Master of Sports Medicine  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Sports Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

The programme of study comprises two stages as follows:

#### **(1) Stage I in the first year of study comprising:**

- (a) Basic Sciences related to Sports Medicine and any other clinical discipline in relation to Sports Medicine;
- (b) Assignments;
- (c) The keeping of a log book by the candidate to document tasks undertaken; and
- (d) Continuous assessments as prescribed by the Department.

#### **(2) Stage II in the second, third and fourth years of study comprising:**

- (a) Advanced training and clinical postings in areas related to Sports Medicine including an elective posting or postings of the candidate's choice subject to the approval of the Department responsible for the candidate's programme of study;
- (b) Advanced training in areas of Sports Medicine Management, Ethics and Special Population;
- (c) Assignments;
- (d) The keeping of a log book by the candidate to document tasks undertaken;
- (e) Research report; and
- (f) Continuous assessments as prescribed by the Department.

## **5. Registration**

- (1) Registration for this programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she has passed the Part I Examination for any one of the following degrees of the University or has obtained an equivalent qualification recognised by the Senate -

Master of Internal Medicine  
Master of Orthopaedic Surgery  
Master of Family Medicine  
Master of Rehabilitation Medicine  
Master of Surgery

## **6. Attendance**

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her training outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.



## 9. Submission

- (1) A candidate is required to submit his/her log book and assignments one month before the Part I Examination.
- (2) A candidate is required to submit a published research paper or research report six months before the Final Examination. The candidate also needs to submit the supervisor appraisal reports from the rotational and elective posting, assignments and log book not later than two months before the Final Examination.

## 10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
  - (a) The Part I Examination;
  - (b) The Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has –
  - (a) Satisfactorily completed the continuous assessments prescribed by the Department; and
  - (b) Submitted his/her log book and assignments deemed satisfactory by the Department one month before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Final Examination unless he/she has –
  - (a) Passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she has passed the Part I Examination for any one of the following degrees of the University or has obtained an equivalent qualification recognised by the Senate:
    - (i) Master of Internal Medicine
    - (ii) Master of Orthopaedic Surgery
    - (iii) Master of Family Medicine
    - (iv) Master of Rehabilitation Medicine
    - (v) Master of Surgery
  - (b) Candidates may also be exempted from the Part I Examination, if they have passed the Part II Examination for any of the following exams:
    - (i) Membership of the Royal Colleges of Physicians (MRCP)
    - (ii) Membership of the Royal College of General Practitioners (MRCGP)
  - (c) Satisfactorily completed the components of the continuous assessments as specified by the Department.
  - (d) Submitted his/her supervisor appraisal reports from the rotational and elective posting, log book and assignments deemed satisfactory by the Department not later than two months before the Final Examination; and
  - (e) Submitted either a published research paper or a research report six months before the Final Examination.

- (4) The Part I Examination shall be held at the end of the first year of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.

(5) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
<b>A. Written</b>		
MTGO6104	One Best Answer	200
MTGO6126	Short answer Type Questions 1	100
MTGO6127	Short answer Type Questions 2	100
		Total <u>400</u>
<b>B. Clinical</b>		
MTGO6107	Objective Structured Clinical Examination	200
MTGO6125	Short Cases	200
<b>Viva</b>		
MTGO6128	Log Book-based Viva	100
MTGO6129	Assignments and Case Reports	100
		Total <u>600</u>
		<b>Grand Total <u>1000</u></b>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
<b>A. Research</b>		
MTGO6258	Research Report OR Research Publication	50
		Total <u>50</u>
<b>B. Written</b>		
MTGO6259	Short Answer Type Questions 1	200
MTGO6260	Short Answer Type Questions 2	200
		Total <u>400</u>
<b>C. Clinical</b>		
MTGO6243	Long Cases	100
MTGO6244	Short Cases	200
MTGO6245	Objective Structured Clinical Examination	200
<b>Viva</b>		
MTGO6261	Log Book-based Viva	50
		Total <u>550</u>
		<b>Grand Total <u>1000</u></b>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50% or more of the marks for each sub component of the Part I Examination.

Only candidates that passed the Component A examination, will be allowed to sit for the Component B examination.

(b) Final Examination

50 % or more of the marks for each sub component of the Final Examination.

Only candidates who have passed the Component A examination, will be allowed to sit for the Component B examination, and only candidates that passed the Component B examination, will be allowed to sit for the Component C examination.

For the clinical long case and short case examination, the passing criteria for this part is determined by the majority of the examiner's votes and not by the marks. But in case of even votes encountered, then the average marks will be considered as the passing criteria.

(7) Repeating an Examination

(a) Part I Re-Examination

(i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six months intervals.

(ii) The Part I Re-Examination shall consist of the components that has failed and shall be assessed and graded in the same manner as prescribed for the Part I Examination.

(iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

(i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six months intervals.

(ii) The Final Re-Examination shall consist of the components that has failed and shall be assessed and graded in the same manner as prescribed for the Final Examination.

(iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Sport Medicine unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she -

- (a) Has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) Has not failed in any component of the prescribed Examination; and
- (c) Has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Sports Medicine with Distinction if he/she -

- (a) Has passed with Distinction in both the Part I and the Final Examination;
- (b) Has not failed in any component of the prescribed Examination; and
- (c) Has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF SPORTS MEDICINE  
PROGRAMME SCHEDULE**

<b>S T A G E  II</b>	Year 4	(a) Advanced training and clinical postings in areas related to Sports Medicine including an elective posting or postings of the candidate's choice subject to the approval of the Department responsible for the candidate's programme of study;	Final Examination
	Year 3	(b) Advanced training in areas of Sports Management, Ethics and Special Population;	
	Year 2 (36 months)	(c) Continuous assessment;	
		(d) Assignments;	
<b>S T A G E  I</b>		(e) The keeping of a log book by the candidate to document tasks undertaken;	Part I Examination
		and	
		(f) Research	
	Year 1 (12 months)	(a) Basic Sciences related to Sports Medicine;	Registration (Entrance Evaluation)
		(b) Assignments;	
		(c) Continuous assessment;	
		and	
		(d) Log book	

**Name of Programme :** Master of Surgery  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

#### **(1) Entry qualifications**

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

#### **(2) Other requirements**

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department in the Faculty responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

### **3. Duration of Study**

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

### **4. Structure of Programme**

The programme of study comprises three stages as follows:

#### **(1) Stage I, comprising:**

- (a) six (6) months of General Surgery posting including courses in Applied Basic Sciences and Principles of Surgery;
- (b) the option of a further six (6) months of General Surgery OR two posting of three (3) months each in Accident and Emergency, Orthopaedic Surgery, Intensive Care, Anaesthesiology, Obstetrics and Gynaecology, Radiology or any other surgical specialty not covered in Stage II, subject to approval by the Department of Surgery and Faculty of Medicine.
- (c) initiation of a research project

- (2) Stage II, comprising:
  - (a) twelve (12) months of rotation in surgical specialties comprising four (4) postings of three (3) months each: two compulsory postings in Urology and Neurosurgery, and a further two postings in any of the following: Cardiothoracic Surgery or Critical Care Medicine, Plastic and Reconstructive Surgery, Paediatric Surgery.
  - (b) continuation of a research project
- (3) Stage III, comprising:
  - (a) Twenty four (24) months in General Surgery including rotating through which may include Colorectal, Upper Gastrointestinal, Hepatobiliary, Breast, Endocrine, Vascular and Trauma Surgery general surgical sub-specialities;
  - (b) submission of a research report.
- (4) A candidate is required to keep a log book throughout his period of study to document tasks undertaken.

## **5. Registration**

Registration for the programme of study shall commence the week prior to the start of the academic session.

## **6. Attendance**

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her programme of study in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The clinical supervisor for a candidate shall be appointed not later than two months after the registration of the candidate. The research supervisor shall be appointed subsequent to the candidate passing the Part I examination.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Research Report**

The research project for a candidate shall be proposed by the candidate in discussion with their supervisor not later than six months after passing the Part I Examination. Research proposals must be vetted by the Department in the Faculty responsible for the candidate's programme of study.

## 9. Submission

- (1) A candidate is required to submit his/her log book and end-of-posting reports every six months for assessment by the Department in the Faculty responsible for the candidate's programme of study.
- (2) A candidate is required to submit his research report not later than three months before the Final Examination.

## 10. Examination for the Degree

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination; and
  - (b) the Final Examination.
- (2) No candidate shall only be permitted to sit for the Final Examination if he/she has:
  - (a) Passed or been exempted from the Part I Examination
  - (b) Passed the annual clinical evaluation
  - (c) Submitted three satisfactory case write-ups, and
  - (d) Submitted a research report that has been assessed as of sufficient standard not later than three months before the Final Examination.
- (3) A candidate may be exempted from the Part I Examination if he/she has passed:  
UK Intercollegiate MRCS Examination (Part A and B)
- (4) The Part I Examination shall be held at the end of the first six months of the Phase I of the programme of study. The Final Examination shall be held at the end of the Phase III of the programme of study.
- (5) Examination Components and Allocation of Marks
  - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MSGD6104 Paper 1	Applied Basic Sciences (Single Best Answer)	135
MSGD6105 Paper 2	Principle of Surgery (Single Best Answer and Extended Matching Question)	<u>135</u>
	Total	<u>270</u>
B. Clinical		
MSGD6124	OSCE	<u>360</u>
	<b>Grand Total</b>	<b><u>630</u></b>

A candidate who does not pass the written component of the Part I Examination will not be permitted to sit for the clinical examination.



(b) Final Examination

The components of the Final Examination and the marks to be allocated to the various components of the Final Examination shall be as follows:

Component A is marked using an open system on a continuous scale, where the maximum combined mark of Paper 1 and Paper 2 is 360.

Component	Description	Allocation of Marks (Maximum)
A.Written		
MSGD6236	Paper 1	180
MSGD6237	Paper 2	180
	Total	<u>360</u>

Components B and C are marked using a closed system, in which the category of marks is as follows:

12	: Distinction
11	: Good Pass
10	: Pass
9	: Borderline
8	: Fail

Number of marks awarded for the Viva voce	: 16
Maximum mark for Viva voce	: 16 x 12 = 192
Pass mark for Viva voce	: 16 x 10 = 160

Number of marks awarded for Clinical Long Cases	: 6
Maximum mark for Clinical Long Cases	: 6 x 12 = 72
Pass mark for Clinical Long Cases	: 6 x 10 = 60

Number marks awarded for Clinical Short Cases	: 9
Maximum mark for Clinical Short Cases	: 9 x 12 = 108
Pass mark for Clinical Short Cases	: 9 x 10 = 90

B. Viva Voce		
MSGD6250	Principles of Surgery (including critical care) 1	40
	Principles of Surgery (including critical care) 2	40
MSGD6251	Surgical Pathology	40
MSGD6252	Operative Surgery	<u>40</u>
	Total required to pass component	<u>160</u>
C. Clinical		
MSGD6243	Long case 1	30
	Long case 2	<u>30</u>
	Total required passing component:	<u>60</u>
MSGD6244	Short cases	<u>90</u>
	Total required to pass component:	<u>90</u>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

- (a) Part I Examination
    - (i) 50% or more of the aggregate combined marks of all the components; and
    - (ii) 50% or more of the marks for each component for the Examination.
  - (b) Final Examination
    - (i) 50% or more of the aggregate combined marks for Component A; and
    - (ii) The pass mark for Component B; and
    - (iii) The pass marks for component C.

Note: A candidate who obtains less than 50% of the aggregate marks in component A is not eligible to sit for component B and C.
- (7) Repeating an Examination
- (a) Part I Re-Examination
    - (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six (6) monthly intervals.
    - (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination. However, a candidate who has passed the written components previously will not be required to re-sit these components at the subsequent Part I Re-Examination.
    - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
  - (b) Final Re-Examination
    - (i) There is not limit on the total attempts in the Final Examination, as long as the candidate is still within the maximum duration of study which shall be seven years from the first date of registration.
    - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination. However, a candidate who has passed Component A previously will not be required to re-sit this component for two subsequent Final Re-Examination. Should the candidate fail the two subsequent Final Re-Examinations, he will be required to re-sit Component A at the third subsequent Final Re-Examination.
    - (iii) After the maximum duration of study is over the candidate is considered to have failed the Final Examination and shall not be permitted to repeat the programmes of study.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Surgery unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she

- (a) has obtained 75% or more of the aggregate combined marks in each of the prescribed Examinations;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Surgery with Distinction if he/she

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

## MASTER OF SURGERY PROGRAMME SCHEDULE

<b>S T A G E  III</b>	Year 4	<ul style="list-style-type: none"> <li>(24) months in General Surgery including rotating through general surgical sub-specialties, namely Colorectal, Upper GI, Hepatobiliary, Breast, Endocrine and Vascular;</li> </ul>	Final Examination
	Year 3		
<b>S T A G E  II</b>	Year 2	<ul style="list-style-type: none"> <li>(12) months of rotation in surgical specialties;</li> <li>four (4) postings of three (3) months each: two compulsory postings in Urology and Neurosurgery, and a further two postings in any of the following: Cardiothoracic Surgery or Critical Care Medicine, Plastic and Reconstructive Surgery, Paediatric Surgery.</li> </ul>	
<b>S T A G E  I</b>	Year 1	<ul style="list-style-type: none"> <li>General Surgery (6 months)</li> <li>Accident and Emergency (3 months)</li> <li>Orthopaedic Surgery or any surgery – related elective posting (3 months)</li> </ul>	Part I Examination (At the end of the first six months of Stage I)  Registration (Entrance Evaluation)

**Name of Programme :** Master of Neurosurgery  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Neurosurgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) per cent of the whole programme of study.

### **2. Entry Requirements**

- (a) The degree of Bachelor of Medicine and Bachelor of Surgery or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.
- (c) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (d) Pass the entrance assessment set by the Department

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not in English language shall be required to:

- (a) Obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an Internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (b) Obtain a band of 6 for the International English Language Testing System (IELTS) (Academic).

### **3. Duration of Study**

- (1) The minimum duration of study shall be four (4) years.
- (2) The maximum duration of study shall be seven (7) years.

### **4. Structure of Programme**

The programme of study comprises three phases as follows:

- (1) Phase I (Year 1):
  - (a) twelve (12) months of four (4) core subjects; and
  - (b) one (1) elective subject
- (2) Phase II (Year 2 & Year 3):
  - (a) twenty four (24) months of two (2) core subjects; and
  - (b) initiation of a research project
- (3) Phase III (Year 4):
  - (a) twelve (12) months of one (1) core subjects; and
  - (b) submission of a research report.

- (4) A candidate is required to keep a log book throughout his/her period of study to document tasks undertaken

List of programme core courses and programme elective courses are as below:

Year	Component	Code	Course	SLT
1	Core Programme	MSA7001	Research Methodology	72
		MSA7004	Basic Neuroscience	256
		MSA7005	Principles of Surgery	190
		MSA7006	Basic Neurosurgery	240
	Elective Programme	MSA7009	Neurology	157*
		MSA7010	Neurocritical care	157*
	<b>Jumlah SLT</b>			915

Year	Component	Code	Course	SLT
2	Core Programme	MSA7003	Ethics and Professionalism	66
		MSA7007	Intermediate Neurosurgery	522
	Research Project	MSA7002	Research Project	60
	<b>Jumlah SLT</b>			648

Year	Component	Code	Course	SLT
3	Core Programme	MSA7007	Intermediate Neurosurgery	522
	Research project	MSA7002	Research project	85
	<b>Jumlah SLT</b>			607

Year	Component	Code	Course	SLT
4	Core Programme	MSA7008	Advanced Neurosurgery	575
	Research project	MSA7002	Research Project	30
	<b>Jumlah SLT</b>			605

## 5. Registration

Registration for the programme of study shall commence the week prior to the start of the academic session.

## 6. Attendance

During the programme of study -

- (1) A candidate may be permitted to undertake part of his/her programme of study in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

## **7. Supervision**

- (1) The clinical supervisor for a candidate shall be appointed not later than two months after the registration of the candidate. The research supervisor shall be appointed subsequent to the candidate passing the Part I examination.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Research Project**

The research project for a candidate shall be proposed by the candidate in discussion with their supervisor not later than six (6) months after passing the Part I Examination. Research proposals must be vetted by the Department in the Faculty responsible for the candidate's programme of study.

## **9. Submission**

- (1) A candidate is required to submit his/her log book and end-of-posting reports every six (6) months for assessment by the Department in the Faculty responsible for the candidate's programme of study.
- (2) A candidate is required to submit his research report not later than three (3) months before the Final Examination.

## **10. Examination for the Degree**

- (1) The Examinations leading to the degree shall be as follows:
  - (a) the Part I Examination; and
  - (b) the Final Examination.
- (2) A candidate shall only be permitted to sit for the Part I Examination if the candidate has:
  - (a) Submitted satisfactory continuous assessment for each subject
  - (b) Submitted satisfactory supervisors report, operative competency report and operative log book.
- (3) A candidate shall only be permitted to sit for the Final Examination if the candidate has:
  - (a) Passed the Part I Examination
  - (b) Passed the clinical evaluation
  - (c) Submitted satisfactory continuous assessment for each subject
  - (d) Submitted satisfactory supervisors report, operative competency report and operative log book
  - (e) Submitted a research report that has been assessed as of sufficient standard not later than three (3) months before the Final Examination.
- (4) The Part I Examination shall be held at the end of Phase I of the programme of study. The Final Examination shall be held at the end of Phase III of the programme of study.
- (5) Examination Components and Allocation of Marks:
  - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks
A. Written		
Paper 1	Single Best Answer (SBA)	40%
Paper 2	Extended Matching Question (EMQ)	20%
B. Clinical	OSCE	<u>40%</u>
<b>Grand Total</b>		<b><u>100%</u></b>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to the various components of the Final Examination shall be as follows:

Component	Description	Allocation of Marks
A. Written	Single Best Answer (SBA)	30%
B. Clinical		
Long Case	One (1) case	30%
Short Case	Six (6) cases	20%
C. Viva-voce	Four (4) tables	<u>20%</u>
<b>Grand Total</b>		<b><u>100%</u></b>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the marks for each component of the Examination; and
- (ii) 50% or more of the aggregate combined marks of all the components.

(b) Final Examination

- (i) 50% or more of the marks for Component A; and
- (ii) 50% or more of the aggregate combined marks for Component B; (Candidate must pass 4 from the total of 6 short cases); and
- (iii) 50% or more of the aggregate combined marks for Component C.

Note: A candidate who obtains less than 50% of the marks in component A is not eligible to sit for component B and C.

(7) Repeating an Examination:

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six (6) monthly intervals.



- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
  - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (b) Final Re-Examination
- (i) The Final Re-examination will be held every six (6) months. There is no limit on the total attempts, as long as the candidate is still within the maximum duration of study which shall be seven (7) years from the first date of registration.
  - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination. However, a candidate who has passed Component A previously will not be required to re-sit this component for one subsequent Final Re-Examination. Should the candidate fail the one subsequent Final Re-Examinations, he will be required to re-sit Component A at the two subsequent Final Re-Examination.
  - (iii) After the maximum duration of study is over, the candidate is considered to have failed the Final Examination and shall not be permitted to repeat the programmes of study.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Neurosurgery unless he/she has successfully completed all parts of the course, completed the minimum duration of the study and has passed the prescribed Examinations.

### (1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (b) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (c) has not failed in any component of the prescribed Examination; and
- (d) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

### (2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Neurosurgery with Distinction if he/she –

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**Master of Neurosurgery  
Programme Schedule**

P H A S E  III	Year 4	<ul style="list-style-type: none"> <li>▪ Advanced neurosurgery</li> <li>▪ Submission of a research project</li> </ul>	Final Examination (At the end of Year 4)
	Year 3  Year 2	<ul style="list-style-type: none"> <li>▪ Intermediate neurosurgery</li> <li>▪ Ethics and professionalism</li> <li>▪ Initiation of a research project</li> </ul>	
	Year 1	<ul style="list-style-type: none"> <li>▪ Basic neurosurgery</li> <li>▪ Research methodology</li> <li>▪ Principles of surgery</li> <li>▪ Basic neuroscience</li> <li>▪ Neurology or Neurocritical care</li> </ul>	Part I Examination (At the end of the Year 1)  Registration (Entrance Evaluation)

**Name of Programme :** Master of Medical Education  
**Mod :** By Coursework  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Medical Education is a programme by coursework in which the credits for the research component comprises less than thirty (30) percent of the total credits for the whole programme of study. After completion of the relevant courses of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Education degree.

### **2. Entry Requirements**

- (1) The degree of Bachelor of Medicine and Bachelor of Surgery or an equivalent medical qualification approved by the Senate; or Entry qualifications
- (2) Bachelor degree in Allied Health or an equivalent medical qualification approved by the Senate; or
- (3) Bachelor degree with a CGPA not less than 3.00 and presents evidence of working experience in related field for a minimum period of 1 year; or
- (4) An equivalent qualification approved by the Senate from time to time.

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not the English language and where the applicant wishes to follow a programme shall be required:

- (1) To obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) To obtain a band of 6 for the International English Language Testing System (IELTS).

### **3. Duration of Study**

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters

### **4. Structure of Programme**

- (1) The Master of Medical Education programme by coursework comprises forty two (42) credits as follow:
  - (a) six (6) core courses, each of three (3) credits, totalling eighteen (18) credits;
  - (b) four (4) out of a total choices of six (6) elective courses, each of three (3) credits, totaling twelve (12) credits; and

- (c) a research project of twelve (12) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Medical Education are provided in List 1.

## **5. Registration**

- (1) Registration for the courses shall commence on the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least six (6) credit hours in any semester except;
  - (a) in the final semester of his/her programme of study where he may register for less than the number of credits stated above; or
  - (b) where the candidate has been permitted to withdraw from the semester concerned.

## **6. Supervision**

- (1) The supervisor for a candidate shall be appointed when the area of research is approved.
- (2) The co-supervisor and/or consultant may be appointed at any time when required.

## **7. Title of Research**

The area of research shall be determined before the candidate commences the research part of his/her programme of study.

## **8. Submission**

A candidate is required to submit his/her project report before the end of his maximum period of candidature.

## **9. Examination for the Degree**

- (1) The Examination leading to the degree of Master of Medical Medical Education by coursework shall consist of an examination or examinations in each of the courses prescribed for the Master of Medical Education degree programme as follows:
  - (a) six (6) core courses, each of three (3) credits, totalling eighteen (18) credits;
  - (b) four (4) out of a total choices of six (6) elective courses, each of three (3) credits, totaling twelve (12) credits; and
  - (c) a research project of twelve (12) credits.

(2) Examination Components and Allocation of Marks

(a) Taught Courses

- (i) The components of the courses and the marks to be allocated to the components of the courses prescribed for the Examination shall be as follow unless stated otherwise:

Component	Description	Allocation of Marks (Maximum)
(A)	Continuous Assessment	70%
(B)	End of Semester Examination	<u>30%</u>

Total 100%

This apply to the following courses:

MQE7001	Research Methodology in Medical Education
MQE7003	Curriculum Development
MQE7004	Teaching Methods in Medical Education
MQE7005	Concepts of Learning
MQE7006	Assessment and Evaluation
MQE7007	Management and Leadership in Medical Education
MQE7008	Clinical Teachers
MQE7009	Professionalism in Medical Education
MQE7010	Instructional Design and Educational Technology

- (ii) Research Project, Qualitative Research in Medical Education, Quantitative Research in Medical Education and Workplace-Based Learning

Continuous Assessment. 100%

This apply to the following courses:

MQE7002	Research Project (P)
MQE7011	Qualitative Research in Medical Education
MQE7012	Quantitative Research in Medical Education
MQE7013	Workplace-Based Learning

- (b) The Senate may on the recommendation of the Faculty, amend the allocation of marks for the components of a course for the Examination.

(a) Course Grade Requirements

Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.

## 10. Award of Degree

No candidate shall be recommended for the award of the degree of Master of Medical Education unless he/she has successfully completed all parts of the courses (six core courses, four elective courses and a research project) and passed all the prescribed Examination.

### List 1

Code	Title	Credits
<b>Core Courses</b>		
MQE 7001	Research Methodology in Medical Education	3
MQE 7002	Research Project (P)	12
MQE 7003	Curriculum Development	3
MQE 7004	Teaching Methods in Medical Education	3
MQE 7005	Concepts of Learning	3
MQE 7006	Assessment and Evaluation	3
MQE 7007	Management and Leadership in Medical Education	3
<b>Elective Courses</b>		
MQE 7008	Clinical Teachers	3
MQE 7009	Professionalism in Medical Education	3
MQE 7010	Instructional Design and Educational Technology	3
MQE 7011	Qualitative Research in Medical Education	3
MQE 7012	Quantitative Research in Medical Education	3
MQE 7013	Workplace-Based Learning	3
<b>Total</b>		<b>42</b>

#### ➤ MQE7001: Research Methodology in Medical Education (3 credits)

##### **Learning Outcomes**

At the end of this course, students are able to have:

1. Compare strengths and limitations of qualitative, quantitative and mixed-method design research in a collective effort.
2. Demonstrate skills in reviewing literature.
3. Generate problem statement, research objectives and conceptual framework based on literature review.
4. Develop appropriate research design and methodology to achieve research objectives in an ethical manner.

##### **Synopsis**

Students will explore qualitative, quantitative and mixed-method research in medical education. At the beginning, students will be introduced to conceptual framework of an education research. Then, students learn to construct a researchable problem in health care training institutes which leads to the conceptions of research objectives and questions. Next, for qualitative paradigm, students will discuss the qualitative inquiry, data collection techniques, reliability and validity and data analysis. For

quantitative paradigm, hypotheses, sampling, research designs, instruments, reliability and validity will be discussed. Students will be also introduced to mixed-method design research and its differences with quantitative and qualitative research. As the course progresses, students will in prepare and present a research proposal. Ethical issues on conducting a research will also be discussed.

### **Main Reference**

1. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). *How to design and evaluate research in education* (9th ed.). New York: McGraw Hill, Inc.
2. Creswell, J. W. (2014). *Educational research : Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Essex: Pearson Education Limited.

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination:30%

## **➤ MQE7002: Research Project (12 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Compose a research report (not exceeding 30,000 words) which includes (at least) a chapter on the introduction of the study, a chapter on literature review, a chapter on theoretical framework and conceptual framework for a study, a chapter on methodology, a chapter on original findings and discussions and a chapter on conclusions and implications of the study.
2. Cite sources appropriately in the students' research report.
3. Integrate latest research findings in the students' research reports.

### **Synopsis**

Students will practice as novice researchers and prepare themselves for future job prospects such as academicians, researchers and consultants in public, private, non-profit organisations or non-government organisations. Students will carry out steps in the process of research: identifying a research problem, reviewing the literature, specifying a purpose and research questions or hypotheses, collecting quantitative/qualitative data, analysing and interpreting quantitative/qualitative data, reporting and evaluating research. It requires commitments from both students and their supervisor.

### **Main Reference**

1. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). *How to design and evaluate research in education* (9th ed.). New York: McGraw Hill, Inc.
2. Creswell, J. W. (2014). *Educational research : Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Essex: Pearson Education Limited.

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

## ➤ MQE7003: Curriculum Development (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Explain the principles of curriculum development.
2. Analyse strengths and limitations in selected curriculum models.
3. Analyse existing curriculum structure in the students' institution without guidance from the instructors.
4. Report the development in the assessment for medical student.
5. Give examples of ethical activities which can be used to evaluate the academic programme at the students' institution.

### **Synopsis**

Students will explore fundamentals of an academic programme, which are the curriculum, assessment and evaluation. Firstly, students are exposed the principles of curriculum design. Subsequently, the course exposes students to curriculum theories and various models of curriculum development (e.g. Tyler model, Taba model, the product model; process model). Next, steps in developing a curriculum will be discussed (e.g. from need assessment to programme evaluation). Students are also exposed to the concept of spiral curriculum and intergrated curriculum. Secondly, students are introduced to principles of assessment and various assessment tools in terms of (but not limited to) reliability and validity. Lastly, students are introduced to programme evaluation for medical schools including internal and external evaluation. As the course progresses, students will analyse current curriculum, assessments and evaluation activities in their own healthcare training institutes. As the course progresses, ethical issues will be discussed

### **Main Reference**

1. Swanwick, T. (Eds.). (2014). *Understanding medical education: Evidence, theory and practice*. West Sussex: Wiley Blackwell.
2. Harden, R. M., & Laidlaw, J. M. (2012). *Essential skills for a medical teacher: an introduction to teaching and learning in medicine*. Edinburgh: Churchill Livingstone/Elsevier.
3. Amin, Z., & Khoo, H. E. (2009). *Basics in medical education* (2nd.). Hackensack, NJ: World Scientific

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

## ➤ MQE7004: Teaching Methods in Medical Education (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Present a micro teaching.
2. Apply effective teaching strategies to promote meaningful learning.
3. Discuss pedagogical content knowledge within workplace.
4. Describe implications of the quality of pedagogical approaches on the quality of future medical practitioners.

### **Synopsis**

Students will explore pedagogical content knowledge in medical education. Students will be introduced to various teaching strategies (including simulative teaching aids). Focus will be upon issues such as to



attract attentions from learners at the beginning of a teaching session (induction set), to promote meaningful learning (problem-based learning, inquiry-based learning and cooperative learning) during the teaching session, and to summary the learning outcomes at the end of the teaching session. Students learn to develop lesson plans by applying learning theories. As the course progresses, students will be involved hands-on activities such as microteaching. Students will receive recommendations from peers.

### **Main Reference**

1. Harden, R. M., & Laidlaw, J. M. (2012). *Essential skills for a medical teacher: an introduction to teaching and learning in medicine*. Edinburgh: Churchill Livingstone/Elsevier.
2. Bhuiyan, P. S., Rege, N. N., & Supe, A. (Eds.). (2015). *The art of teaching medical students*. New Delhi: Reed Elsevier India Pvt. Ltd.
3. Ramsden, P. (2003). *Learning to teaching in higher education*. (2nd.). London: Routledge Falmer.
4. Light, G., Cox, R., & Calkins, S. (2009). *Learning and teaching in higher education: The reflective professional*. (2nd.). London: SAGE.

### **Assessment Weightage**

Continuous Assessment: 70%  
Final Examination: 30%

## **➤ MQE7005: Concepts of Learning (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Relate the findings with theoretical framework of the study.
2. Discuss the development in the theory of learning.
3. Develop a small scale study to investigate learners' learning processes and/or outcomes by applying at least one learning theory as theoretical framework of the study.

### **Synopsis**

Students will explore various theories of learning (including but not limited to behaviourism, cognitivism, constructivism, neuroscience, multiple intelligence). Through discussing the development of learning theories, students will recognise their importance and applications in teaching and learning practices. As theories are abstract ideas, students will identify the applications in medical schools. As the course progresses, students will design a small scale study on real learners. The concept of theoretical framework of a study will be discussed. Theoretical framework is an essential element in an education research. Any intervention for students should be based on learning theories as to avoid using intuition.

### **Main Reference**

1. Driscoll, M. P. (2014). *Psychology of learning for instruction* (3rd ed.). Essex: Pearson Education Limited.
2. Sharan, B. M., Rosemary S. C., Raymond, J., & Wlodkowski, P. C. (2001). *Adult education and lifelong learning: Theory and practice*. New Jerseys: John Wiley & Sons

### **Assessment Weightage**

Continuous Assessment: 70%  
Final Examination: 30%

## ➤ MQE7006: Assessment and Evaluation (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Develop valid and reliable assessments.
2. Analyse validity and reliability of three selected assessment tools.
3. Evaluate an educational programme which has been published in a high impact journal.

### **Synopsis**

Students will explore theories of educational measurement and assessment. Students will learn the development, administration and marking of assessments, as well as analysing the validity and reliability of the assessments. Students will be exposed to philosophy and rationales of the “assessment for learning”. Next, students will learn to conceptualise relationships between program development and its program evaluation. Students will apply previous learnt knowledge and skills in developing an evaluation tool in order to evaluate an actual educational programme.

### **Main Reference**

1. Jackson, N., Jamieson, A., & Khan, A. (Eds.). (2007). *Assessment in medical education and training: A practical guide*. UK: Radcliffe Publishing.
2. Pangaro, L. N., & McGaghie, W. (Eds.). (2015). *ACE handbook on medical student evaluation and assessment*. US: Alliance for Clinical Education.
3. Mertens, D. M., & Wilson, A. T. (2012). *Program evaluation theory and practice: A comprehensive guide*. New York: The Guilford Press.

### **Assessment Weightage**

Continuous Assessment: 70%  
Final Examination: 30%

## ➤ MQE7007: Management and Leadership in Medical Education (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Discuss principles of management and leadership in the context of medical education.
2. Apply existing and emerging research-informed knowledge of educational leadership within workplace.
3. Analyse future directions in terms of quality assurance of medical students.
4. Discuss educational management and leadership theories within workplace.

### **Synopsis**

Students will explore the concept of educational management and leadership. Students will learn to develop critical understanding of organisation and approaches to promote changes in the organisation. Existing (for example but not limited to interprofessional education, community of practice) and emerging trends in medical curriculum will be discussed as to study how to decide on policies based on evidence. Lastly, students will analyse latest information in order to recommend quality assurance of healthcare training.

### **Main Reference**

1. Northouse, P. G. (2016). *Leadership: Theory and practice* (7th ed.). Los Angeles: SAGE.

2. Swanwick, T. (Eds.). (2014). *Understanding medical education: Evidence, theory, and practice* (2nd ed.). Chichester: Wiley Blackwell.
3. MacCarrick, G. (2013). *Quality assurance in medical education: A practical guide*. London: Springer.
4. Drucker, P. F. (2012). *The practice of management*. Oxford: Elsevier

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

### **➤ MQE7008: Clinical Teachers (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Present a micro teaching in the clinical setting.
2. Differentiate learners' needs in terms of acquisition of skills and knowledge between clinical and pre-clinical settings.
3. Discuss teaching strategies and aids for the clinical setting based on appropriate learning theories.
4. Discuss a learning-friendly environment including (but not limited to) learners-teachers' dynamics to promote the acquisition of skills and knowledge in clinical setting.

#### **Synopsis**

The course is designed for physicians who envision a career of education. Students will learn to develop the skills required to become clinical teachers and mentors for younger generations of physicians. To be able to engage in the course effectively, students are exposed to the significant role of professional values of clinical teachers. Next, students learn to differentiate needs of learners in terms of acquisition of skills and knowledge between clinical and pre-clinical settings. Students will learn to apply teaching strategies and aids in clinical setting based on appropriate learning theories. Lastly, students learn to supervise learners' acquisition of skills and knowledge in the clinical setting, as well as creating a learning-friendly environment.

#### **Main Reference**

1. Forrest, K., McKimm, J., & Edgar, S. (Eds.). (2013). *Essential simulation in clinical education*. West Sussex: Wiley Blackwell.
2. McAllister, L., Lincoln, M., McLeod, S & Maloney, D. (Eds.). (1997). *Facilitating learning in clinical settings*. UK: Nelson Thornes Ltd.

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

### **➤ MQE7009: Professionalism in Medical Education (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Evaluate methods employed to instil medical professionalism.
2. Evaluate methods to assess professionalism in medical context.
3. Discuss the definitions and elements of medical professionalism.

4. Produce a reflection on learner's own experiences of professionalism as a medical practitioner and educator.

### **Synopsis**

Students will explore the concepts of medical professionalisms. Students will learn the definitions and elements of medical professionalism. Students will learn to evaluate the methods employed to instill medical professionalism. Later, students will learn to evaluate the methods to assess professionalism in the medical context. Lastly, students will reflect on their own experiences of professionalism as a medical practitioner and educator.

### **Main Reference**

1. Levinson, W., Ginsburg, S., Hafferty, F. & Lucey, C. R. (2014). *Understanding medical professionalism*. New York: McGraw Hill Education.
2. Hafferty, F. W. & O'Donnell, J. F. (2014). *The hidden curriculum in health professional education*. Lebanon NH: University Press of New England.
3. Spandorfer, J. (Eds.). (2009). *Professionalism in medicine: A case-based guide for medical students*. New York: Cambridge University Press.
4. Parsi, K. & Sheehan, M. (Eds.). (2006). *Healing as vocation: A medical professionalism primer*. Lanham, MD: Rowman & Littlefield Publishers.
5. Cruess, R. L., Cruess, S. R. & Steinert, Y. (Eds.). (2008). *Teaching medical professionalism*. New York: Cambridge University Press.

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

## **➤ MQE7010: Instructional Design and Educational Technology (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Describe instructional design theories.
2. Demonstrate latest educational technologies using instructional design theories.
3. Explain implications of instructional design and education technology in medical education.
4. Critique a lesson plan based on concepts of instructional design.

### **Synopsis**

Students will learn concepts of instructional design and applications of latest educational technologies (for instance, but not limited to learning management system, e-learning, smart devices and social networks) in teaching and learning of medical education. As students have acquired the concepts, they apply and design instructional strategies and materials.

### **Main Reference**

1. Morrisson, G. R., Ross, S. M., Kemp, J. E., & Kalman, H. (2011). *Designing effective instruction*. (6th ed.). New Jersey: John Wiley & Sons.
2. Kyei-Blankson, L., & Ntuli, E. (Eds.). (2014). *Practical applications and experiences in K-20 blended learning environments*. Pennsylvania: IGL Global.
3. Rhoads, R. A. (2015). *MOOCs, high technology, and higher learning*. Maryland: Johns Hopkins University Press.

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

## ➤ MQE7011: Qualitative Research in Medical Education (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Relate findings with theoretical framework and conceptual framework of the qualitative study.
2. Write qualitative findings and discussions for academic papers.
3. Demonstrate skills in analysing qualitative data.

### **Synopsis**

Students will learn advanced research skills after they have acquired basic knowledge and skills in research. The course is recommended for students who wish to conduct qualitative research for their research projects. Students will collect authentic/actual data in the learning of analysing and interpreting qualitative data. Next, students will learn to relate findings of their studies with theoretical framework and conceptual framework. Lastly, students will practice to write findings and discussions for academic papers. As the course progresses, students will be encouraged to apply knowledge and skills learnt on their research projects.

### **Main Reference**

1. Patton, M. P. (2015). *Qualitative Research & Evaluation Methods*. (4th ed.). Thousand Oaks, Calif: Sage Publications.
2. Merriam, S. B. (2016). *Qualitative research: a guide to design and implementation*. San Francisco: Jossey-Bass.
3. Creswell, J. W. (2014). *Educational research : Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Essex: Pearson Education Limited.

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

## MQE7012: Quantitative Research in Medical Education (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Relate findings with theoretical framework and conceptual framework of the quantitative study.
2. Write quantitative findings and discussions for academic papers.
3. Demonstrate skills in analysing quantitative data.

### **Synopsis**

Students will learn advanced research skills after they have acquired basic knowledge and skills in research. The course is recommended for students who wish to conduct quantitative research for their research projects. Authentic/actual data will be used in the teaching of analysing and interpreting quantitative data, both univariate and multivariate data and in terms of descriptive and inferential analyses. Parametric and non-parametric tests will be introduced, for example but not limited to, normality tests (e.g. Kolmogorov-Smirnov), correlations (e.g. Pearson, Spearman), comparing means (e.g. t-tests, ANOVA, Mann-Whitney U, Kruskal-Wallis), regression (e.g. linear regression, logistic regression) and categorical data (e.g. chi-square). Next, students will learn to relate findings of their studies with theoretical framework and conceptual framework. Lastly, students will practice to write

findings and discussions for academic papers. As the course progresses, students will be encouraged to apply knowledge and skills learnt on their research projects.

### **Main Reference**

1. Creswell, J. W. (2014). *Educational research : Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Essex: Pearson Education Limited.
2. Field, A. P. (2012). *Discovering statistics using IBM SPSS Statistics*. (4th ed.). London: Sage Publications Ltd.
3. Muijs, D. (2011). *Doing quantitative research in education with SPSS*. (2nd ed.). London: Sage Publications Ltd.

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

## **➤ MQE7013: Workplace-Based Learning (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Identify the tasks performed by medical educationists in the workplace.
2. Reproduce selected tasks performed by the medical educationists in the workplace.
3. Write report/s to reflect on the tasks performed, lessons learned and future plans.

### **Synopsis**

All students are encouraged to take this course as to gain workplace experience. Students will be placed at a selected medical education office/centre/department/unit. In rotations, a student will be attached to an academic and/or administrative officer to observe the routine and specific tasks. Students are required to identify the tasks performed by medical educationists in the workplace and have opportunities to reproduce these tasks whenever applicable. Examples (but not limited to) include curriculum review meetings, blueprinting an assessment, analysing and reporting evaluation of teaching and learning sessions. Students will document their observations and reflections (i.e., tasks performed, lessons learned and future plans) for their continuing professional development.

### **Main Reference**

1. Peters, J K., & Weusberg, M. (2011). *A teacher's reflection book: exercises, stories and invitations*. North Carolina: Carolina Academic Press.
2. Dent, A. A., & Harden, R. M. (Eds.) (2013). *A practical guide for medical teachers* (4th.). China, Elsevier.
3. Harden, R. M., & Crosby, J. (2000). AMEE Guide No. 20: The good teacher is more than a lecturer - The twelve roles of the teacher. *Medical Teacher*, 22(4), 334-347

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

### Master of Medical Education Programme Schedule

Special Semester	<ul style="list-style-type: none"> <li>▪ A research project of six (6) credits.</li> </ul>	Examination
Semester II	<ul style="list-style-type: none"> <li>▪ A research project of six (6) credits.</li> <li>▪ Three (3) core courses, each of three (3) credit hours, totalling nine (9) credits; and</li> <li>▪ Three (3) elective courses, each of three (3) credits, totalling nine (9) credits.</li> </ul>	(i) End of Semester II
Semester I	<ul style="list-style-type: none"> <li>▪ Three (3) core courses, each of three (3) credit hours, totalling nine (9) credits and</li> <li>▪ Three (3) elective courses, each of three (3) credits, totalling nine (9) credits.</li> </ul>	(ii) End of Semester I
		Registration (Admission Evaluation)

**Name of Programme :** Master of Medical Physics  
**Mode :** By Coursework  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Medical Physics is a programme by coursework. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Physics degree.

### **2. Entry Requirements**

- (1) Bachelor's Degree in physical or engineering sciences with a Cumulative Grade Average (CGPA) of at least 3.00 or its equivalent;  
  
or
- (2) Bachelor's Degree in physical or engineering sciences with a Cumulative Grade Average (CGPA) of at least 2.50 or its equivalent and at least five (5) years of relevant field experience;  
  
or
- (3) Equivalent qualification approved by the Senate from time to time.

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not the English language and where the applicant wishes to follow a programme shall be required:

- (1) To obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) To obtain a band of 6 for the International English Language Testing System (IELTS).

### **3. Duration of Study**

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters.

### **4. Structure of Programme**

- (1) The Master of Medical Physics programme by coursework comprises of forty-two (42) credits namely.
  - (a) two (2) core courses, each of four (4) credits, totalling eight (8) credits;



- (b) five (5) core courses, each of three (3) credits, totaling fifteen (15) credits; and;
  - (c) two (2) elective courses, each of two (2) credits, totaling four (4) credits; and
  - (d) a medical physics research project of fifteen (15) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
  - (4) The lists of courses for the programme of Master of Medical Physics are provided in List 1.

## **5. Registration**

- (1) Registration for the courses shall commence the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least six (6) credits in any semester except -
  - (a) in the final semester of his/her programme of study where he/she may register for less than the number of credits stated above; or
  - (b) where the candidate has been permitted to withdraw from the semester concerned.
- (3) A candidate may only register for medical physics research project after he/she has obtained at least ten (10) credits in the core courses.

## **6. Supervision**

- (1) The supervisor for a candidate shall be appointed when the area of research is approved.
- (2) The co-supervisor and/or consultant may be appointed at any time when required.

## **7. Title of Research**

The area of research shall be determined before the candidate commences the research part of his/her programme of study.

## **8. Submission**

A candidate is required to submit his/her project report before the end of his/her maximum period of candidature.

## **9. Examination for the Degree**

- (1) The Examination leading to the degree of Master of Medical Physics by coursework shall consist of an examination or examinations in each of the courses prescribed for the Master of Medical Physics degree programme as follows:
  - (a) two (2) core courses, each of four (4) credits, totalling eight (8) credits;

- (b) five (5) core courses, each of three (3) credits, totaling fifteen (15) credits; and
- (c) two (2) elective courses, each of two (2) credits, totaling four (4) credits; and
- (d) a medical physics research project of fifteen (15) credits.

(2) Examination Components and Allocation of Marks

(a) Taught Courses

- (i) The components of the courses and the marks to be allocated to the components of the courses prescribed for the Examination shall be:

Component	Description	Allocation of Marks (Maximum)
(A)	End of Semester Examination	40%
(B)	Continuous Assessment	<u>60%</u>
	Total	100%

This apply to the following courses:

MQA7003	Anatomy and Physiology
MQA7005	Applied Radiation Physics and Dosimetry
MQA7006	Radiobiology and Radiation Protection
MQA7007	Medical Imaging and Nuclear Medicine
MQA7008	Radiotherapy Physics

Component	Description	Allocation of Marks (Maximum)
(A)	End of Semester Examination	30%
(B)	Continuous Assessment	<u>70%</u>
	Total	100%

This apply to the following course:

MQA 7002	Medical Physics Research Project
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Component	Description	Allocation of Marks (Maximum)
(A)	Continuous Assessment	<u>100%</u>
	Total	100%

100%

This apply to the following courses:

MQA7001	Research Methodology
MQA7004	Computing and Medical Informatics
MQA7009	Introduction to Practicum in Medical Imaging
MQA7010	Introduction to Practicum in Nuclear Medicine
MQA7011	Pengenalan kepada Practicum in Radiotherapy

- (b) The Senate may on the recommendation of the Faculty, amend the allocation of marks for the components of a course for the Examination.

(3) Course Grade Requirements

Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.

**10. Award of Degree**

No candidate shall be recommended for the award of the degree of Master of Medical Physics unless he/she has successfully completed all parts of the course and passed all the prescribed examination.

**List 1**

Code	Title	Credits
MQA7001	Research Methodology	3
MQA7003	Anatomy and Physiology	4
MQA7004	Computing and Medical Informatics	3
MQA7005	Applied Radiation Physics and Dosimetry	3
MQA7006	Radiobiology and Radiation Protection	3
MQA7007	Medical Imaging and Nuclear Medicine	4
MQA7008	Radiotherapy Physics	3
MQA7009*	Introduction to Practicum in Medical Imaging	2
MQA7010*	Introduction to Practicum in Nuclear Medicine	2
MQA7011*	Pengenalan kepada Practicum in Radiotherapy	2
MQA7002	Medical Physics Research Project	15
<b>Total</b>		<b>42</b>

\* Select 2 of the 3 courses

## ➤ **MQA7001: Research Methodology (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to have:

1. Defend a research proposal.
2. Develop a sound research methodology.
3. Identify the appropriate statistical analysis for different data scale

### **Synopsis**

Knowledge of research planning related to medical physics as well as the necessary statistical methods.

### **Main Reference**

1. Greenhalgh T. How to Read a Paper: The Basics of Evidence-Based Medicine. 5th ed. Wiley: 2014.
2. Dawson B & Trapp RG. Basic and Clinical Biostatistics. 5th ed. McGraw-Hill Medical: 2017.
3. Field A. Discovering Statistics Using IBM SPSS Statistics. 4th ed. SAGE Publications: 2013.
4. Peh WCG & Ng KH. Effective Medical Writing. University of Malaya Press: 2016.
5. University of Malaya Guidelines for the Preparation of Research Reports, Dissertations & Thesis, 2015.

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

## ➤ **MQA7002: Medical Physics Research Project (15 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Implement a substantial research-based project
2. Interpret data and research findings
3. Report research findings in written and verbal forms

### **Synopsis**

A research project in the field of medical physics and related fields.

### **Main Reference**

1. Peh WCG & Ng KH, Effective Medical Writing, University of Malaya Press, 2016.
2. Terrell SR, Writing a Proposal for Your Dissertation: Guidelines and Examples. The Guildford Press: 2016.
3. University of Malaya Guidelines for the Preparation of Research Reports, Dissertations & Theses. 2015.
4. Fisher E & Thomson R. Enjoy Writing Your Science Thesis or Dissertation! 2<sup>nd</sup> ed. Imperial College Press: 2014.
5. Marder MP, Research Methods for Science. Cambridge University Press: 2014.

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

### ➤ **MQA7003: Anatomy and Physiology (4 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Determine the anatomical structures in radiological images.
2. Combine the human anatomy and related physiology functions.
3. Form an effective communication with medical practitioners.

#### **Synopsis**

Anatomical and functional knowledge of the human body

#### **Main Reference**

1. Weir J, Abrahams PH, et al, Imaging Atlas of Human Anatomy. 5th ed. Elsevier: 2017.
2. Marieb EN, Hoehn K, Human Anatomy & Physiology. 10th ed. Pearson: 2016.
3. Patton KT, Thibodeau GA, Anatomy and Physiology. 9th ed. Elsevier: 2016.
4. Fleckenstein P, Tranum-Jensen J, Anatomy in Diagnostic Imaging. 3rd ed. Wiley-Backwell: 2014.
5. Ryan S, McNicholas M, Eustace S, Anatomy for Diagnostic Imaging. 3rd ed. Elsevier: 2011.

#### **Assessment Weightage**

Continuous Assessment: 60%  
Final Examination: 40%

### ➤ **MQA7004: Computing and Medical Informatics (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Identify terminology, organization, representation, and operations of a computer system
2. Identify terminology, organization, protocols and standards used in medical informatics
3. Solve biomedical related problems using computer programming, signal processing, image processing and artificial intelligence techniques.

#### **Synopsis**

Computer programming, signal and image processing, medical informatics.

#### **Main Reference**

1. Hahn B, Valentine DT, Essential MATLAB for Engineers and Scientists, 6<sup>th</sup> ed. Academic Press: 2017.
2. Ingle VK, Proakis JG. Digital Signal Processing Using MATLAB, 4<sup>th</sup> ed. Cengage Learning: 2017.
3. Lubliner DJ, Biomedical Informatics: An Introduction to Information Systems and Software in Medicine and Health. CRC Press. 2016.
4. Shortliffe HE, Cimino JJ (ed.), Biomedical Informatics: Computer Applications in Health Care and Biomedicine, 4<sup>th</sup> ed. Springer: 2014.
5. Gonzalez RC, Woods RE, Digital Image Processing, 4<sup>th</sup> ed. Pearson: 2014.

#### **Assessment Weightage**

Continuous Assessment: 100%  
Final Examination: -

➤ **MQA7005: Applied Radiation Physics and Dosimetry (3 credits)**

**Learning Outcomes**

At the end of this course, students are able to:

1. Interpret the principles of radiation physics, radioactivity, and interaction of radiation with matter.
2. Integrate the principles, quantities and units of radiation dosimetry.
3. Correlate radiation dose measurement findings to dose for staff or patients in hospitals.

**Synopsis**

Knowledge of the physical principle behind the use of radiation in the field of diagnostic and therapeutic medicine.

**Main Reference**

1. Cerritto L, Radiation and Detectors: Introduction to the Physics of Radiation and Detection Devices. Springer: 2017.
2. Attix FH, et al, Fundamentals of Ionizing Radiation Dosimetry, 2<sup>nd</sup> ed. Wiley: 2017.
3. Podgorsak EB, Radiation Physics for Medical Physicists, 3<sup>rd</sup> ed. Springer: 2016.
4. Tsoulfanidis N, Landsberger N, Measurement and Detection of Radiation, 4<sup>th</sup> ed. CRC Press: 2015.
5. DeWerd LA, Kissick M (ed.), The Phantoms of Medical and Health Physics: Devices for Research and Development. Springer: 2014.

**Assessment Weightage**

Continuous Assessment: 60%  
Final Examination: 40%

➤ **MQA7006: Radiobiology and Radiation Protection (3 credits)**

**Learning Outcomes**

At the end of this course, students are able to:

1. To explain the radiobiological concepts and processes involved in the interaction of ionizing and non-ionizing radiation with living matter.
2. To identify the principles behind various radiation protection recommendations.
3. To practice radiation protection in hospitals..

**Synopsis**

Knowledge in biological changes and damage due to radiation, applications and practice of radiation protection..

**Main Reference**

1. Johnson TE, Introduction to Health Physics, 5<sup>th</sup> ed. McGraw Hill: 2017.
2. Sherer MAS, et al, Radiation Protection in Medical Radiography, 7<sup>th</sup> ed. Elsevier: 2014.
3. Chang DS, et al., Basic Radiotherapy Physics and Biology. Springer: 2014.
4. Martin JE, Physics for Radiation Protection, 3<sup>rd</sup> ed. Wiley: 2013.
5. Hall EJ, Giaccia AJ, Radiobiology for the Radiologist, 7<sup>th</sup> ed. Lippincott Williams & Wilkins: 2012

**Assessment Weightage**

Continuous Assessment: 60%  
Final Examination: 40%

## ➤ MQA7007: Medical Imaging and Nuclear Medicine (4 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. Explain the concepts and principles of medical imaging and nuclear medicine.
2. Relate the theoretical basis with the clinical practice of medical imaging and nuclear medicine.
3. Interpret the results of basic quality assurance procedures for the general diagnostic and therapeutic modalities in medical imaging and nuclear medicine.

### **Synopsis**

Provides understanding of radiation and its use in imaging and nuclear medicine related to medical physics.

### **Main Reference**

1. Huda W, Review of Radiologic Physics, 4<sup>th</sup> ed. Wolters Kluwer: 2016.
2. DR Dance, S Chritofides, ADA Maidment, ID McLean, KH Ng. Diagnostic Radiology Physics: A Handbook for Teachers and Students. International Atomic Energy Agency: 2014.
3. Pryma DA, Nuclear Medicine: Practical Physics, Artifacts and Pitfalls, Oxford: 2014.
4. Bushberg JT, Seibert JA, Leidholdt EM, Boone JM. The Essential Physics of Medical Imaging. Lippincott Williams & Wilkins: 2012
5. Flower MA (ed.), Webb's Physics of Medical Imaging, CRC Press: 2012.

### **Assessment Weightage**

Continuous Assessment: 60%  
Final Examination: 40%

## ➤ MQA7008: Radiotherapy Physics (3 credits)

### **Learning Outcomes**

At the end of this course, students are able to:

1. To apply the basic concepts and principles of radiotherapy physics.
2. To describe the theoretical basis needed for the clinical practice of medical physics in radiotherapy.
3. To discuss the need for and principles of quality control of equipment in radiotherapy..

### **Synopsis**

Provides understanding of radiation and its use in radiotherapy related to medical physics.

### **Main Reference**

1. Pawlicki et al., Hendee's Radiation Therapy Physics, 4<sup>th</sup> ed. Wiley Blackwell: 2016.
2. Dieterich S, et al., Practical Radiation Oncology Physics. Elsevier: 2016.
3. Khan FM, Gibbons JP, The Physics of Radiation Therapy, 5<sup>th</sup> ed. Wolters Kluwer: 2014.
4. Sibtain A, et al. (ed.), Physics for Clinical Oncology. Oxford: 2014.
5. Marcu L, Bezak E, Allen B, Biomedical Physics in Radiotherapy for Cancer. 2012

### **Assessment Weightage**

Continuous Assessment: 60%  
Final Examination: 40%

## ➤ **MQA7009: Introduction to Practicum in Medical Imaging (2 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. To identify hazards in workplace that may pose a danger or threat to their safety of health, or that of others.
2. To apply theoretical principles of medical imaging physics into clinical practice.
3. Interpret the results of quality assurance procedures for the medical imaging modalities.

### **Synopsis**

Applications in medical imaging physics, quality assurance for medical imaging and safety in workplace.

### **Main Reference**

1. Huda W, Review of Radiologic Physics, 4<sup>th</sup> ed. Wolsters Kluwer: 2016.
2. IAEA Diagnostic Radiology Physics. A Handbook for Teachers and Students. 2014
3. Analoui M, et al. (ed.), Medical Imaging: Principles and Practices. CRC Press: 2013.
4. Bushberg JT, Seibert JA, Leidholdt EM, Boone JM. The Essential Physics of Medical Imaging. 2012
5. Flower MA, Webb S (ed.). Webb's Physics of Medical Imaging. 2012

### **Assessment Weightage**

Continuous Assessment: 100%  
Final Examination: -

## ➤ **MQA7010: Introduction to Practicum in Nuclear Medicine (2 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. To identify hazards in workplace that may pose a danger or threat to their safety of health, or that of others.
2. To apply theoretical principles of nuclear medicine physics into clinical practice.
3. Interpret the results of quality assurance procedures for the nuclear medicine modalities.

### **Synopsis**

Applications in nuclear medicine physics, quality assurance for nuclear medicine and safety in workplace.

### **Main Reference**

1. Kristen MW, David G. Nuclear medicine and PET/CT: Technology and Techniques. 8<sup>th</sup> Edition. Elsevier: 2017.
2. Bailey DL, Humm JL, Todd-Pokropek A, van Aswegen A. Nuclear medicine physics: A handbook for teachers and students. International Atomic Energy Agency: 2014.
3. Brahme A (ed.), Comprehensive Biomedical Physics: Vol 1 Nuclear Medicine and Molecular Imaging. Elsevier: 2014.
4. Pryma DA, Nuclear Medicine: Practical Physics, Artifacts and Pitfalls, Oxford: 2014.
5. Cherry SR, Sorenson JA, Phelps ME. Physics in Nuclear Medicine. 4<sup>th</sup> Edition. Philadelphia: Saunders: 2012.

### **Assessment Weightage**

Continuous Assessment: 100%



Final Examination: -

➤ **MQA7011: Pengenalan kepada Practicum in Radiotherapy (2 credits)**

***Learning Outcomes***

At the end of this course, students are able to:

1. To identify hazards in workplace that may pose a danger or threat to their safety of health, or that of others.
2. To apply theoretical principles of radiotherapy physics into clinical practice.
3. Interpret the results of quality assurance procedures for the radiotherapy modalities.

***Synopsis***

Applications in radiotherapy physics, quality assurance for radiotherapy and safety in workplace.

***Main Reference***

1. Pawlicki et al., Hendee's Radiation Therapy Physics, 4<sup>th</sup> ed. Wiley Blackwell: 2016.
2. Dieterich S, et al., Practical Radiation Oncology Physics. Elsevier: 2016.
3. Khan FM, Gibbons JP, The Physics of Radiation Therapy, 5<sup>th</sup> ed. Wolters Kluwer: 2014.
4. Sibtain A, et al. (ed.), Physics for Clinical Oncology. Oxford: 2014.
5. Marcu L, Bezak E, Allen B, Biomedical Physics in Radiotherapy for Cancer. 2012.

***Assessment Weightage***

Continuous Assessment: 100%

Final Examination: -

### Master of Medical Physics Programme Schedule

Special semester	<ul style="list-style-type: none"> <li>▪ A medical physics research project of eight (8) credits.</li> </ul>	Examination
Semester II	<ul style="list-style-type: none"> <li>▪ One (1) core course, each of four (4) credits, totalling four (4) credits.</li> <li>▪ One (1) core course, each of three (3) credits, totalling three (3) credits.</li> <li>▪ A medical physics research project of seven (7) credits. A candidate may only register for medical physics research project after he has obtained at least ten (10) credits in the core courses; and</li> <li>▪ Two (2) elective courses, each of two (2) credits, totalling four (4) credits.</li> </ul>	(i) End of Semester I (ii) End of Semester II
Semester 1	<ul style="list-style-type: none"> <li>▪ four (4) core courses, each of three (3) credits, totalling twelve(12) credits.</li> <li>▪ One (1) core course, each of four (4) credits</li> </ul>	Registration (Admission Evaluation)

**Name of Programme :** Master of Nursing Science  
**Mode :** By Coursework  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Nursing Science programme is a coursework programme in which the credits for the research component comprises less than thirty (30) percent of the whole programme of study.

### **2. Entry Requirements**

- (1) A Bachelor's degree in Nursing Science with a CGPA 3.0 and above or an equivalent qualification approved by the Senate; and
- (2) Registered with the Malaysian Nursing Board and possess current practising license; and
- (3) Possess a post basic course in clinical speciality which the duration of study should not be less than 6 months, or
- (4) At least two years working experience in the relevant field.

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not the English language and where the applicant wishes to follow a programme shall be required:

- (1) To obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) To obtain a band of 6 for the International English Language Testing System (IELTS).

### **3. Duration of Study**

- (1) The minimum duration of study shall be four (4) semesters.
- (2) The maximum duration of study shall be eight (8) semesters.

### **4. Structure of Programme**

- (1) The Master of Nursing Science programme comprises of 42 credits.
- (2) The core courses identified are as follows:
  - (a) Six (6) core courses each of three (3) credits, totalling eighteen (18) credits;
  - (b) One (1) core course of two (2) credits;
  - (c) Practicum in Nursing of ten (10) credits;
  - (d) Nursing Research Project I and II totalling nine (9) credits; and
  - (e) One (1) elective course each of three (3) credits.

- (3) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (4) The list of courses for the programme of Master of Nursing Science is provided in List 1.

## **5. Registration**

- (1) Registration for the courses commence the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least two (2) credits in any semester.
- (3) A candidate may only register for Nursing Research Project I after he/she has passed MQD7001, MQD7004, MQD7005 and MQD7006.
- (4) A candidate may only register for Nursing Research Project II after he/she has passed Nursing Research Project I.

## **6. Supervision**

- (1) The Faculty shall appoint at least one supervisor for each candidate for the research component. Supervisors for each candidate shall be appointed after the area of research is approved.
- (2) The co-supervisor and/or consultant shall be appointed when required.

## **7. Title of Research**

The area of research shall be determined before the candidate commences the research part of his/her programme of study.

## **8. Submission**

A candidate is required to submit his/her Nursing Research Project II report before the end of his/her maximum period of candidature.

## **9. Examinations for the Degree**

- (1) The examination leading to the degree of Master of Nursing Science programme shall consist of an examination or examinations in each of the courses prescribed for the Master of Nursing Science degree programme as follows:
  - (a) six (6) core courses each of three (3) credits, totalling eighteen (18) credits;
  - (b) One (1) core course of two (2) credits;
  - (c) Practicum in Nursing of ten (10) credits;
  - (d) Nursing Research Project I and II totalling nine (9) credits; and
  - (e) One (1) elective course each of three (3) credits.
- (2) Examination Components and Allocation of Marks
  - (a) Core courses and elective courses:

Subject		Allocation of Marks (Maximum)
(i)	Continuous Assessment	30% - 40%
(ii)	End of Semester Examination	60% - 70%
	Total	100%
(b)	Nursing Research Project I & II and Nursing Practicum	
(i)	Continuous assessment – 100%	
(3)	Course Grade Requirements	
Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.		

## 10. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Nursing Science unless he/she has completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

**List 1**

CODE	TITLE	CREDITS
MQD7001	Research Methodology in Nursing	3
MQD7002	Nursing Research Project I	3
MQD7003	Nursing Research Project II	6
MQD7004	Qualitative Methods in Nursing Research	3
MQD7005	Medical Statistics	3
MQD7006	Statistical Computing	2
MQD7007	Health Assessment	3
MQD7008	Issues & Trends in Nursing And Health Care	3
MQD7009	Health Promotion	3
MQD7010	Nursing Practicum	10
MQD7011	Reflection in Nursing Practice*	3
MQD7012	Principle and Methods of Epidemiology*	3
*Choose only ONE TOTAL		42
Note: 1. The minimum passing grade is B. 2. A candidate must pass MQD7001, MQD7004, MQD7005 and MQD7006 before registering for MQD7002. 3. A candidate must also pass MQD7002 before registering for MQD7003.		

## ➤ **MQD7001: Research Methodology in Nursing**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Differentiate quantitative research process and the importance of quantitative research in nursing
2. Compare different quantitative research designs
3. Plan appropriate sampling, data collection and analyses methods according to research questions.
4. Critique research studies for evidence based practice.

### **Synopsis**

In this course, the student will learn the definition of quantitative research, literature review, and research method, collection of data and analysis of quantitative research reports. This course will provide an overview on the quantitative research methodology in nursing. Practical reviews / critical analyses of quantitative research studies from international journals will be carried out by students.

### **Main Reference**

1. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7<sup>th</sup> edit. Saunders. USA
2. Moule, P & Jek G (2011) Making sense of research . 4<sup>th</sup> edit. Learning matters .Sage
3. Polit, D.F., & Beck, C.T. (2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9<sup>th</sup> Edit. Philadelphia, Lippincott
4. Plichta, S.B. & Garson, L.S. (2013) Statistic for Nursing and Allied Health Lippincott . Philadelphia
5. Williamson G.R & Whittaker A. (2011) Succeeding in research project plans and literature reviews for nursing students. Learning Matters. Great Britain

### **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%

## ➤ **MQD7002: Nursing Research Project I**

### **Learning Outcomes**

At the end of this course, the students are able to:

1. Critique literature
2. Develop one nursing research proposal in nursing specialty
3. Present the research proposal
4. Discuss the proposal during the presentation
5. Manage application process for ethical approval to ensure the research is undertaken ethically.

### **Synopsis**

In this course, student is required to prepare one nursing research proposal. The research topics can be in any one of the nursing clinical specialty which will be beneficial to the nursing profession. The student has to present her research proposal and submit for ethical approval.

### **Main Reference**

1. Creswell, J.W. (2018) Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 8<sup>th</sup> edition. Sage. Thousand Oaks.
2. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7<sup>th</sup> edit. Saunders. USA

3. Polit, D.F., & Beck, C.T. (2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9<sup>th</sup> Edit. Philadelphia, Lippincott.
4. Parahoo, K (2014) nursing research: [principles, process and issues. 3<sup>rd</sup> edit New York. Macmillan.
5. Watson, R., McKenna, H., Cowman, S. & Keady, J. (2008) Nursing research: Designs and Methods. Edinburgh. Livingstone.

### **Assessment Method**

Continuous Assessment: 100%

#### **➤ MQD7003: Nursing Research Project II**

### **Learning Outcomes**

At the end of the course, the students are able to:

1. Conduct one nursing research project in nursing education, management or clinical .
2. Analyse research data.
3. Produce a research project paper and a manuscript .
4. Disseminate the research findings.
5. Produce a manuscript for publication.

### **Synopsis**

In this course, student is required to carry out one nursing research project. The research can be carried out in any one of the nursing specialty. The specialties can be on nursing education, management or clinical practice. The student is encouraged to carry out a research which will be beneficial to the nursing profession. The findings of the research must be written as a research report and manuscript .

### **Main Reference**

1. Creswell, J.W. (2018) Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 5<sup>th</sup> edition. Sage. Thousand Oaks.
2. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7<sup>th</sup> edit. Saunders. USA
3. Polit, D.F., & Beck, C.T. (2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9<sup>th</sup> Edit. Philadelphia, Lippincott.
4. Parahoo, K (2014) Nursing research: [principles, process and issues. 3<sup>rd</sup> edit New York. Macmillan.
5. Watson, R., McKenna, H., Cowman, S. & Keady, J. (2008) Nursing research: Designs and Methods. Edinburgh. Livingstone.

### **Assessment Method**

Continuous assessment: 100%

#### **➤ MQD7004: Qualitative Methods in Nursing Research**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Differentiate qualitative and quantitative research
2. Compare different qualitative research design
3. Analyze ethical issues in qualitative research
4. Plan qualitative data collection and qualitative data analysis
5. Critique qualitative research study

## **Synopsis**

This course will focused on several qualitative approaches in health / nursing research. Topics will include various methodologies of quality research approaches and strategies related to qualitative data collection and data analysis. Common and current qualitative research which is applicable to nursing such as social critical theory, ethnography, feminist theory, grounded theory, phenomenological approaches and post-structuralism will be explored. Students will be expected to collect and analyse data qualitatively.

## **Main Reference**

1. Creswell, J.W. (2018) Qualitative inquiry & research design: Choosing among five approaches. 5<sup>th</sup> edition Sage. Thousand Oaks.
2. Miles MB, Huberman AM, Saldaña JM (2019) Qualitative Data Analysis: A Methods Sourcebook. 4<sup>th</sup> edit. Sage. Thousand Oaks
3. Patton, MQ (2014) Qualitative research & evaluation methods: Integrating theory and practice . 4<sup>th</sup> edit Sage. Thousand Oaks
4. Polit DF & Beck CT (2017) Essentials of Nursing Research . 9<sup>th</sup> edit. Lippincott Philadelphia
5. Streubert HJ & Carpenter DR (2011) Qualitative Research in Nursing . 5<sup>th</sup> edition Lippincott. Philadelphia

## **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%

## **➤ MQD7005: Medical Statistics**

## **Learning Outcomes**

At the end of this course, students are able to:

1. Explain the various statistical methods used in medical practice.
2. Determine the appropriate statistical method in medical practice.
3. Interpret the analysis of finding.

## **Synopsis**

This course will cover basic statistical techniques that are important for analysing data arising from nursing research. Major topics include descriptive statistics, elements of probability, introduction to estimation and hypothesis testing, nonparametric methods, analysis of variance, and elements of study design. The concept and applications of statistical methods are stressed. At the end of the course, the students will also have the knowledge of the need for non-parametric statistical techniques as alternatives to parametric methods; acquired skills in their practical implementation and have an understanding of the underlying theory.

## **Main Reference**

1. Der, G., & Everitt, B. S. (2012). Applied medical statistics using SAS: CRC Press.
2. Fowler, J., Jarvis, P., & Chevannes, M. (2013). Practical statistics for nursing and health care: John Wiley & Sons.
3. Heavey, E. (2014). Statistics for nursing: A practical approach: Jones & Bartlett Publishers.
4. Kim, M., & Mallory, C. (2013). Statistics for evidence-based practice in nursing: Jones & Bartlett Publishers.
5. Petrie, A., & Sabin, C. (2013). Medical statistics at a glance: John Wiley & Sons.

## **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%



## ➤ MQD7006: Statistical Computing

### **Learning Outcomes**

At the end of this course, students will be able to :

1. Construct a data file using data sets.
2. Use appropriate statistical methods to analyse the distribution of data.
3. Apply appropriate statistical methods to present the research data.
4. Interpret the test results accurately.

### **Synopsis**

This course is to expose students with the commonly uses statistical program and exercises of applying statistical procedures. It also provides students opportunity to interpret findings of statistical analysis.

### **Main Reference**

1. Altman, D.G. (2006). Practical statistics for medical research (2<sup>nd</sup> ed.). Chapman and Hall: London
2. Bernard, R. (2005). Fundamentals of biostatistics (6th ed.). Thomson Learning: Duxbury
3. Leech, N.L., Barrett,K.C & Morgan,,G.A.(2011). IBM SPSS for intermediate statistics: use and interpretation (4<sup>th</sup> ed).Routledge: New York
4. Morgan,,G.A.,Leech,N.L.,Gloeckner,G.N.,& Barrett,K.C.(2013).IBM SPSS for Introductory statistics: use and interpretation (5<sup>th</sup> ed). Routledge: New York.
5. Plichta,S.B.& Kelvian,E.(2013).Munro's statistical methods for healthcare research (6<sup>th</sup> ed.). Lippincott Williams &Wilkins: Philadelphia

### **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%

## ➤ MQD7007: Health Assessment

### **Learning Outcomes**

At the end of this course, student is able to:

1. Develop a conceptual framework for conducting nursing assessment.
2. Discuss the legal and ethical aspect in health assessment.
3. Explain the steps in performing health assessment holistically for patients at any stage of their life span.
4. Apply clinical decision making and critical reasoning skill in health assessment.
5. Identify patients' problems based on history taking and physical examination findings scientifically.

### **Synopsis**

This course will discuss functions of health framework and nursing diagnoses. The health assessment process presented will be based on nursing objectives which will focus on data collection and analysis related to the individual's capabilities, physical status, actual and potential responses to the health problems. The student will also be exposed to the importance of critical thinking, clinical reasoning, decision making and clinical evaluation. The emphasis is on competency in assessing, recognising and managing multiple variables within patient care.

### **Main Reference**

1. Jensen, Sharon, and Sharon Jensen (2011). Pocket Guide For Nursing Health Assessment. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

2. Jensen, Sharon (2015). *Laboratory Manual For Nursing Health Assessment*. Philadelphia, Pa.: Wolters Kluwer.
3. Carpenito, L.J. (2012) *Handbook of Nursing Diagnosis* 14<sup>th</sup> Edition. Lippincott Williams & Wilkins, Philadelphia.
4. Carpenito, L.J. (2012) *Nursing diagnosis: application to Clinical practice* 14<sup>th</sup> Edition, Lippincott. Philadelphia.
5. Fuller, J. & Schaller-Ayers (2000) *Health Assessment: A Nursing Approach* 3rd Edition. Lippincott. Philadelphia, New York & Baltimore.

### **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%

## **➤ MQD7008: Issues and Trends in Nursing and Health Care**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Examine current issues in nursing as they relate to health care trends.
2. Analyze critically current nursing educational and professional practice.
3. Discuss appropriate nursing measures toward current issues from an economic, legal and socio-political perspective.
4. Explain the nursing management, leadership and legal issues concerning advanced practice preparation.

### **Synopsis**

This course will discuss on nursing issues / trends which are emergent in clinical practice. This course aims to focus on challenges in the current roles, functions and status of nursing in the context of changes in the health care system. Building upon the students' knowledge and experiences, this course will discuss relevant sociological, ethical, political and economic issues as well as the nurses' roles in this context. Reviews / critical analyses of relevant issues will be identified. Students will carry out individual / group work and written report / presentations as part of learning. The students will integrate critical thinking, clinical reasoning, decision making and evaluation skills in the learning process.

### **Main Reference**

1. Burkhardt, M.A. & Alvita, K. N. (2014). *Ethics and Issues in Contemporary Nursing* (4<sup>th</sup> ed.). Australia: Delmar Cengage Learning.
2. Catalano, J.T. (2015). *Today's Issues, Tomorrow's Trends* (7<sup>th</sup> ed.). New York: F.A. Davis Company.
3. Ellis, J.R. & Hartley, C.L. (2012). *Nursing in today's world: trends, issues & management* (10<sup>th</sup> ed.). Philadelphia : Wolters Kluwer Health/Lippincott Williams & Wilkins, 2012.
4. Hood, L.J. (2014). *Leddy & Pepper's conceptual bases of professional nursing* (8<sup>th</sup> ed.). Philadelphia: Wolters Kluwer Health /Lippincott Williams & Wilkins.
5. Marquis, B.L., & Huston, C.J. (2015). *Leadership roles and management functions in nursing* (8<sup>th</sup> ed.). Philadelphia: Lippincott.
6. Weiss, S.A. & Tappen R.M. (2015). *Essentials of nursing leadership and management* (6<sup>th</sup> ed.). Philadelphia, PA: F.A. Davis Company.

### **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%

## **MQD7009: Health Promotion**

### ***Learning Outcomes***

At the end of this course, students are able to:

1. Explain concepts, models and theories of health promotion and epidemiology.
2. Discuss strategies and policy related health promotion and epidemiology
3. Analyze issues and factors influencing planning and development in health promotion
4. Carry out health promotion activities

### ***Synopsis***

Health promotion is now a central force in the new public health movement in Malaysia and it is considered as essential aspect of the work of all health care professionals. This course is intended to introduce the students to a wide range of concerns on the theory and practice of health promotion. Relevant sociology, ethical, political, psychological and economics issues will be discussed. It will give students the opportunity to consider broad issues in health promotion as well as nurses' role.

### ***Main Reference***

1. Ewles, L. & Simnett, L. ( 2012 ) Promoting Health, A Practical Guide 6<sup>th</sup> Edit. Scutari Press, London
2. Allender ,J, Rector ,C & Warner, Kr. (2014) Community & public health nursing : promoting the public's health 8<sup>th</sup> Edit]. Philadelphia : Lippincott Williams & Wilkins Health
3. Pender Ewles, L. & Simnett, L. ( 2012 ) Promoting Health, A Practical Guide 6<sup>th</sup> Edit. Scutari Press, London
4. Allender ,J, Rector ,C & Warner, Kr. (2014) Community & public health nursing : promoting the public's health 8<sup>th</sup> Edit]. Philadelphia : Lippincott Williams & Wilkins Health
5. Pender N., Murdaugh C. , Parsons M (2015) Health Promotion in Nursing Practice (7th Edition) Health Promotion in Nursing Practice 7th Edition Prentice Hall, Inc.

### ***Assessment Methods***

Continuous Assessment: 40%

Final Examination: 60%

## **➤ MQD7010: Nursing Practicum**

### ***Learning Outcomes***

At the end of this course, students are able to:

1. Discuss the advanced patient care and roles and responsibilities of an advanced practitioner according to the clinical specialty.
2. Demonstrate specialist nursing skills and competencies according to the clinical specialty.
3. Construct specific patient care protocols or guidelines based on problems or needs identified in the clinical area.
4. Critique the nursing practice/patient care system in the current health context through application of the principles of critical reflection and evidence-based nursing practice.
5. Practice the principles of team work, communication and leadership skill in patient care management.

### ***Synopsis***

This course is designed to enable nurse practitioners draw on and reflect from their clinical experience to critically explore nursing and healthcare practices in greater breadth and depth. Based on student's clinical speciality, an individualised learning contract will be formulated to promote further development

of the student's knowledge and competency. Fundamental to this course is the integration of clinical knowledge into practice and to further develop student's potential in advancing their field of practice.

### **Main Reference**

1. Burn, S.M. (2014). AACN Essentials of critical care nursing (3<sup>rd</sup> ed.). China: McGraw-Hill companies.
2. Datta, P. (2014). Pediatric Nursing (3<sup>rd</sup> ed.). Bangladesh: Jaypee Brothers Medical Publishers (P) Ltd
3. Hinkle, J.I. & Cheever, K.H. (2014). Brunner & Sunddarth's textbook of medical-surgical nursing (13<sup>th</sup> ed.). Philadelphia: Lippincott Williams & Wilkins.
4. Marshall. J. & Raynor, M. (2014). Myles Textbook for Midwives (16<sup>th</sup> ed.). China Churchill Livingstone.
5. [Phillips, N. F.](#) (2013). Berry & Kohn's operating room technique (12<sup>th</sup> ed.). St. Louis, Mo. : Elsevier

### **Assessment Methods**

Continuous Assessment: 100%

#### ➤ **MQD7011: Reflection in Nursing Practice**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Write professional journal regarding their latest learning experiences
2. Identify specific situation from the clinical area as a case for reflection
3. Apply reflection process in learning situation.
4. Identify main concept / theory related to reflection for application of each learning situation.

### **Synopsis**

Student will acquire knowledge regarding the journaling concepts. They will be guided to keep professionals journal. Student will need to keep one study log and use the log to identify specific situation and the significant in basic reflection by group studying. The course content will involve the user of case study and reflection process.

### **Main Reference**

1. Lillyman, S., & Merriox, P.(2014) Portfolios and reflective practice:Routledge.
2. Bulman, C., & Schutz, S.(2013). Reflective practice in nursing (5th ed.). West Sussex, UK: Wiley-Blackwell.
3. Holly, M.L. (2002). Keeping a professional journal (2<sup>nd</sup> ed.). Sydney, Australia: UNSW Press.
4. Johns, C., (2013). Becoming a reflective practitioner (4<sup>th</sup> ed.). Oxford, UK: Blackwell Science.
5. Taylor, B., (2010). Reflective practice for health care professionals: A practical guide (3<sup>rd</sup> ed.). England:Open University Press; McGraw Hill.

### **Assessment Methods**

Continuous Assessment: 40%

Final Examination: 60%

#### ➤ **MQD7012: Principle and Methods of Epidemiology**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Explain the principles and concepts of epidemiology.
2. Integrate the knowledge of methods in epidemiology in conducting nursing research.

3. Explain the use of epidemiology research design in clinical research.
4. Evaluate critically various clinical research designs.

### Synopsis

This course gives the student opportunity to learn about the principle and method in epidemiology. The first part of the course introduces the principle and concepts that include principles of prevention and control, introduction to selected measures of health and disease occurrence, standardization, disease surveillance, epidemic management and screening test. Methods of epidemiology are taught in the second part of the course, students will learn about the study designs, measurements of risks, and errors in epidemiological studies, causation and association.

### Main Reference

1. Bonita, R., Beaglehole, R., & Kjellström, T. (2006). Basic epidemiology. Geneva: World Health Organization.
2. Gordis, L. (2014). Epidemiology (5<sup>th</sup> ed). New York: Saunders.
3. Merrill, R.M (2017). Introduction to epidemiology (7<sup>th</sup> ed). Burlington, MA: Jones & Bartlett.
4. Giesecke, J.(2002). Modern Infectious Disease Epidemiology (2<sup>rd</sup> ed). CRC Press.
5. Heymann, David. L. (2008). Control of Communicable Diseases Manual (19<sup>th</sup>ed). American Public Health Association: Washington DC

### Assessment Methods

Continuous Assessment: 40%

Final Examination: 60%

### Master of Nursing Science Programme Schedule

Y E A R I	Semester I	<ul style="list-style-type: none"> <li>Two (2) core courses each of three (3) credits.</li> <li>One (1) core course of two (2) credits.</li> <li>One (1) elective course of three (3) credits.</li> </ul>	Admission
	Semester II	<ul style="list-style-type: none"> <li>Four (4) core courses each of three (3) credits.</li> </ul>	End of Semester I Examination
Y E A R II	Semester I	<ul style="list-style-type: none"> <li>Nursing Practicum of ten (10) credits.</li> <li>Nursing Research Project I of three (3) credits.</li> </ul>	End of Semester II Examination
	Semester II	<ul style="list-style-type: none"> <li>Nursing Research Project II of six (6) credits.</li> </ul>	End of Semester I Examination
			Graduation

**Name of Programme :** Master of Public Health  
**Mode :** Coursework  
**Faculty :** Faculty of Medicine

## **1. Classification of Programme**

The Master of Public Health programme is a coursework programme in which the credits for the research component comprises less than thirty (30) percent of the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Public Health degree.

## **2. Entry Requirements**

- (1) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate;  
or
- (2) The degree of Bachelor of Dental Surgery;  
or
- (3) The degrees of Bachelor of Allied Health with a CGPA of at least 3.00;  
or
- (4) A Bachelor's degree with a CGPA of at least 3.00 in a relevant discipline;  
or
- (5) At least one year of relevant work experience in clinical or health;  
and
- (6) At least one (1) years working experience in the relevant field after graduation;  
Or
- (7) The degrees of Bachelor of Allied Health with a CGPA of 2.5 TO 2.99;  
OR
- (8) A Bachelor's degree with a CGPA 2.5 to 2.99 in a relevant discipline;  
and
- (9) At least two (2) years of work experience in the relevant field after graduation;  
and
- (10) Pass the interview;  
or
- (11) The degrees of Bachelor of Allied Health with a CGPA of 2.0 TO 2.49;  
or
- (12) A Bachelor's degree with a CGPA 2.0 to 2.49 in a relevant discipline;  
and
- (13) At least five (5) years of work experience in the relevant field after graduation;  
and
- (14) Pass the interview.

## **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not the English language and where the applicant wishes to follow a programme shall be required:

- (1) To obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) To obtain a band of 6 for the International English Language Testing System (IELTS) (Academic)

## **3. Duration of Study**

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters.

## **4. Structure of Programme**

- (1) The Master of Public Health programme comprises forty (42) credits namely:
  - (1) Seven (7) core courses each of three (3) credits, totalling twenty-one (21) credits;
  - (2) One (1) core course that leads to one (1) Research Project of nine (9) credits;
  - (c) Six (6) elective courses each of two (2) credits, totalling twelve (12) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The list of courses for the programme of Master of Public Health is provided in List 1 & List 2.

## **5. Registration**

- (1) Registration for the courses of study shall commence the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least three (3) credits in any semester except where the candidate has been permitted to withdraw from the semester concerned.

## **6. Attendance**

During his programme of study a student may be permitted to undertake part of his training in other institutions or agencies recognised by the Faculty.

## **7. Supervision**

- (1) The Faculty shall appoint at least one supervisor for each candidate not later than two months after the registration of the candidate.

- (2) The co-supervisor and/or consultant shall be appointed when required.
- (3) A consultant shall be appointed for a candidate who undertakes part of his programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## 8. Title of Research

The title of the Research Project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than two months prior to the commencement of the research project.

## 9. Submission

A candidate is required to submit his research papers not later than one month before the end of the relevant semester for examination.

## 10. Examinations for the Degree

The Examination leading to the degree of Master of Public Health shall consist of an examination or examinations in each of the courses prescribed for the Master of Public Health degree programme as follows:

- (1) Seven (7) core courses each of three (3) credits, totalling twenty-one (21) credits;
- (2) One (1) core course that leads to one (1) Research Project of nine (9) credits;
- (3) Six (6) elective courses each of two (2) credits, totalling twelve (12) credits;
- (4) Examination Components and Allocation of Marks

### (a) Taught Courses

The components of the taught courses and the marks to be allocated to the components of the courses prescribed for the Examination shall be:

Component		Allocation of Marks (Maximum)
(i)	Continuous Assessment	50-100%
(ii)	End of Semester Examination	0-50%
<b>Total</b>		<b>100%</b>

### (b) Research Papers

The marks allocated to the components of the research papers shall be 100% on submission of the written report.

- (c) The Senate may on the recommendation of the Faculty amend the allocation of marks for the components of a course for the Examination.

### (5) Course Grade Requirements



Course grades are subjected to regulations prescribed in the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Public Health unless he/she has completed all parts of the course and has passed the prescribed Examinations.

### List 1: Core Courses

Code	Title	Credits
MQB7001	Research Methodology	3
MQB7002	Research Project	9
MQB7003	Principles of Family Health	3
MQB7004	Society, Behaviour and Health	3
MQB7005	Principles and Methods of Epidemiology	3
MQB7006	Principles of Biostatistics	3
MQB7029	Principles of Management in Health	3
MQB7034	Environmental Health	3
<b>Total</b>		<b>30</b>

### List 2: Elective Courses

Code	Title	Credits
MQB7010	Epidemiology of Diseases in Malaysia	2
MQB7012	Producing Better Evidence	2
MQB7014	Health Economics	2
MQB7015	Law and Health	2
MQB7016	Women, Child and Adolescent Health	2
MQB7026	Public Health Nutrition	2
MQB7027	Qualitative Inquiry in Public Health	2
MQB7028	Health Risk Assessment	2
MQB7030	Comparative Health System	2
MQB7031	Global Health	2

MQB7032	Primary Health Care	2
MQB7033	Social Health Determinants	2
MQB7035	Occupational Health	2
MQB7036	Occupational Medicine	2
MQB7037	Medical Surveillance and Fitness to Work	2
MQB7038	Clinical Occupational Medicine	2
MQB7039	Global Health Leadership	2
MQB7040	Nutritional Epidemiology	2

***TOTAL: 12 credits (select any 6 of the above)***

➤ **MQB7001: Research Methodology (3 Credits)**

***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Formulate good research questions.
2. Apply appropriate study designs and methodology for a selected research question.
3. Produce a research proposal in a scientific manner.

***Synopsis***

The students will be introduced to the steps involved in the research process. Critical appraisal of scientific articles produced by other researchers will provide 'hands on' experience for students to understand the methodological issues in the conduct of the studies. With the above mentioned knowledge, students will be able to increase their expertise in appraising scientific articles and producing research proposal in a scientific manner

***Main References***

1. Gordis L. Epidemiology. 6th edition, Elsevier/Saunders, 2019.
2. Bland, Martin. An Introduction to Medical Statistics. 4th edition Oxford University Press, 2015
3. Forsyth, Patrick. How to write reports and proposals. 4th edition. Kogan Page Ltd. 2016.
4. Guyatt GH, Oxman AD, Sultan S, et al. GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311-6.
5. Sterne Jonathan A C, White Ian R, Carlin John B, Spratt Michael, Royston Patrick, Kenward Michael G et al. Multiple imputation for missing data in epidemiological and clinical research: potential and pitfalls BMJ 2009; 338 :b2393

***Assessment Methods***

Continuous assessment (100%)

## ➤ **MQB7002: Research Project (9 Credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Conduct all steps of research process
2. Develop a research proposal
3. Collect data
4. Manage and analyse data
5. Write up the report

### ***Synopsis***

The course takes the candidate through the steps of research process and provides the candidate a hands-on experience to develop a research project, carry out the research and write up the report.

### ***Pre-Requisite***

Candidate must have successfully completed Research Methodology (MQB7001)

### ***Main References***

1. Gordis L. Epidemiology. 6th edition, Elsevier/Saunders, 2019.
2. Bland, Martin. An Introduction to Medical Statistics. 4th edition Oxford University Press, 2015
3. Forsyth, Patrick. How to write reports and proposals. 4th edition. Kogan Page Ltd. 2016.

### ***Assessment Methods***

Continuous assessment: 100%

*Note: To be registered in 2 semesters (Semester 2 + special semester)*

## ➤ **MQB7003: Principles of Family Health (3 Credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Describe the Family Health concepts and principles in the promotion of health in the population.
2. Illustrate in depth, methods of assessing the population health status in the community using various health statistics.
3. Solve the problems faced by population subgroups e.g. women, children, adolescents, disabled and elderly; and the recommended strategies needed.

### ***Synopsis***

This course is an introduction to the principles of Family Health. The course will cover basic programmes of reproductive health such as safe motherhood and high-risk approach in MCH care. It will also include child survival and development strategies and common conditions seen in mothers and children. Nutrition topics and wellness promotion programmes will also be covered.

### **Main References**

1. Simon & Schuster, 2008. Our Bodies, Ourselves: Pregnancy and Birth Boston Women's Health Book Collective. A Touchstone Book, New York London Toronto Sdney
2. Environmental Health and Child Survival: Epidemiology, Economics, Experiences (Environment and Development Series) by World Bank, 2008.
3. Judith E. Brown, Janet S. Isaacs, U. Beate Krinke (3RD Eds). Nutrition Through the Life Cycle. 2008 Thomson Learning.
4. John Enhiri. 2009. Maternal and Child Health: Global Challenges, Programs, and Policies. Springer New York Dordrecht Heidelberg London 2009
5. Lawrence S. Neinstein. 2007. Adolescent health care : a practical guide (5th eds). Lippincott Williams & Wilkins

### **Assessment Methods**

Continuous assessment (seminar presentation) : 50%.

Final examination : 50%

### **➤ MQB7004: Society, Behaviour and Health (3 Credits)**

#### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the influences of society and behaviour on health.
2. Illustrate models of health behaviour of individuals and community.
3. Solve problems related to society, behaviour and health

#### **Synopsis**

This course will discuss the influence of behaviour, cultural and social class on health and illness. Issues of socialization, social control, deviance and stigma will also be covered. Models of health behaviour in the individual and community levels will be covered. The planning, managing and research on health promotion programs will also be discussed.

### **Main References**

1. DJ Williams, PD Donnelly. Is violence a disease? Situating violence prevention in public health policy and practice. Public Health 128, 2014:960-967
2. Kevin White. 2009. An introduction to the sociology of health and illness. SAGE Publications Ltd, 2009.
3. Graham Scambler. Sociology as applied to medicine (6th edition). Elsevier Health Sciences, 2008.
4. Kai-Lit Phua & Yut-Lin Wong (eds.). Medical Sociology: Key Concepts and Issues. Cengage Learning Asia Pte Ltd. 2008.
5. Krieger, N. Theories for social epidemiology in the 21st century: and ecosocial perspective. International Journal of Epidemiology 2001; 30:668-677.

### **Assessment Methods**

Continuous assessment (seminar presentation): 50%

Final examination : 50%

## ➤ **MQB7005: Principles and Methods of Epidemiology (3 Credits)**

### ***Learning Outcomes***

At the end of this course, the candidate is able to:

1. Apply the epidemiological concepts to explain disease occurrence and transmission
2. Apply the principles of prevention and control to manage health problems
3. Demonstrate ability to calculate population statistics and measures of association

### ***Synopsis***

This course introduces candidates to the principles and methods of epidemiology which will form the basis to other courses in epidemiology. This course also demonstrates the applications of epidemiologic principles and methods

### ***Main Reference***

1. Gordis L. Epidemiology: Elsevier/Saunders; 6th edition, 2019.
2. Rothman, Kenneth. Modern Epidemiology. 4th edition. Lippincott Williams & Wilkins, 2013.
3. Bland, Martin. An Introduction to Medical Statistics. 4th edition Oxford University Press, 2015

### ***Assessment Methods***

Continuous assessment: 50%

Final examination: 50%

## ➤ **MQB7006: Principles of Biostatistics (3 credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Demonstrate an understanding of Biostatistics concepts and its principles in population health.
2. Apply the appropriate statistical techniques to analyse data from public health research.
3. Interpret and communicate the results of statistical analyses accurately and effectively for evidence-based public health.

### ***Synopsis***

This will cover basic statistical techniques that are important for analyzing data arising from public health research. Major topics include descriptive statistics, elements of probability, introduction to estimation and hypothesis testing, nonparametric methods, analytical techniques for categorical data, regression analysis, analysis of variance, and elements of study design. The concept and applications of statistical methods are stressed. At the end of the module, the candidate will also have the knowledge of the need for non-parametric statistical techniques as alternatives to parametric methods; acquired skills in their practical implementation and have an understanding of the underlying theory.

### ***Main References***

1. Lisa M. Sullivan. Essentials of Biostatistics in Public Health, 3rd edition. Jones & Bartlett Learning, 2018.
2. Bernard Rosner. Fundamentals of Biostatistics. 8th Edition. Duxbury Thomson Learning. 2015.
3. Kirkwood B, Sterne J. Essential Medical statistics, 2nd edition. Wiley, 2016.

4. Hosmer DW, Lemeshow S, Sturdivant RX. Applied Logistic Regression. Third edition. John Wiley & Sons. 2013.
5. Chinna K, Choo WY. Statistical analysis using SPSS, 3rd edition. Pearson Learning, 2016.

### **Assessment Methods**

Continuous assessment : 60%

Final examination: 40%

### ➤ **MQB7029: Principles of Management in Health (3 Credits)**

#### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Apply the concepts on management functions and principles and able to utilise their application in any healthcare programmes.
2. Review current health management practise based on individual and group experiences.
3. Able to solve problem regarding current health management practise based on individual and group experiences.

#### **Synopsis**

This course is designed to expose the student the basic principles of Management and its application to the Health Services delivery. It will also expose issues in management as applicable to Primary Health Care and Hospitals.

#### **Main References**

1. Gopee N., Galloway J. Leadership and Management in Healthcare; Sage Publications Ltd. London, 2nd Edition, 2014.
2. Michelle A. Green and Mary Jo Bowie. Essentials of Health Information Management: Principles and Practices; 3rd Edition, Cengage Learning, USA, 2016
3. Ghani S.N., Yadav H. Health care in Malaysia. University of Malaya Press, Kuala Lumpur, 2008.
4. Yadav, H. Hospital Management. University of Malaya Press, Kuala Lumpur, 2006.
5. Malaysian Institute of Management, Management in Malaysia, 2008.
6. McMahon R., Barton E., Piot M. On Being in-Charge: A guide to management in primary health care; WHO, Geneva, 2007.

### **Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

### ➤ **MQB7034: Environmental Health (3 Credits)**

#### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe environmental health issues
2. Relate environmental health issues to individual and public health
3. Solve basic environmental health issues.

## **Synopsis**

This course is an overview of the environmental health issues in the local and global perspective, addressing the current and future issues. The course covers core topics that prepare students to understand and address environmental health issues; air pollution; water pollution; housing environments and health impact assessment.

## **Main References**

1. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York : McGraw-Hill, 2014.
2. ABC of occupational & environmental medicine; David Snashall, Dipti Patel; 3rd Edition, Wiley-Blackwell. 2013
3. Basic Environmental Health, Annalee Yassi, Oxford University Press 2001
4. Current occupational & environmental medicine 4th ed. LaDou, Joseph, New York : McGraw-Hill, 2007.

## **Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

## **ELECTIVE COURSES**

### **➤ MQB7010: Epidemiology of Diseases in Malaysia (2 Credits)**

## **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the characteristics of communicable (CDs) and non-communicable diseases (NCDs) diseases.
2. Illustrate a network factors that contribute to the emergence of NCDs and re- emergence of CDs.
3. Solve problem in term of prevention and control measures for CDs and NCDs.

## **Synopsis**

This course provides a broad introduction to the epidemiology, prevention and control of the major communicable (including emerging and re-emerging) diseases. Other emphasis is epidemiology of major non-communicable diseases and their methods of prevention and control.

## **Main References**

1. Gordis L. Epidemiology: Elsevier/Saunders; 6th edition. 2019.
2. Webber R. Communicable disease epidemiology and control: a global perspective: CABI; 2009.
3. Labarthe D. Epidemiology and Prevention of Cardiovascular Diseases: A Global Challenge: Jones and Bartlett Publishers; 2010.
4. National Strategic Plan on HIV and AIDS 2011-2015, Ministry of health Malaysia 2011
5. WHO Global Vaccine Action Plan 2011-2020, World health Organization 2012.

## **Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

## ➤ **MQB7012: Producing Better Evidence (2 Credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Describe method to produce scientific evidence
2. Illustrate method to produce scientific evidence
3. Solve problems using the scientific method "Systemic review/meta-analysis

### ***Synopsis***

Introduction to performing systematic search and critically appraising the literature / evidence. Systematic reviews and meta-analyses produce the highest hierarchy of evidence should be used to inform clinical decision-making and health care policy. The principles of meta-analytic statistical methods are reviewed, and the application of these to data sets is explored. Application of methods includes considerations for clinical trials and observational studies. The use of meta-analysis to explore data and identify sources of variation among studies is emphasized, as is the use of meta-analysis to identify future research questions

### ***Main References***

1. Higgins JPT, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011.
2. Borenstein M, Hedges L. Introduction to meta-analysis: John Wiley & Sons; 2009.
3. Kulinskaya E, Morgenthaler S, Staudte R. Meta analysis: a guide to calibrating and combining statistical evidence: John Wiley & Sons; 2008.

### ***Assessment Methods***

Continuous assessment : 50%

Final examination: 50%

## ➤ **MQB7014: Health Economics (2 Credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Describe the economic concepts to the evaluation of performance of a health care system
2. Illustrate appropriate economic evaluation tool to be applied to different problems of resource allocation, management, evaluation and planning in health services.
3. Solve the problem related strengths and weaknesses of different health financing mechanisms and different provider payment methods

### ***Synopsis***

This course is designed to introduce students to the aims, concepts, theories and methods of economic analysis as well as to give an appreciation of how these methods are being applied to problems of resource allocation, management, evaluation and planning in health services.

### ***Main References***

1. Baumol W J, Blinder A S. 2015. Microeconomics. Principles and Policy. Int. Student Edition. 13th Edition. Singapore: Thomson South-Western.



2. Drummond MF, Sculpher MJ, Torrance GW, O'Brien B, Stoddart GL, 2015. Methods for the Economic Evaluation of Health Care Programmes. 4th Edition. Oxford. Oxford University Press.
3. Folland S, Goodman A, Stano M. 2017. The Economics of Health and Health Care. 8th Edition. Routledge.
4. Roberts MJ, Hsiao W, Berman P, Reich MR. 2008. Getting health reform right. New York: Oxford University Press.

### **Assessment Methods**

Continuous assessment : 50%

Final examination: 50%

### **➤ MQB7015: Law and Health (2 Credits)**

#### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the principle of medical ethics, Malaysian federal system & health governance.
2. Apply the concept of medical ethics in Doctor-Patient relationship.
3. Apply the public health laws in implementing health care programme

#### **Synopsis**

This course is designed to provide the candidate with the basic knowledge of legal issues related to medical and public health practice. It will introduce the working of a legal system in a country and explore current issues in medical ethics, Doctor – Patient relationship and Public Health Law.

#### **Main References**

1. Wu, M.A. The Malaysian Legal System. 3rd ed. Pearson Malaysia Sdn. Bhd., Petaling Jaya, 2007.
2. Puteri, NJK. Medical Negligence Law in Malaysia. International Law Book Services, Petaling Jaya, 2003.
3. Puteri, NJK. Abu Haniffa MA. Issues in Medical Law Ethics. Int. Islamic University Malaysia, 2003.
4. Suffian, M. An Introduction to the Legal System of Malaysia. Penerbit Fajar, Kuala Lumpur 1988.

### **Assessment Methods**

Continuous assessment (seminar): 50%,

Final examination: 50%

### **➤ MQB7016: Women, Child and Adolescent Health (2 Credits)**

#### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Identify the leading public health issues that are facing men, women, child and adolescents
2. Elaborate the factors affecting men, women, child, and adolescent health.
3. Apply the concepts and principles of family health in the management of public health issues facing men, women, child and adolescents

## **Synopsis**

This course introduces the principles of women, child and adolescent's health. The course will include the women's reproductive health, chronic conditions among women as well as infertility and contraception. The children's growth and development, immunization and breast-feeding and the common diseases of the children will be covered. High risk behaviour and counselling of children and adolescents will be discussed.

## **Main References**

1. Laura Reichenbach, Mindy Jane Roseman. 2009. Reproductive Health and Human Rights: The Way Forward. University of Pennsylvania Press.
2. Rose Weitz. 2012. The Sociology of Health, Illness, and Health Care. 6th ed. Cengage Learning.
3. Theo Stickley. 2008. Learning about Mental Health Practice. John Wiley and Sons.
4. Jonathan B. Kotch. 2012. Maternal and Child Health: Programs, Problems, and Policy in Public Health.
5. Lynn Rew. 2005. Adolescent Health: A Multidisciplinary Approach to Theory, Research, and Intervention. Sage Publications, Inc.

## **Assessment Methods**

Continuous assessment (seminar presentation): 50%

Final examination: 50%

## **➤ MQB7026: Public Health Nutrition (2 Credits)**

## **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Evaluate methods of nutritional assessment for all age groups.
2. Analyse the importance of nutrition in health promotion and disease prevention.
3. Propose appropriate strategies to improve community nutrition programs in the country you serve.

## **Synopsis**

The course will focus on the nutrition related problems throughout the life cycle, various methods of nutritional assessments, public health nutrition approach in health promotion and primary prevention of diseases as well as community programs in nutrition carried out in the country. Current nutritional issues affecting health will also be discussed.

## **Main References**

1. Buttris JL et al, 2017. Public health nutrition .2nd edition. Wiley-Blackwell
2. FrancesSizer, Ellie Whitney. 2013. Nutrition: Concepts and controversies. 13th ed. Brooks Cole.
3. L. Kay Bartholomew et al. 2011. Planning Health Promotion Programs: An Intervention Mapping Approach. 3rd ed. Jossey-Bass.
4. Walter Willett (2013) .Nutritional Epidemiology. 3rd edition. Oxford University Press
5. Hazreen Abdul Majid et al. 2019. Malaysian Health and Adolescents Longitudinal research Team Study Handbook. UM Press.

## **Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

## ➤ **MQB7027: Qualitative Inquiry in Public Health (2 Credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Practice of qualitative research and produce a qualitative research proposal
2. Perform qualitative interview and data analysis.
3. Critically appraise of qualitative research in the literature

### ***Synopsis***

This unit is mainly concerned with the development of capacities and skills in using a range of qualitative research techniques in public health. It is expected that the students will be familiar with the theoretical foundations of qualitative research and common methods of data collection, sampling techniques, validity, ethical issues, and data analysis. The unit also seeks to enhance students' knowledge and skills to critically assess qualitative research by the end of the course.

### ***Main References***

1. Norman K Denzin and Michael D Giardina, Qualitative Inquiry: past, present and future. (A critical reader). 1st edition, 2015
2. Shirley R. Steinberg and Gaile S. Cannella, Critical qualitative research reader. Peter Lang Publishing, New York. 2012
3. Rice PL, Douglas, E. Qualitative research methods: A health focus. Oxford: Oxford University Press. 2007.
4. Pope C & Mays N. Qualitative research in health care. 3rd edition. Blackwell Publishing. 2008.
5. Creswell JW, Plano Clark, VL. Designing and conducting mixed methods research. Sage Publications. 2007.

### ***Assessment Methods***

Continuous assessment: 100%

## ➤ **MQB7028: Health Risk Assessment (2 Credits)**

### ***Learning Outcomes***

At the end of the course, the candidate is able to:

1. Analyse the adverse effects of chemical, physical, biological, ergonomics and psychosocial hazards;
2. Evaluate the adverse effect of hazards to individual health and public health;
3. Conduct basic health risk assessment
4. Communicate health risk to specific audience.

### ***Synopsis***

The course focus on the three component of health risk assessment; which is risk assessment, risk management and risk communication. It will include overview on methods and modalities for qualitative and quantitative risk assessment in the workplace. The courses will stress on the assessment of health risk related to exposure to chemicals, physical, biological, ergonomics and psychosocial hazards.

### **Main References**

1. Risk Assessment: Tool, Techniques and Their Applications; Lee T. Ostrom , Cheryl A. Wilhelmsen, Wiley 2012.
2. Chemical Risk Assessment: A Manual For REACH; Peter Fisk, Wiley 2014.
3. Risk of Hazardous Wastes; Paul E. Rosenfeld and Lydia Feng, Wiley 2011.

### **Assessment Methods**

Continuous assessment: 100%

#### **➤ MQB7030: Comparative Health System (2 credits)**

### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the framework, actors and services of different health system
2. Identify the challenges of health care delivery to achieve universal coverage
3. Evaluation of different component of health system

### **Synopsis**

This course provides the knowledge and assessment of health system.

### **Main References**

1. Comparative Health System: Global Perspectives; James A. Johnson; Carleen Stoskopf; Wiley 2011.
2. Global Health System: Comparing Strategies for Delivering Health Services; Margie Lovett-Scott and Faith Prather; Michael Brown Publisher; 2012.
3. Lucy Gilson (ed.) (2012) Health Policy and Systems Research: A Methodology Reader. Alliance for Health Policy and Systems Research, WHO.
4. WHO (2010) The World Health Report 2010. The Health Systems Financing: the path to universal coverage. Geneva, World Health Organization.
5. Bodenheimer T, & Grumbach K (2005) Understanding Health Policy. A Clinical Approach. The McGraw – Hill Companies, USA
6. WHO (2000) World Health Report 2000. Health systems: improving performance. Geneva. World Health Organization

### **Assessment Methods**

Continuous assessment: 100%

#### **➤ MQB7031: Global Health (2 credits)**

### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the concepts and theoretical perspectives in global health
2. Illustrate the governance of global health including the key institutions involved
3. Solve the problem about understanding of concepts, theory and governance to analysis of current and emerging issues in global health

## **Synopsis**

This course is designed to increase student understanding of current and emerging transnational issues in population health through application of concepts and theories and through an understanding of governing structure of global health. Topics include health impact of global climate changes, trade liberalisations and increased population mobility.

## **Main references**

1. Global Health 101 (Essentials Public Health); Richard Skolnik; Jones and Bartlett, USA; 2015
2. Comparative Health System: Global Perspectives; James A. Johnson; Carleen Stoskopf; Wiley 2011.
3. Global Health Care: Issues and Policies (Holtz, Global Health Care); Carol Holtz, 2012
4. Introduction to Global Health; Kathryn H. Jacobsen; Jones and Bartlett, USA; 2013
5. Labonte, R., Schrecker, T., Packer, C. & Runnels, V. (eds). Globalisation and Health. Pathways, Evidence and Policy. New York: Routledge. 2010.

## **Assessment Methods**

Continuous assessment (seminars and written assignments): 100%

### **➤ MQB7032: Primary Health Care (2 credits)**

## **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the principles and practice of
2. Apply the participatory approach of delivering PHC services in line with the concept of Universal Health Coverage (UHC).
3. Demonstrate the integration of health care services within the concept of PHC.

## **Synopsis**

This course is designed to expose the students the basic principles of the delivery of health services to the disadvantaged community. It will also expose issues in community empowerment and the development of partnering relationships between the communities and the providers of care.

## **Main references**

1. Advanced Health Assessment & Clinical Diagnosis in Primary Care; Joyce E. Dains; Linda Ciofu Baumann; Elsevier Publication, 5th Edition; 2015.
2. Current Practise Guidelines in Primary Care; Joseph S. Esherick, Daniel S. Clark, Lange, 2015
3. World Health Organisation. Working together for health. World Health Report 2006
4. Lerberghe W van. Primary Health Care: now more than ever. World Health Report 2008.

## **Assessment Methods**

Continuous assessment: 100%

### **➤ MQB7033: Social Health Determinants (2 credits)**

## **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Examine pathways through which social determinants operate in different population groups.

2. Apply the major conceptual and measurement issues in conducting research into the effects of key social factors on individual, community and population health.
3. Determine policy responses and interventions to promote health or reduce health inequalities through structural interventions.

### **Synopsis**

Social epidemiology is the study of the distribution of health outcomes and their social determinants that contribute to or detract from the health of individuals and communities. This course will provide an overview of the major conceptual and measurement issues in conducting research into the effects of key social factors on individual, community and population health and examine pathways through which social determinants operate at different stages of the life course and in different population groups. Policy responses and interventions to promote health or reduce health inequality will also be introduced. The course also includes developing an understanding of a research methods used in social epidemiology.

### **Main references**

1. Social Determinants of Health: A Comparative Approach; Alan Davidson; Oxford University Press; 2015
2. Social Causes of Health and Diseases; William Cockerham; Polity Press, University of London; 2nd edition; 2013
3. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice) 2010, World Health Organization
4. Holt-Lunstad J, Smith TB, Layton JB. Social relationship and mortality risk: a meta-analytic review. PLoS Med 2010;7(7): e1000316. doi:10.1371/journal.pmed.1000316
5. Diez Roux AV, Muhajid MS, Hirsch JA, Moore K, Moore LV. The impact of neighborhood on CV risk. Global Heart 2016;11(3):353-363.

### **Assessment Methods**

Continuous assessment: 100%

### **➤ MQB7035: Occupational Health (2 credits)**

### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Identify occupational health issues
2. Relate occupational health issues to workers, workplace and community
3. Conduct basic workplace assessment
4. Solve basic occupational health issues

### **Synopsis**

This course is an overview of the occupational health issues in the local and global perspective. The course covers core topics that prepare students to understand and address occupational health issues; toxicology; exposure assessment; risk assessment, occupational disease and disability, accident and safety at work.

### **Main references**

1. Current Occupational and Environmental Medicine 5th ed. LaDou, Joseph, Harrison, Robert, New York : McGraw-Hill, 2014
2. Hunter's Diseases of Occupations 10th ed. 2010, Baxter, Peter J, Aw, Tar Ching, Cockcroft, Anne, Durrington, Paul, Harrington, J Malcolm, CRC Press.

### **Assessment Methods**

Continuous assessment: 50%  
Final examination: 50%

#### **➤ MQB7036: Occupational Medicine (2 Credits)**

### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe diseases related to work
2. Diagnose work related diseases
3. Manage work related diseases as a Public Health Specialist

### **Synopsis**

This course will provide the student with the basic to intermediate knowledge of diseases related to workplace exposure, diagnosis and management of work aggravated and occupational diseases, and an introduction to the principle of occupational toxicology. It will also cover the principle of methods and modalities used in the establishment of those diseases in the workplace and community.

### **Main references**

1. Textbook of Occupational Medicine Practice. David Kor, Tar-Ching Aw; 4<sup>th</sup> ed. World Scientific Publishing Company. 2017
2. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York : McGraw-Hill, 2014.
3. ABC of occupational & environmental medicine; David Snashall, Dipti Patel; 3rd Edition, Wiley-Blackwell. 2013
4. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007
5. Hunter's Diseases of Occupations 10th ed. 2010, Baxter, Peter J, Aw, Tar Ching, Cockcroft, Anne, Durrington, Paul, Harrington, J Malcolm, CRC Press

### **Assessment Methods**

Continuous assessment: 100%

#### **➤ MQB7037: Medical Surveillance and Fitness for Work (2 credits)**

### **Learning Outcomes**

At the end of the course, the candidate is able to:

1. Identify the appropriate tests used in medical surveillance
2. Analyse and draw conclusions from the medical surveillance results
3. Conduct fitness for work evaluation
4. Propose appropriate workplace recommendations based on medical surveillance results and evaluate fitness for work

### **Synopsis**

The course focus on the three component of health risk assessment; which is risk assessment, risk management and risk communication. It will include overview on methods and modalities for qualitative and quantitative risk assessment in the workplace. The courses will stress on the assessment of health risk related to exposure to chemicals, physical, biological, ergonomics and psychosocial hazards.

### **Pre-Requisite**

Candidate must have registered for the Occupational Medicine (MQB7036) course or have successfully completed MQB7036.

### **Main References**

1. Textbook of Occupational Medicine Practice. David Kor, Tar-Ching Aw; 4<sup>th</sup> ed. World Scientific Publishing Company. 2017
2. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York : McGraw-Hill, 2014.
3. ABC of occupational & environmental medicine; David Snashall, Dipti Patel; 3rd Edition, Wiley-Blackwell. 2013.
4. Guidelines on Medical Surveillance. Department of Occupational Safety and Health, Malaysia, 2001.
5. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007.

### **Assessment Methods**

Continuous assessment: 100%

### **➤ MQB7038: Clinical Occupational Medicine (2 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Describe diseases related to work (C2,P2,A1)
2. Diagnose work related diseases (C3,P1,A2)
3. Manage work related diseases as a Public Health Specialist (C4,P3,A3)

### **Synopsis**

This course will provide the student with the practical experience in the clinic on basic to intermediate knowledge of diseases related to workplace exposure, diagnosis and management of work aggravated and occupational diseases, including relevant workplace assessment.

### **Pre-Requisite**

Candidate must have registered for the Occupational Medicine (MQB7036) and the Medical Surveillance and Fitness for Work (MQB7037) courses or have successfully completed MQB7036 and MQB7037

### **Main references**

1. Textbook of Occupational Medicine Practice. David Kor, Tar-Ching Aw; 4<sup>th</sup> ed. World Scientific Publishing Company. 2017
2. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York : McGraw-Hill, 2014.
3. ABC of occupational & environmental medicine; David Snashall, Dipti Patel; 3rd Edition, Wiley-Blackwell. 2013
4. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007
5. Hunter's Diseases of Occupations 10th ed. 2010, Baxter, Peter J, Aw, Tar Ching, Cockcroft, Anne, Durrington, Paul, Harrington, J Malcolm, CRC Press

### **Assessment Methods**

Continuous assessment: 100%



➤ **MQB7039: Global Health Leadership (2 credits)**

**Learning Outcomes**

At the end of the course, the candidate is able to:

1. Explain the key trends and issues in the management of global health agencies and organisations.
2. Explain the key challenges in developing and implementing health programs in resource-constrained settings.
3. Determine critical traits that contribute to successful global health leadership from the example of current and past leaders that exhibit these qualities.

**Synopsis**

This course introduces students to the practice of leadership in global health. Students will learn how leaders have overcome challenges faced in the operationalisation of complex global health interventions, foreign policy, and working with key stakeholders and organisation in this context. They will be exposed to real-world cases in global health leadership.

**Main references**

1. Emotional Intelligence 2.0 by Travis Bradberry & Jean Greaves
2. Global Health Leadership: Case Studies from the Asia-Pacific by Mellissa Withers and Judith McCool
3. Harvard Business School Online Training "Global Cross-Cultural Collaboration"

**Assessment Methods**

Continuous assessment (seminars and written assignments): 100%

➤ **MQB 7040: Nutritional Epidemiology (2 credits)**

**Learning Outcomes**

At the end of the course, the candidate is able to:

1. Describe the strengths and limitations of different methods of dietary assessment and identify when specific dietary methods may be most appropriate.
2. Understand statistical methods commonly used in nutritional epidemiology to analyse diet-disease associations.
3. Describe the current state of epidemiological evidence for relationships of diet to the development of selected diseases.

**Synopsis**

This course is designed for candidates who are interested in better understanding and interpreting epidemiologic studies on the associations of diet and diseases. This course examines study designs, dietary assessment and statistical methods used in nutritional epidemiology, as well as to review the current evidence on diet and selected diseases.

**Main References**

1. Willett W. Nutritional epidemiology: Oxford University Press; 2013
2. Rothman K, Greenland S, Lash T. Modern epidemiology: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.
3. Edelman S, Shalrin J. Life cycle nutrition: an evidence-based approach: Jones and Bartlett Publishers; 2009.

**Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

### Master of Public Programme Schedule

Semester 1 (14 weeks)	▪ Seven core courses each of three credit hours, totalling twenty one (21) credit hours.	<b>Examination</b>
Semester 2 (14 weeks)	▪ Six elective courses each of two credit hours, totalling twelve (12) credit hours.	Registration (Admission Evaluation)
Special semester (8 weeks)	▪ One core course of nine (9) credit hours.	End of Semester 1
		End of Semester 2

**Name of Programme :** Master of Medical Science  
**Mod :** By Research  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Medical Science by Research is a programme in which the research component comprises one hundred (100) percent of the programme of study.

### **2. Entry Requirements**

The qualification for admission into the Degree programme of study are as follows:

- (1) The degrees of Bachelor of Medicine and Bachelor of Surgery or the degree of Bachelor of Dental Surgery; or
- (2) The Bachelor degrees in the relevant sciences field of the University and a CGPA of not less than 3.0 or equivalent; or
- (3) An equivalent qualification approved by the Senate from time to time.

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not the English language and where the applicant wishes to follow a programme shall be required:

- (1) To obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) To obtain a band of 6 for the International English Language Testing System (IELTS) (Academic)

### **3. Duration of Study**

- (1) The minimum duration of study shall be two (2) semesters
- (2) The maximum duration of study shall be eight (8) semesters

### **4. Structure of Programme**

- (1) Dissertation:

This programme is a research programme leading to the submission of a dissertation and the format is as provided in the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.

- (2) Research Methodology (MMX7001) (3 credits):
  - (a) Candidate must successfully complete Research Methodology Course (MMX7001) within the first two (2) semesters of registering as a student at University of Malaya.
  - (b) The candidate must pass their proposal defense seminar by the second semester

**5. Course Registration**

The candidate shall be required to register for the course or courses in the semester that they are offered, unless the candidate has withdrawn from that particular semester.

**6. Supervision**

- (1) The supervisor for a candidate shall be appointed in the relevant area of research.
- (2) The co-supervisor and/or consultant may be appointed at any time when required.

**7. Title of Research**

The area of research for the dissertation shall be determined when the candidate is accepted for admission to the programme of study.

**8. Submission**

- (1) A candidate who is required to follow such course or courses as determined by the Faculty shall not be permitted to submit the dissertation until the Dean confirms that they have followed the course or courses satisfactorily.
- (2) Candidates are required to submit their dissertation for examination within the period of active candidature.

➤ **MMX7001: Research Methodology (3 credits)**

**Course Learning Outcomes**

At the end of the course, students are able to:

1. Formulate the problem statement, research questions and / or hypotheses.
2. Critically appraise relevant literature from authoritative sources within respective research field.
3. Design appropriate research methods for their respective projects.

**Synopsis**

This course is designed to provide knowledge and skills to candidates regarding conducting research projects. The course consists of an overview of skills required for designing research proposals, conducting literature review, selecting appropriate research methods, writing reports and thesis, considering ethical issues, plagiarism and the use of the Turnitin software – statistical measures and the relevant use of analysis software.

**Main Reference**

1. Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
2. Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
3. Chinna K, Choo WY, Krishnakumari K. Statistical Analysis Using SPSS: Pearson Malaysia Sdn Bhd; 2012.
4. Guide for the Care and Use of Laboratory Animals (NRC 2011), National Academy of Sciences (8th Edition)
5. World Health Organization. Laboratory Biosafety Manual, 3rd Edition, 2004. <http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf>
6. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, 2009. <http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf>

**Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

**Name of Programme :** Master of Medical Science (Physiology)  
**Mode :** By Mixed Mode  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Medical Science (Physiology) by Mixed Mode is a programme by coursework and dissertation in which the credit hours for the research component comprises seventy (70%) percent or more of the total credits for the whole programme of study.

### **2. Entry Requirements**

- (1) The degrees of Bachelor of Medicine and Bachelor of Surgery or the degree of Bachelor of Dental Surgery; OR
- (2) Bachelor in Sciences which are related to the field of medical physiology with cumulative grade point average (CGPA) of at least 3.0 or equivalent; OR
- (3) An equivalent qualification approved by the Senate from time to time.

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not in English language shall be required to:

- (1) Obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an Internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) Obtain a band of 6 for the International English Language Testing System (IELTS) (Academic).

### **3. Duration of Study**

- (1) The minimum duration of study shall be three (3) semesters
- (2) The maximum duration of study shall be eight (8) semesters

### **4. Structure of Programme**

- (1) The Master of Medical Science (Physiology) programme by Mixed-Mode comprises forty four (44) credits and consists of two parts as follows:
  - (a) Part I consists of four core courses and one elective course, totalling fourteen (14) credits;
  - (b) Part II consists of a research project leading to the submission of a dissertation, totaling thirty (30) credits.

- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty, and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Medical Science (Physiology) are provided in List 1.
- (4) Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) (Regulations 2019).

## **5. Registration**

- (1) Registration for the courses shall commence the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least nine credits in any semester except -
  - (a) in the final semester of her/his programme of study where he/she may register for less than the number of credits stated above; or
  - (b) where the candidate has been permitted to withdraw from the semester concerned.
- (3) A candidate may only register for Part II of the programme of study after he/she has obtained at least nine credit hours.

## **6. Supervision**

- (1) The supervisor for a candidate shall be appointed when the area of research is approved.
- (2) The co-supervisor and/or consultant may be appointed at any time when required.

## **7. Title of Research**

The area of research for the dissertation shall be determined before the candidate commences the research part of his/her programme of study.

## **8. Submission**

- (1) A candidate is allowed to submit the dissertation when he/she has conducted research for at least one semester after registering for Part II of this programme.
- (2) A candidate shall submit his/her dissertation for examination within the period of candidature.

**List 1: Core Courses**

Code	Title	Credits
MQA 7001	Research Methodology	3
MOA 7001	Human Physiology I	3
MOA 7002	Dissertation	30
MOA 7003	Human Physiology II	3
MOA 7004	Seminar and Literature Review	3

**List 2: \*Elective Courses**

Code	Title	Credits
MOA7005	Advanced Medical Physiology	2
MQB7012	Producing Better Evidence	2

\*Choose one (1) from two (2)  
Subject to change from time to time



## ➤ **MQA7001: Research Methodology (3 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

3. Defend a research proposal.
4. Develop a sound research methodology.
5. Identify the appropriate statistical analysis for different data scale.

### **Synopsis**

Knowledge of research planning as well as the necessary statistical methods

### **Main Reference**

1. Greenhalgh T. How to Read a Paper: The Basics of Evidence-Based Medicine. 5th ed. Wiley: 2014.
2. Dawson B & Trapp RG. Basic and Clinical Biostatistics. 5th ed. McGraw-Hill Medical: 2017.
3. Field A. Discovering Statistics Using IBM SPSS Statistics. 4th ed. SAGE Publications: 2013.
4. Peh WCG & Ng KH. Effective Medical Writing. University of Malaya Press: 2016.
5. University of Malaya Guidelines for the Preparation of Research Reports, Dissertations & Theses, 2015.

### **Assessment Methods**

Continuous Assessment: 100%

Final Examination: -

## ➤ **MOA7001: Human Physiology I (3 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Elaborate the theoretical knowledge of physiology
2. Apply the practical skills in physiology
3. Apply the communication and continuous learning skills in physiology

### **Synopsis**

Human Physiology is the study of how the human body functions under normal conditions. The human body is organised into various organ systems namely: nervous, musculoskeletal, cardiovascular, respiratory, gastrointestinal, renal, endocrine and reproductive systems. The Physiology course in Sem 1 is taught based on core subjects and system blocks, namely:

1. Cell physiology
2. Blood
3. Nerve physiology, neuromuscular & synaptic transmission
4. Muscle physiology
5. Autonomic nervous system
6. Physiology of the cardiovascular system
7. Physiology of the respiratory system

### **Main References:**

1. Ganong's Review of Medical Physiology, (2012) 24th Edition by Kim E. Barrett, Susan M. Barman, Scott Boitano, Heddwen Brooks.
2. Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2016) 13th Edition by John E. Hall PhD  
Medical Physiology (2016) 3rd Edition by Walter F. Boron MD PhD, Emile L. Boulpaep MD.

### **Assessment Methods**

Continuous Assessment: 30%

Final Examination: 70%

#### ➤ **MOA7002: Dissertation (30 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Implement a planned research project
2. Interpret data and research findings
3. Report research findings in written report and oral presentation

### **Synopsis**

A research project in the field of medical sciences.

### **Main References**

1. Marder MP, Research Methods for Science. Cambridge University Press: 2014. 016.
2. Fisher E & Thomson R. Enjoy Writing Your Science Thesis or Dissertation! 2<sup>nd</sup> ed. Imperial College Press: 2014.
3. Terrell SR, Writing a Proposal for Your Dissertation: Guidelines and Examples. The Guildford Press: 2016.
4. University of Malaya Guidelines for the Preparation of Research Reports, Dissertations & Theses. 2015.
5. Peh WCG & Ng KH, Effective Medical Writing, University of Malaya Press, 2

### **Assessment Methods:**

Continuous Assessment: 100%

Final Examination: -

#### ➤ **MOA7003: Human Physiology II (3 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Elaborate the theoretical knowledge of basic human physiology
2. Apply the practical skills in physiology
3. Apply the communication and continuous learning skills in physiology

### **Synopsis**

Human Physiology 2 is the extension of Human Physiology 1 and is the study of how the human body functions under normal conditions.

The Physiology course in Semester II is taught based on system blocks, namely:

1. Gastrointestinal system
2. Renal system
3. Endocrine system
4. Reproductive system
5. Neurophysiology

### **Main References**

1. Ganong's Review of Medical Physiology, (2012) 24th Edition by Kim E. Barrett, Susan M. Barman, Scott Boitano, Heddwen Brooks.
2. Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2016) 13th Edition by John

E. Hall PhD

3. Medical Physiology (2016) 3rd Edition by Walter F. Boron MD PhD, Emile L. Boulpaep MD.

### **Assessment Methods**

Continuous Assessment: 30%

Final Examination: 70%

### ➤ **MOA7004: Seminar and Literature Review (3 credits)**

#### **Learning Outcomes**

At the end of the course, students are able to:

1. Evaluate the latest knowledge in physiology
2. Analyze data and latest information in physiology
3. Present the results of analysis to the targeted group

#### **Synopsis**

Students are trained to search literatures and prepare reviews of the given topics. They are also required to make oral presentations and submit written reports for the topics they presented.

#### **Main Reference**

Scientific articles in peer-reviewed journals

### **Assessment Methods**

Continuous Assessment: 100%

Final Examination: -

### ➤ **MOA7005: Advanced Medical Physiology (2 credits)**

#### **Learning Outcomes**

At the end of the course, students are able to:

1. Analyze the deeper knowledge in physiology
2. Apply the deeper knowledge in physiology
3. Apply the communication and continuous learning skills

#### **Synopsis**

Advanced Medical Physiology is a further study on the human body functions. The taught subjects are:

1. Ion channels
2. Neurosciences
3. Advanced renal physiology
4. Pain
5. Physiology in ageing
6. Exercise Physiology
7. Advanced cardiovascular physiology
8. Advanced reproductive physiology

#### **Main References**

1. Ganong's Review of Medical Physiology, (2012) 24th Edition by Kim E. Barrett, Susan M. Barman,

- Scott Boitano, Heddwen Brooks.
2. Guyton and Hall Textbook of Medical Physiology (Guyton Physiology) (2016) 13th Edition by John E. Hall PhD
  3. Medical Physiology (2016) 3rd Edition by Walter F. Boron MD PhD, Emile L. Boulpaep MD.

### **Assessment Methods**

Continuous Assessment: 30%

Final Examination: 70%

### ➤ **MQB7012: Producing Better Evidence (2 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Describe method to produce scientific evidence.
2. Illustrate method to produce scientific evidence.
3. Solve problems using the scientific method "Systematic review/meta analysis.

### **Synopsis:**

The objective of this course is to produce valid scientific evidence which can be used to modify policy or management standards. It contains the following:

Introduction to performing systematic search and critically appraising the literature / evidence. Systematic reviews and meta-analyses produce the highest hierarchy of evidence should be used to inform decision-making and health care policy. The principles of meta-analytic statistical methods are reviewed, and the application of these to data sets is explored. Application of methods includes considerations for clinical trials and observational studies. The use of meta-analysis to explore data and identify sources of variation among studies is emphasized, as is the use of meta-analysis to identify future research questions.

### **Main References**

1. Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
2. Higgins JPT, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011.
3. Borenstein M, Hedges L. Introduction to meta-analysis: John Wiley & Sons; 2009.
4. Kulinskaya E, Morgenthaler S, Staudte R. Meta analysis: a guide to calibrating and combining statistical evidence: John Wiley & Sons; 2008.
5. Books L. Systematic Review: Meta-Analysis, Publication Bias, Systematic Review, Secondary Data, Thomas C. Chalmers, Cochrane Library, Funnel Plot: General Books LLC; 2010.

### **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

Summary of curriculum structure of Master of Medical Science (Physiology) is as follow:

COMPONENT	SEMESTER I		SEMESTER II		TOTAL CREDIT
	SUBJECTS	CREDIT	SUBJECTS	CREDIT	
Programme core courses	MOA 7001 Human Physiology I	3	MOA 7003 Human Physiology II	3	
	MQA 7001 Research methodology	3	MOA 7002 Dissertation (P)	14	
	MOA 7004 Seminar and Literature Review	3			
			* Elective courses		
			MOA 7005 Advanced Medical Physiology	2	
			MQB 7012 Providing Better Evidences	2	
			* choose one (1) from two (2)		
Total credit		9		19	28

COMPONENT	SEMESTER III		TOTAL CREDIT
	SUBJECTS	CREDIT	
Programme core courses	MOA 7002 Dissertation (P)	16	
Total credit		16	16

**OVERALL CREDIT: 44**

Name of Programme	:	Master of Medical Science (Regenerative Medicine)
Mode	:	By Mixed Mode
Faculty	:	Faculty of Medicine

## 1. Classification of Programme

The Master of Medical Science (Regenerative Medicine) by Mixed Mode is a programme in which the credits for the research component comprises seventy (70%) percent or more of the total credits for the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Science (Regenerative Medicine) degree.

## 2. Entry Requirements

- (1) A Bachelor's degree of Medicine and Degree of Surgery or a Bachelor's Degree of Dental Surgery; or a professional qualification from a recognized professional body; or  
  
A Bachelor's Degree of Science in the related field with a CGPA of not less than 3.0; or  
  
A Bachelor's Degree of Science with a CGPA of not less than 3.0 and with at least one year working experience in the field of regenerative medicine.
- (2) Any other qualification as may be approved by the Senate from time to time;
- (3) With a CGPA of not less than 3.0 or equivalent;
- (4) Candidates with a Bachelor's Degree of CGPA 2.7 to 2.99 may be considered if they meet at least one of the following criteria:
  - (a) Have relevant work experience; Or
  - (b) Produce publications in related fields; Or
  - (c) Is a scholarship recipient; Or
  - (d) Graduates of the University of Malaya.
- (5) Candidates with a Bachelor's Degree of CGPA of 2.5 to 2.69 may be considered if they meet at least two of the criteria in (4).
- (6) Candidates with a Bachelor's Degree of CGPA 2.10 to 2.49 may be considered if they meet the following criteria as outlined in the guidelines provided by the Institute of Postgraduate Studies (IPS) that:
  - (a) Graduates of University of Malaya; And
  - (b) Have a working experience of not less than 5 years or have produced at least one publication in a refereed journal in the field of regenerative medicine; And
  - (c) Application of entry must be submitted to the Senate for consideration based on the merits of each case

## **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not in English language shall be required to:

- (1) Obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an Internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) Obtain a band of 6 for the International English Language Testing System (IELTS) (Academic).

## **3. Duration of Study**

- (1) The minimum duration of study shall be three (3) semesters
- (2) The maximum duration of study shall be eight (8) semesters

## **4. Structure of Programme**

- (1) The Master of Medical Science (Regenerative Medicine) programme by Mixed Mode comprises forty eight (48) credits and consists of two parts, namely:
  - (1) Part I consisting of five (5) core courses totalling twenty (20) credits and one elective courses totalling four (4) credits;
  - (2) Part II involving research leading to the submission of a dissertation totalling twenty four (24) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Medical Science (Regenerative Medicine) are provided in List 1.
- (4) Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree)(Regulations 2019).

## **5. Registration**

- (1) Registration for the courses shall commence the week prior to the start of the relevant semester.

## **6. Supervision**

- (a) The supervisor for a candidate shall be appointed when the area of research is approved.
- (b) The co-supervisor and/or consultant may be appointed at any time when required.

## **7. Title of Research**

The area of research for the dissertation shall be determined before the candidate commences the research part of his programme of study.

## 8. Submission

- (1) A candidate is allowed to submit the dissertation when he/she has conducted research for at least one semester after registering for Part II of this programme.
- (2) A candidate shall submit his/her dissertation for examination within the period of candidature.

**List 1**

Code	Title	Credit Hours
MOB7001	Research Methodology	4
MOB7002	Dissertation	24
MOB7003	Stem Cell and Tissue Engineering	4
MOB7004	Advanced regenerative medicine	4
MOB7005	Cell Based Therapy and Regulation in Regenerative Medicine	4
MOB7006	Regenerative Medicine-Industry	4
MOB7007 (Elective)	Advance Tools in Regenerative Medicine	4
MOB7008 (Elective)	Advance Medical Biotechnology	4
<b>Total</b>		<b>48</b>



## ➤ MOB7001: Research Methodology (4 credits)

### **Learning Outcomes**

At the end of the course, students are able to:

1. Adhere to the ethical requirement for basic science research in stem cells and tissue engineering.
2. Adhere to the ethical requirement for clinical research in stem cells and tissue engineering.
3. Relate the knowledge for the development of research concepts and design a research in a systematic and scientific way.
4. Organize the experiment design/pre-clinical/clinical trials.

### **Synopsis**

In this course, the student will be taught about literature search (in the field of regenerative medicine), development of research concepts, research design, design experiment/pre-clinical/clinical trials, and basic data analysis, and ethics application. Student needs to submit a proposal, submit an ethics application, present for seminar and proposal. Besides, the student will also be taught on communication skills for clinical related research. Student will also needs to go for clinical attachment for practical communications session with clinician and patients. At the end of the semester, the student needs to sit for an oral exam.

### **Main Reference**

1. [Designs for Clinical Trials: Perspectives on Current Issues /edited by David Harrington.](#) Springer eBooks, 2012.
2. [Research ethics: A philosophical guide to the responsible conduct of research/edited by Gary L. Comstock.](#) Cambridge: Cambridge University Press, 2012.
3. Biostatistics Decoded/Author: Oliveira, Antonio; John Wiley & Sons, 2013.
4. [Regression Methods in Biostatistics: Linear, Logistic, Survival, and Repeated Measures Models /by Eric Vittinghoff, David V. Glidden, Stephen C. Shiboski, Charles E. McCulloch.](#) Springer eBooks, 2012.
5. Research Methodology/ Peter Pruzan; Springer International Publishing, 2016.

### **Assessment Methods**

Continuous Assessment : 800%

Final Examination : 20%

## ➤ MOB7002: Dissertation (24 credits)

### **Learning Outcomes**

At the end of the course, students are able to:

1. Integrate/combine scientific theory and research practical skills for research purposes in stem cells and regenerative medicine or related fields.
2. Appraise based on the scientific theory and regulations in stem cells and regenerative medicine industry.
3. Master the practical skills in stem cells and regenerative medicine industry or research.
4. Adhere to the professionalism ethics in the basic science and/or clinical research in the discipline of regenerative medicine

### **Synopsis**

This course module provide the students with an opportunity to conduct a research project within life science disciplines and/or related to clinical applications. The disertation will be a research-based study that will allow student to participate in and develop a current research area. This course module will help

students in developing their practical skills required for professional research, appraise of knowledge, methods and data; data collection and comprehensive data analysis, interpretation and presentation, as well as self-learning and project management. The module is expected to draw on knowledge and skills developed throughout the modules in this programme to facilitate the demonstration of an integrated and multidisciplinary approach in research.

In this course, the student will conduct a research project, present research progress, compile and analyse data, write a dissertation, present the final findings at public (and *viva voce*).

Additional info: Students are encouraged to participate in projects either already underway within the subject areas of the Tissue Engineering Group (TEG), in the Department of Orthopaedic Surgery, Faculty of Medicine, UM. However, we may be able to help initiating new projects proposed by students, providing this fall within an area of staff research interest, appropriate for the course/programme and feasible in terms of budget and timeframe. Students are encouraged to seek academic advice on these matters. Individual specialist Supervisors will be selected from staff whose background and experience will allow them to make an effective contribution to identified projects.

The end-of-program examination will be held at the end of the semester and the candidate must PASS the final exam of the program and PASS in the continuous assessment of the dissertation.

Candidates should only sit and pass this examination once during this practice, if the candidate needs to register for the MOB7002 Dissertation course due to unsuccessful work done or the dissertation report has not been checked by the examiner.

Students must pass “Good Clinical Practice (GCP)” course organized by Clinical Investigation Center (CIC), UMMC, as one of the faculty requirement (for this program) during the candidacy in this program

### **Main Reference**

1. How to Design, Write, and Present a Successful Dissertation Proposal / Author: Elizabeth A. Wentz Los Angeles; SAGE Publications Ltd, 2013.
2. [Proposals that work: A guide for planning dissertations and grant proposals / Lawrence F. Locke, Waneen Wyrick Spirduso & Stephen J. Silverman.](#) New York, NY. SAGE Publications Inc , 2013.
3. Biostatistics Decoded, /Author: Oliveira, Antonio; John Wiley & Sons, 2013.
4. Regenerative medicine and cell therapy/ edited by Hossein Baharvand, Nasser Aghdami, Springer eBooks, 2013.

### **Assessment Methods**

Continuous Assessment : 50%

Final Examination : 50%

## **➤ MOB7003: Stem Cell and Tissue Engineering (4 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Distinguish based on scientific theory the different types of stem cells and culture related techniques.
2. Compare and adapt the applications of different stem cells in tissue engineering.
3. Master the techniques of mesenchymal stem cells primary culture, sub-passaging, cryo-preservation, characterization and regrow the cryo-preserved MSCs

### **Synopsis**

This course is designed to introduce students to the fundamental of stem cells biology and allow them to develop a detailed understanding of stem cells applications in current and future medicine. Students will be encouraged to develop a critical approach in evaluating different types of stem cells, in terms of properties, differentiation potential, applications (in regenerative medicine and other diseases) and limitations. In addition, students will also be introduced with the advances in genetically modified stem cells, biomaterials and their potential applications. Landmark scientific literature and key findings will be

discussed and reported to develop a sound understanding of the technology used in cell therapies. The first-hand experience of stem cell culture techniques and characterization tests will allow students an appreciation of some technical aspects involved in cell therapies and clinical scale cell production.

### **Main Reference**

1. [Stem Cells: Current Challenges and New Directions /edited by Kursad Turksen](#). Springer eBooks, 2013.
2. [Stem Cells and Tissue Engineering /by Mirjana Pavlovic, Bela Balint](#). Springer eBooks, 2013.
3. Stem Cells Handbook, 2<sup>nd</sup> Edition. Editor: Stewart Sell. Springer eBOOKs, 2013.
4. [Molecular biology techniques: a classroom laboratory manual /by Susan Carson, Heather Miller, D. Scott Witherow](#). 3<sup>rd</sup> ed. ; Oxford; Waltham, MA: Academic,2012.
5. [Advances in Stem Cell Research /edited by Hossein Baharvand, Nasser Aghdami](#). Springer eBooks, 2012

### **Assessment Methods**

Continuous Assessment: 45%

Final examination: 55%

### **➤ MOB7004: Advanced Regenerative Medicine (4 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Evaluate regenerative medicine with related fields including biomaterials, basic immunology mechanism underpinning the rejection of transplanted tissue or organs, and cell based therapy of several diseases.
2. Demonstrate mesenchymal stem cell seedings to different biofuels and basic characterization techniques, which comply with industry regulations/legislation/requirements.
3. Compare mesenchymal stem cell seedings to different biofuels and basic characterization techniques, which comply with industry regulations/legislation/requirements.

### **Synopsis**

This course module will provide students with a detailed understanding of cell-based therapies and tissue engineering. In this module, you will be provided with insights into current and future cell therapies and techniques of tissue engineering.

This course focuses on advances in biomaterials and tissue engineering; cell biology for regenerative medicine; applications of regenerative medicine in cartilage, bone, tendon, blood vessel, liver, cardiovascular tissue engineering; cell and organ transplantation; molecular basis of transplantation; basic mechanism of immunology and those related to cell or organ transplantation; and prospects of tissue engineering and regenerative medicine..

### **Main References**

1. [Engineering Biomaterials for Regenerative Medicine: Novel Technologies for Clinical Applications / edited by Sujata K. Bhatia](#). Springer eBooks, 2012.
2. [Biodegradable Polymer-Based Scaffolds for Bone Tissue Engineering /by Naznin Sultana](#). Springer eBooks, 2013.
3. [The Immunological Barriers to Regenerative Medicine /edited by Paul J. Fairchild](#). Springer eBooks, 2013.
4. [Regenerative Medicine and Cell Therapy /edited by Hossein Baharvand, Nasser Aghdami](#). Springer eBooks, 2013.
5. [Stem cells and regenerative medicine. Volume VII, Diseases and therapy / Philippe Taupin](#). New York: Nova Science Publishers, Inc., 2012.

**Assessment Methods**

Continuous Assessment : 65%

Final Examination : 35%

➤ **MOB7005: Cell Based Therapy and Regulation in Regenerative Medicine (4 credits)**

**Learning Outcomes**

At the end of the course, students are able to:

1. Value the regulations and legislation in clinical applications of products related to tissue engineering and cell based therapy.
2. Compare the regulations and legislation in clinical applications of products related to tissue engineering and cell based therapy.
3. To identify and integrate the regulatory requirements in the development of tissue engineering and cell based therapy products.
4. Adapt to the industry environment which adhere to the regulations and legislation.

**Synopsis**

This course introduces students to the regulations and legislations related to cell based therapy. This course consist of the current regulatory framework for cell based therapy in Malaysia and other countries. This course also covers the legal unit/entiti which enforce the regulations and legislation in the development to regenerative medicine related products as well as regenerative medicine industries. This course also addresses the healthcare economics which is related to the regenerative medicine industry, under the regulations and legislations associated with tissue engineering and cell based therapy.

Throughout this course, student need to do laboratories visits (GMP and GLP accredited laboratories) as well as industries attachments.

**Main Reference**

1. [Regenerative Medicine and Cell Therapy /edited by Hossein Baharvand, Nasser Aghdami](#). Springer eBooks, 2013.
2. Stem Cells Handbook, 2<sup>nd</sup> Edition. Editor: Stewart Sell. Springer eBOOKs, 2013.
3. [Stem cells and regenerative medicine. Volume VII, Diseases and therapy / Philippe Taupin](#). New York: Nova Science Publishers, Inc., 2012.
4. [Mesenchymal Stem Cell Therapy /edited by Lucas G. Chase, Mohan C. Vemuri](#). Springer eBooks, 2013.

**Assessment Methods**

Continuous Assessment: 85%

Final Examination: 15%

➤ **MOB7006: Regenerative Medicine-Industry (4 credits)**

**Learning Outcomes**

At the end of the course, students are able to:

1. Relate the industrial scale and standard requirements for products of tissue engineering and cell based therapy.
2. Integrate the knowledge of the regenerative medicine to the industry of biomedical engineering.

**Synopsis**

In this module, the student will be exposed to the knowledge in the aspect of regenerative medicine industry, such as biomaterials for regenerative medicine industry, facility/industry regulation, economic evaluation and health economic for regenerative medicine.

In this module, there will be an opportunity for industrial placement for five weeks, within a biomedical engineering company or regenerative medicine industry specifying in the aspect of tissue engineering and cell based therapy.

No finance assistance will be available to cover travel expenses to the location of the industry placement.

### **Main Reference**

1. [Engineering Biomaterials for Regenerative Medicine: Novel Technologies for Clinical Applications / edited by Sujata K. Bhatia](#). Springer eBooks, 2012.
2. [Regenerative biology and medicine /David L. Stocum](#). 2nd ed.; Amsterdam: Elsevier/ Academic Press, On ScienceDirect® e-Books, 2012.
3. [Tissue engineering and regenerative medicine: a nano approach/ edited by Murugan Ramalingam ... \[et al.\]](#). Boca Raton, FL.: CRC Press, 2013.
4. [Biologically Responsive Biomaterials for Tissue Engineering /edited by Iulian Antoniac](#). Springer eBooks, 2013.
5. [Biomimetics: advancing nanobiomaterials and tissue engineering bonded systems / edited by Murugan Ramalingam, Xiumei Wang, Guoping Chen, Peter Ma, and Fu-Zhai Cui](#). Hoboken, NJ: John Wiley & Sons, Inc., 2013.

### **Assessment Methods**

Continuous Assessment: 80%

Final Examination: 20%

## **➤ MOB7007: Advance Tools in Regenerative Medicine (4 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Compare the advantages and limitations of advance analysis tools for applications in stem cells and tissue engineering research.
2. Integrate the advantages and limitations of advance analysis tools for applications in stem cells and tissue engineering research.
3. Integrate the use of advance analysis tools in the analysis in stem cells and tissue engineering research.

### **Synopsis**

This module covers the theoretical knowledge and experience of the core iotechnology laboratory techniques used to carry out experimental research within the medical biotechnology and tissue engineering. This module is based on a series of practical sessions and will give students experience of performing experimental work, collecting data and interpreting and presenting results.

### **Main Reference**

1. Stem Cells Handbook, 2<sup>nd</sup> Edition. Editor: Stewart Sell. Springer eBOOKs, 2013.
2. [Integrated biomaterials in tissue engineering / edited by Murugan Ramalingam, Ziyad Haidar, Youssef Haikel](#). Hoboken, N.J.: John Wiley & Sons; Salem, Mass.: Scrivener Pub., c2012.
3. [Molecular biology techniques: a classroom laboratory manual /by Susan Carson, Heather Miller, D. Scott Witherow](#). 3rd ed.; Oxford; Waltham, MA: Academic,2012.
4. [Molecular Imaging: Fundamentals and Applications /by Jie Tian](#). Springer eBooks, 2013.
5. Stem Cell Transplantation / edited by Carlos López-Larrea, Antonio López-Vázquez, Beatriz Suárez-Álvarez, Springer Science, eBook, 2012.

### **Assessment Methods**

Continuous Assessment: 55%

Final Examination: 45%

➤ **MOB7008: Advance Medical Biotechnology (4 credits)**

**Learning Outcomes**

At the end of the course, students are able to:

1. Compare the advantages and limitations of advance biotechnology tools for regenerative medicine research applications based on theory.
2. Compare the advantages and limitations of advance biotechnology tools for regenerative medicine research applications based on practical.
3. To integrate advance biotechnology tools in regenerative medicine study.

**Synopsis**

This module covers the theoretical knowledge and experience of the core biotechnology techniques used to carry out experimental research within the regenerative medicine. This module is based on a series of practical sessions and will give students experience of performing experimental work, collecting data and interpreting and presenting results.

**Main Reference**

1. [Engineering Biomaterials for Regenerative Medicine: Novel Technologies for Clinical Applications / edited by Sujata K. Bhatia](#). Springer eBooks, 2012.
2. [Regenerative biology and medicine /David L. Stocum](#). 2nd ed.; Amsterdam: Elsevier/ Academic Press, On ScienceDirect® e-Books, 2012.
3. [Tissue engineering and regenerative medicine: a nano approach/ edited by Murugan Ramalingam ... \[et al.\]](#). Boca Raton, FL.: CRC Press, 2013.
4. [Biologically Responsive Biomaterials for Tissue Engineering /edited by Iulian Antoniac](#). Springer eBooks, 2013.
5. [Biomimetics: advancing nanobiomaterials and tissue engineering bonded systems / edited by Murugan Ramalingam, Xiumei Wang, Guoping Chen, Peter Ma, and Fu-Zhai Cui](#). Hoboken, NJ: John Wiley & Sons, Inc., 2013.

**Assessment Methods**

Continuous Assessment: 55%

Final Examination: 45%

**Name of Programme :** Master of Health Research Ethics  
**Mode :** By Coursework  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Master of Health Research Ethics is a programme by coursework in which the credits for the research component comprises less than thirty (30) percent of the total credits for the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Health Research Ethics degree.

### **2. Entry Requirements**

- (1) A Bachelor's degree related to health research ethics with CGPA of at least 3.0 and above or equivalent; **or**
- (2) A Bachelor's degree with at least 1 year of working experience in related field; **or**
- (3) An equivalent qualification approved by the Senate from time to time.

AND

Pass the entrance assessment set by the faculty

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not in English language shall be required to:

- (1) Obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an Internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) Obtain a band of 6 for the International English Language Testing System (IELTS) (Academic).

### **3. Duration of Study**

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters

### **4. Structure of Programme**

- (1) The Master of Health Research Ethics programme by coursework comprises of forty-two (42) credits namely.
  - (a) six (6) core courses, each of three (3) credits, totalling eighteen (18) credits

- (b) Practicum in Health Research Ethics of nine (9) credits;
  - (c) A Research Project of nine (9) credits;
  - (d) two (2) elective courses, each of three (3) credits, totaling six (6) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
  - (3) The lists of courses for the programme of Master of Health Research Ethics are provided in List 1.

## **5. Registration**

- (1) Registration for the courses shall commence the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least six (6) credits in any semester except -
  - (a) in the final semester of his/her programme of study where he/she may register for less than the number of credits stated above; or
  - (b) where the candidate has been permitted to withdraw from the semester concerned.

## **6. Supervision**

- (1) A Supervisor shall be appointed for the candidate when the area of research is approved.
- (2) The co-supervisor may be appointed at any time when required.

## **7. Title of Research**

The area of research shall be determined before the candidate commences the research part of his/her programme of study.

## **8. Submission**

A candidate is required to submit the project report before the end of the maximum period of the candidature.

## **9. Examination for the Degree**

- (1) The Examination leading to the degree of Master of Health Research Ethics by coursework shall consist of an examination or examinations in each of the courses prescribed for the Master of Health Research Ethics degree programme as follows:
  - (a) six (6) core courses, each of three (3) credits, totalling eighteen (18) credits;
  - (b) a practicum of nine (9) credits;



- (c) a research project of nine (9) credits;
- (d) two (2) elective courses, each of three (3) credits, totaling six (6) credits.

(2) Examination Components and Mark Allocation

(a) Taught Courses

- (i) The components of the courses and the marks to be allocated to the components of the courses prescribed for the Examination shall be:

Component	Description	Allocation of Marks (Maximum)
(A)	End of Semester Examination	30%
(B)	Continuous Assessment	<u>70%</u>
	Total	100%

This applies to the following courses:

MQF7003 Foundations of Research Ethics  
 MQF7004 Research Ethics in Special Populations  
 MQF7010 Ethics in Animal Research (Elective)  
 MQF7011 Healthcare Law and Ethics (Elective)

- (ii) For SQE7006 Ethics of Sustainability (Elective), the marks to be allocated to the components of the courses prescribed for the Examination shall be:

Component	Description	Allocation of Marks (Maximum)
(A)	End of Semester Examination	40%
(B)	Continuous Assessment	<u>60%</u>
	Total	100%

- (iii) For the following courses, students will only be assessed via continuous assessment (100%) and there is no End of Semester Examination:

MQB7001 Research Method  
 MQF7002 Research Project  
 MQF7005 Responsible Conduct of Research  
 MQF7006 Ethical issues in global health research and clinical trials  
 MQF7007 Ethical Issues of Emerging Sciences  
 MQF7008 Practicum in Health Research Ethics  
 MQF7009 Good Clinical Practice (Elective)

The Senate may on the recommendation of the Faculty, amend the allocation of marks for the components of a course for the Examination.

(3) Course Grade Requirements

Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.

## 10. Award of Degree

No candidate shall be recommended for the award of the degree of Master of Health Research Ethics unless he/she has successfully completed all parts of the course and passed all the prescribed examination.

**List 1**

<b>Code</b>	<b>Title</b>	<b>Credits</b>
<b>Core Courses</b>		
MQB7001	Research Method	3
MQF7002	Research Project	9
MQF7003	Foundations of Research Ethics	3
MQF7004	Research Ethics in Special Populations	3
MQF7005	Responsible Conduct of Research	3
MQF7006	Ethical Issues in Global Health Research and Clinical Trials	3
MQF7007	Ethical Issues of Emerging Sciences	3
MQF7008	Practicum in Health Research Ethics	9
<b>Elective Courses (choose two)</b>		
MQF7009	Good Clinical Practice	3
MQF7010	Ethics in Animal Research	3
MQF7011	Healthcare Law and Ethics	3
SQE7006	Ethics of Sustainability	3
<b>Total</b>		<b>42</b>

## ➤ MQB7001: Research Method (3 credits)

### **Learning Outcomes**

At the end of the course, students are able to:

1. Formulating a good research questions. (C3,P2,A2)
2. Choose the design and research methods appropriate to the research question is formulated. (C4,P3,A3)
3. Evaluate critically various epidemiologic studies the basic study design. (C5,P4,A4)

### **Synopsis**

This course introduces candidates to the critical appraisal. Journal readings and exercises in journal critiques are used to illustrate methodological issues in epidemiological studies. This course also introduces the candidate to the basic principles of research methods. The course takes the candidate through the steps of the research process and provides the candidate a hands-on experience to write critique on an article and a research proposal

### **Main Reference**

1. Gordis L. Epidemiology: Elsevier/Saunders; 5<sup>th</sup> edition ,2014.
2. Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
3. Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
4. 4. Guyatt GH, Oxman AD, Sultan S, et al. GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311-6. doi: 10.1016/j.jclinepi.2011.06.004.
5. Sterne Jonathan A C, White Ian R, Carlin John B, Spratt Michael, Royston Patrick, Kenward Michael G et al. Multiple imputation for missing data in epidemiological and clinical research: potential and pitfalls BMJ 2009; 338 :b2393

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

## ➤ MQF7002: Research Project (9 credits)

### **Learning Outcomes**

At the end of the course, students will be able to:

1. Propose a research project that examines the ethical issues.
2. Conduct appropriate research to address the ethical challenges.
3. Present the research plan and results professionally.

### **Synopsis**

The course requires candidates to formulate a research question, design and conduct a research project that aims to address the ethical challenges in research, clinical practice, and program implementation. During the project, students will collect data and apply suitable analytic methods in order to evaluate specific ethical principles such as informed consent, individual and community rights, confidentiality, and other ethical standards.

### **Main Reference**

1. Jeremy Sugarman, M. D., & Sulmasy, D. P. (Eds.). (2010). *Methods in medical ethics*. Georgetown University Press.

2. Iphofen, R. (Ed.). (2017). *Finding Common Ground-Consensus in Research Ethics Across the Social Sciences* (Vol. 1). Emerald Group Publishing.
3. National Academy of Sciences, N. A. (2009). *On being a scientist: a guide to responsible conduct in research*. National Academies Press (US).

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

### ➤ **MQF7003: Foundations of Research Ethics (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Demonstrate an awareness of key ethical theories and principles guiding research.
2. Differentiate relevant ethical theories and principles in various research contexts.
3. Assess the impact of ethical decisions and choices in a research setting

#### **Synopsis**

This course provides the candidate an overview of research ethics including the history, theories and principles of research ethics. Key topics such as consent, risks and benefits, confidentiality and justice will be taught. The student will have an opportunity to discuss and debate basic issues surrounding research ethics through small group discussions and individual presentations.

#### **Main Reference**

- i. Rothman, David J. *Strangers at the bedside: A history of how law and bioethics transformed medical decision making*. Basic Books, 1991.
- ii. Eckenwiler, Lisa A., and Felicia G. Cohn, eds. *The ethics of bioethics: Mapping the moral landscape*. JHU Press, 2009.
- iii. Beauchamp, Tom L., and James F. Childress. *Principles of biomedical ethics*. Oxford University Press, USA, 2001.
- iv. Herring, Jonathan. *Medical law and ethics*. Oxford University Press, USA, 2014.
- v. Emanuel, Ezekiel J., David Wendler, and Christine Grady. "What makes clinical research ethical?." *Jama* 283.20 (2000): 2701-2711.
- vi. Freedman, Benjamin. "Equipoise and the ethics of clinical research." *N Engl J Med* 317.3 (1987): 141-145.
- vii. The World Medical Association (WMA), Declaration of Helsinki: Ethical principles for medical research involving human subjects, can be accessed at <https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/>
- viii. International Ethical Guidelines for Biomedical Research Involving Human Subjects, prepared by the Council for International Organizations of Medical Sciences (CIOMS) in collaboration with the World Health Organization (WHO) can be accessed at [http://www.cioms.ch/publications/guidelines/guidelines\\_nov\\_2002\\_blurb.htm](http://www.cioms.ch/publications/guidelines/guidelines_nov_2002_blurb.htm)

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

### ➤ **MQF7004: Research Ethics in Special Populations (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

- (1) apply the principles of research ethics and protecting values and rights of special populations (C3, P4, A3) (PLO3)

- (2) examine research ethical issues unique to the population (C4, P3, A3) (PLO4)
- (3) solve research ethical problems in special populations relevant to the local cultural context (C4, P4, A4) (PLO6)

### **Synopsis**

This course focuses on research ethical issues in special populations including children and women, key populations, and people with physical and mental illnesses and disabilities. It teaches candidates how to apply research ethical concepts in the real world and equips them with the skills to appraise and solve research ethical problems when conducting research in these populations through case studies. This course also allows the candidates to reflect on their own values when examining research ethical issues in these vulnerable populations through case presentations and case reports.

### **Main Reference**

1. European Commission. **Ethical Considerations for clinical trials performed in children.** Available from: [https://ec.europa.eu/health/sites/health/files/files/paediatrics/docs/paeds\\_ethics\\_consultation2\\_0060929\\_en.pdf](https://ec.europa.eu/health/sites/health/files/files/paediatrics/docs/paeds_ethics_consultation2_0060929_en.pdf)
2. Medical Research Council. MRC Ethics Guide: Medical research involving children. Available from: <https://www.mrc.ac.uk/documents/pdf/medical-research-involving-children/>
3. ACOG. Ethical Considerations for Including Woman as Research Participants. Available from: <https://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Ethics/Ethical-Considerations-for-Including-Women-as-Research-Participants>
4. Thomas V. B. Ethical and methodological complexities in research involving sexual minorities. Available from <https://files.eric.ed.gov/fulltext/EJ929950.pdf>
5. <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=4DBF4FDCF864D3AB691B02B277E3389F?doi=10.1.1.513.952&rep=rep1&type=pdf>

### **Assessment Weightage**

Continuous Assessment: 70%  
Final Examination: 30%

### **➤ MQF7005: Responsible Conduct of Research (3 credits)**

### **Learning Outcomes**

At the end of the course, students are able to:

1. Relate the multiple roles, responsibilities and values of an investigator with ethical conduct of research
2. Appraise the impact of responsible conduct of research on ethical dissemination of research findings
3. Propose strategies to manage and prevent publication misconduct

### **Synopsis**

This course teaches the candidates the elements of responsible conduct of research. It stimulates the student to reflect on the importance of publication ethics as a culmination of research conducted in a responsible manner and its implications in the context of research dissemination by case reports and presentation. The course will also use case studies to demonstrate how publication misconducts can be prevented and addressed.

### **Main Reference**

1. Code of Conduct and Best Practice Guidelines for Journal Editors, *Committee on Publication Ethics: COPE*, [online] available from: <https://publicationethics.org/resources> [accessed May 2017]
2. ASM Module of Responsible Conduct of Research
3. UM Manual for Responsible Research
4. World Health Organization's Handbook for Good Clinical Research Practice

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

### **➤ MQF7006: Ethical issues in global health research and clinical trials (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Demonstrate an awareness of key aspects of global health and public health research ethics.
2. Analyse the ethical and legal issues involved in global health and public health situations.
3. Assess the impact of ethical choices and actions in a global health setting.

#### **Synopsis**

This course is designed for the candidate to understand the key aspects of global health research and public health situation through case studies. This course also introduce the candidates on certain topics for example ancillary care, vaccine research, HIV research and so on.

### **Main Reference**

1. Millum, J. and Emanuel, E.J. eds., 2012. *Global justice and bioethics*. Oxford University Press.
2. Lavery, J.V., Grady, C. and Wahl, E.R. eds., 2007. *Ethical issues in international biomedical research: a casebook*. Oxford University Press, USA.
3. Emanuel, E.J., Wendler, D., Killen, J. and Grady, C., 2004. What makes clinical research in developing countries ethical? The benchmarks of ethical research. *The Journal of infectious diseases*, 189(5), pp.930-937.
4. Cash, R., Wikler, D., Saxena, A., Capron, A. M., & World Health Organization. (2009). Casebook on ethical issues in international health research [electronic resource]/edited by Richard Cash [... et al]. In Casebook on ethical issues in international health research [electronic resource]/edited by Richard Cash [... et al]. at [http://apps.who.int/iris/bitstream/handle/10665/44118/9789241547727\\_eng.pdf?sequence=4](http://apps.who.int/iris/bitstream/handle/10665/44118/9789241547727_eng.pdf?sequence=4)

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

### **➤ MQF7007: Ethical Issues of Emerging Sciences (3 credits)**

#### **Learning Outcomes**

At the end of this course, students are able to:

1. Illustrate the ethical and legal issues surrounding the area of emerging sciences (C3, P4, A3) (PLO1)
2. Examine the conflicting moral values and ethical principles involved in various areas of

emerging sciences (C4, P3, A3) (PLO4)

3. Evaluate possible course of actions to address the ethical issues at stake (C5, P4, PL06)

### **Synopsis**

This course introduces the ethical and legal issues arising from the emerging sciences, such as research in genetics and genomics, neuroethics, stem cell and biobanking. It teaches the candidate how to examine and deconstruct ethical problems arising from these emerging sciences, and determine and justify ethical principles that are relevant to the ethical problem. It also guides the candidate to find possible solutions to the ethical problem and make ethical decisions, including using regulatory measures. The candidates will be trained to make decisions when faced with situations where ethics, legal, and the values of the technologies interplay through case studies..

### **Main Reference**

1. Universal Declaration on Bioethics and Human Rights
2. Universal Declaration on the Human Genome and Human Rights
3. UNESCO's Core Curriculum on Bioethics
4. World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) Reports
5. Declaration of Helsinki
6. Belmont Report
7. Nuremberg Code
8. Emanuel et. al. Framework
9. Beauchamp, T. L., & Childress, J. F. (2013). Principles of biomedical ethics. Oxford University Press, USA.
10. Resnik, D. B. (2005). The ethics of science: An introduction. Routledge.

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

## **➤ MQF7008: Practicum in Health Research Ethics (9 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Interpret the principles of research ethics in practical setting. (C5) (PLO3)
2. Demonstrate leadership and teamwork while working with key population (C3) (PLO5)
3. Solve real world ethical issue in research through various attachments and field work. (P4) (PLO6)

### **Synopsis**

This course focuses on the practical aspects of research ethical issues in special populations including prisoners, those who are culturally vulnerable and with physical and mental illnesses and disabilities. It intends to provide a broad but reasonably detailed examination of central ethical issues in these populations. This course follows a format, which after an introductory session, time is devoted to gain hands-on experience through working with special populations, attending research ethics meetings, presentations, group discussions and development of the research report. The candidate will have the opportunity to be attached to two different research ethics committees, so that they can learn and compare different systems of reviewing research ethics. It teaches the candidates how to apply research ethical concepts as well as to equip them with the skills to appraise and solve research ethical problems when conducting research with these populations through field visits and feedback.

### **Main Reference**

1. UMMC MREC. Research Ethic . Available from:  
[http://www.umm.edu.my/research/research\\_ethics.asp](http://www.umm.edu.my/research/research_ethics.asp)

2. MOH. Medical Research and Ethics Committee. Available from <http://nih.gov.my/web/mrec/>

### **Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

#### **➤ MQF7009: Good Clinical Practice (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Apply the principles of Good Clinical Practice in Clinical Trial (C3,P1,A3) (PLO2)
2. Examine clinical trials that involve the participation of human subjects.(C4,A4,P2) (PLO4)
3. Solve ethical problems in Clinical Trials to ensure study subjects' wellbeing are safeguarded (C5,A4,P5) (PLO6)

### **Synopsis**

This course teaches international and local ethical and scientific quality standards for designing, conducting, recording and reporting clinical trials that involve the participation of human subjects. It will include ethical and regulatory issues related to the conduct of clinical trials such as responsibilities of investigators, safety monitoring and reporting, legal issues in clinical trials, audit and inspections. Besides, Good Clinical Practice, other relevant practice guidelines such as Good Laboratory Practice, Good Manufacturing Practice, Good Statistical Practice will be covered.

### **Main Reference**

1. Malaysian Guideline for Good Clinical Practice Fourth Edition, 2018
2. Wandile P, Ghooi. R (2017), A Role of ICH:GCP in Clinical Trial Conduct. Journal Clinical Research Bioethics 8:1000297
3. Malaysian Guideline for Independent Ethics Committee Registration and Inspection, First Edition, 2016, NPRA, MOH.
4. Malaysian Guideline for Application of Clinical Trial Import Licence and Clinical Trial Exemption. 6.3 edition, July 2016, NPRA, MOH.
5. Malaysian Guidelines for Independent Ethics Committee Registration and Inspection, 1 st edition, May 2016, NPRA, MOH
6. Malaysian Guideline For Safety Reporting of Investigational Products, First Edition, 2014, NPRA, MOH
7. g) Malaysian Guideline for Bioequivalence Inspection, First Edition, 1st October
8. 2014.
9. Guidelines For Good Clinical Practice (Gcp) Inspection, August 2010, NPRA, MOH.
10. Noor Zurani MHR, Aziz N, Abd Aziz, Abd Hamid, Mohamed M, Othman S, Hussein N (2008). The need for 'Good Clinical Practice' in Health care research. Journal of the South Africa Academy of Family Practice/Primary Care 51:3 (202–205)
11. The conduct of Bioavailability and Bioequivalence Studies, First edition, 14<sup>th</sup> September 2000.
12. International Council Harmonisation (ICH) Guidelines.

### **Assessment Weightage**

Continuous Assessment: 100%%

Final Examination: -

#### **➤ MQF7010: Ethics in Animal Research (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:



1. Describe different methods and techniques used in experiments involving animals (C2, A3)
2. Discuss ethical and welfare issues with regards to animal experimentation (C2, A3)
3. Analyze the applications of laboratory animals in research (C4)

### **Synopsis**

This course is designed to provide facts and instil principles essential to the humane use and care of animals that will in turn ensure the quality of biomedical research. Students will be taught basic animal biology and husbandry, as well as animal handling techniques during experimental procedures. The students' responsibilities towards the welfare of the animals used and the ethical concerns of biomedical research will be emphasised.

### **Main Reference**

1. Hau, J. & Schapiro, S. J. (2010). *Handbook of Laboratory Animal Science, Volume I Essential Principles and Practices* (3<sup>rd</sup> Edition). CRC Press.
2. NRC (2011). *Guide for the Care and Use of Laboratory Animals* (8<sup>th</sup> Edition). The National Academies Press.
3. Hau, J. & Schapiro, S. J. (2010). *Handbook of Laboratory Animal Science, Volume I Essential Principles and Practices* (3<sup>rd</sup> Edition). CRC Press.
4. NRC (2011). *Guide for the Care and Use of Laboratory Animals* (8<sup>th</sup> Edition). The National Academies Press.
5. Laboratory Animal Science Professional, AALAS
6. University of Malaya Faculty of Medicine IACUC Policy (2018); <http://resfom.um.edu.my/ethics/ethics-institutional-animal-care-and-use-committee-iacuc/>
7. Danio Rerio (2011) Guidance on the housing and care of Zebrafish
8. OECD (2000) Guidance for Use of Clinical Signs as Humane Endpoints

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

### **➤ MQF7011: Healthcare Law and Ethics (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. Evaluate the ethical and medico-legal issues that might arise in health research;
2. Analyse the adequacy or inadequacy of existing law in conducting and managing health research;
3. Examine a specific health research ethics issue, present a critique of the issue and offer possible solutions.

### **Synopsis**

The study of healthcare matters may be considered from four aspects. First the relationship between the healthcare provider and the patient; Second, the relationship between the state and the individual in relation to public health; Third, the relationship between the state and the healthcare provider and lastly, selected bioethics issues that require a consideration of the relationship between law and ethics in dealing with advances in science and technology.

The emphasis of this course is on the first aspect mentioned above, namely, the patient-doctor/hospital relationship. Selected bio-ethics issues will also be examined.

### **Main Reference**

1. M Brazier & E Cave, (2016) *Medicine Patients and the Law*, 5th ed, Manchester University Press
2. G Laurie, S Harmon, and G Porter. (2016). *Mason and McCall Smith's Law and Medical Ethics* (10th ed.). OUP

3. Puteri Nemie Jahn Kassim.(2010) Law and Ethics Relating to the Medical Profession, International Law Books Series
4. Jonathan Herring (2018), Medical Law and Ethics (7<sup>th</sup> edition) OUP Oxford

### **Assessment Weightage**

Continuous Assessment: 70%

Final Examination: 30%

## **➤ SQE7006: Ethics of Sustainability (3 credits)**

### **Learning Outcomes**

At the end of this course, students are able to:

1. analyse ethical issues in sustainability based on basic ethical principles.
2. suggest solution to contemporary ethical problems related sustainable development.
3. exhibit skills associated with decision-making process.

### **Synopsis**

Introduction to the worldview of modern science and emphasis on its relation with ethical issues of sustainable development. Ethical implications of new technologies and moral choices. Professional ethics in science, technology, experimentation and research related to sustainable development.

### **Main Reference**

1. Briggie, A. (2012). Ethics and Science: An Introduction. Colorado School of Mines. Cambridge: Cambridge University Press.
2. Maxwell, B. (2008). Professional Ethics Education: Studies in Compassionate Empathy [electronic resource] / by Bruce Maxwell. Dordrecht: Springer Netherlands.
3. Naagarazan, R. S. (2006). Textbook on professional ethics and human values. New Age International.
4. Lemons, J & Donald, A.B. (1995). Sustainable development: science, ethics, and public policy. Dordrecht: Kluwer Academic Publishers.
5. Lemons, J., & Brown, D. A. (Eds.). (2013). Sustainable development: Science, ethics, and public policy (Vol. 3). Springer Science & Business Media.
6. <http://www.onlineethics.org/>

### **Assessment Weightage**

Continuous Assessment: 60%

Final Examination: 40%

**Master of Health Research Ethics  
Programme Schedule Schedule**

Special Semester	<ul style="list-style-type: none"> <li>▪ A practicum of nine (9) credits</li> </ul>	Examination
Semester II	<ul style="list-style-type: none"> <li>▪ A research project of nine (9) credits</li> <li>▪ Two (2) elective courses, each of three (3) credits, totalling six (6) credits; and</li> <li>▪ Two (2) core courses, each of three (3) credits, totalling six (6) credits;</li> </ul>	(i) End of Semester I (ii) End of Semester II
Semester I	<ul style="list-style-type: none"> <li>▪ Two (2) elective courses, each of three (3) credits, totalling six (6) credits</li> <li>▪ Four (4) core courses, each of three (3) credits, totalling twelve (12) credits</li> </ul>	Registration (Admission Evaluation)

<b>Name of Programme</b>	:	<b>Doctor of Medicine</b>
<b>Mode</b>	:	<b>Research</b>
<b>Faculty</b>	:	<b>Faculty of Medicine</b>

This programme is offered for Malaysians who are registered medical doctors working in the University Malaya Medical Center (UMMC).

The Doctor of Medicine programme offered by the Faculty of Medicine, University of Malaya is a higher doctoral degree programme, to which the candidate must already have the necessary medical experience before applying for this program.

The research component comprises one hundred (100) percent of this Doctor of Medicine Programme.

### **1. Entry Requirements**

- (1) Master's Degree or other equivalent qualifications in the relevant field
  - (2) Clinical Master's Degree; or
  - (3) Specialist qualification in clinical fields;
- And
- (4) has a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree or other equivalent qualification and has at least two (2) years of experience as a medical practitioner.
- And

### **Language Requirement**

- (1) A non-citizen applicant who wishes to follow a degree programme of study shall fulfil the English Language competency requirement determined by the University if he obtained his degree from a university or institution of higher learning which does not use English Language as the medium of instruction for the relevant degree.
- (2) English Language competency requirement for non-citizen applicants are as follows:
  - (a) to obtain a minimum score of 600 on the paper-based total (PBT), a score of 250 for the computer-based total (CBT) or a score of 100 for the internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
  - (b) to obtain a minimum score of band 6 and above on the International English Language Testing System (IELTS) (Academic)
  - (c) score according to the respective programmes standard if it is higher than (a) and (b); or
  - (d) If programme standard states that the TOEFL or IELTS (Academic) score is lower than the minimum score of the University, these programmes should follow the minimum score set by the University as stated in (aa) or (bb).
- (3) Notwithstanding anything in paragraph (B), subject to Senate's approval and based on the requirements of the Doctoral Degree programme, the Faculty may consider other qualification/competency in English Language apart from that stated in paragraph (B) above.

- (4) A non-citizen applicant with the background as stated below is exempted from the English Language requirement:
- (a) from a Country where the National Language is the English Language;
  - (b) to use the academic qualification from an institution which uses English Language fully as their medium of instruction; or
  - (c) has studied in Malaysia and plans to further his studies at a higher level subject to the requirement in (bb).

## **2. Duration of study**

- (1) The minimum duration of study shall be four (4) semesters.
- (2) The maximum duration of study shall be ten (10) semesters.

## **3. Structure of Programme**

- (1) Thesis:

To supplicate for the degree of Doctor of Medicine, a candidate shall submit a thesis (not more than 100,000 words) which must be original work on a subject approved by the Senate on the recommendation of the Faculty and at the discretion of the examiners be examined in such manner as the examiners think fit on the subject matter of the thesis and related subjects;

A candidate may not submit this thesis earlier than twenty four (24) months nor later than five (5) years after the date of his initial registration except with the approval of the Senate.

- (2) Research Methodology (MVX8001) (3 credits):

- (a) Candidate must successfully complete Research Methodology Course (MVX8001) within the first two (2) semesters of registering as a student at University of Malaya.
- (b) The candidate must pass their Proposal Defense seminar by the second semester.

## **4. Supervision**

- (1) The supervisor for a candidate shall be appointed when the area of research is approved.
- (2) The co-supervisor and/or consultant may be appointed at any time when required.

## **5. Title of Research**

The area of research for the thesis shall be determined when the candidate is accepted for admission to the programme of study.

## **6. Submission**

- (1) A candidate who is required to follow such course or courses as determined by the Faculty shall not be permitted to submit the thesis until the Dean confirms that they have followed the course or courses satisfactorily.
- (2) Candidates are required to submit their dissertation for examination within the period of active candidature

➤ **MVX8001: Research Methodology (3 credits)**

**Course Learning Outcomes**

At the end of the course, students are able to:

- (1) Formulate the problem statement, research questions and / or hypotheses.
- (2) Critically appraise relevant literature from authoritative sources within respective research field.
- (3) Design appropriate research methods for their respective projects.

**Synopsis**

This course is designed to provide knowledge and skills to candidates regarding conducting research projects. The course consists of an overview of skills required for designing research proposals, conducting literature review, selecting appropriate research methods, writing reports and thesis, considering ethical issues, plagiarism and the use of the Turnitin software – statistical measures and the relevant use of analysis software.

**Main Reference**

- (1) Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
- (2) Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
- (3) Chinna K, Choo WY, Krishnakumari K. Statistical Analysis Using SPSS: Pearson Malaysia Sdn Bhd; 2012.
- (4) Guide for the Care and Use of Laboratory Animals (NRC 2011), National Academy of Sciences (8<sup>th</sup> Edition)
- (5) World Health Organization. Laboratory Biosafety Manual, 3rd Edition, 2004.
- (6) <http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf>
- (7) U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, 2009. <http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf>

**Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

**Name of Programme :** Doctor of Philosophy  
**Mode :** Research  
**Faculty :** Faculty of Medicine

The Doctor of Philosophy by Research is a programme in which the research component comprises one hundred (100) percent of the programme of study.

## **2. Entry Requirements**

(1) Admission requirements for the programme of Doctor of Philosophy by Research are as follows:

- (a) Master's Degree by Research;
- (b) Clinical Master's Degree;
- (c) Master's Degree by Coursework or Mixed Mode with a CGPA of not less than 3.7;
- (d) Master's Degree by Coursework or Mixed Mode with a CGPA of 2.00 to 3.69 AND qualification of a Bachelor's degree with a CGPA of not less than 3.00;
- (e) Master's Degree by Coursework or Mixed Mode with a CGPA of not less than 3.00 to 3.69 and APEL (A) qualification or other qualification approved by the Senate; or
- (f) Master's Degree by Coursework or Mixed Mode with a CGPA of 2.00 to 3.69 AND qualification of a Bachelor's degree with a CGPA of 2.50 to 2.99 may be considered if meets at least one (1) of the following criteria:
  - (i) has relevant work experience;
  - (ii) has produced publications in the relevant fields;
  - (iii) is a scholarship recipient;
  - (iv) is a graduate of the University of Malaya;
  - (v) is a government agency staff;
  - (vi) Passed the interview conducted by the Faculty; or
  - (vii) Passed the Faculty's special assessment.or
- (e) Master's Degree by Coursework or Mixed Mode with a CGPA of 2.00 to 3.69 and qualification of a Bachelor's degree with a CGPA of 2.00 to 2.49 may be considered if meets at least one (1) of the following criteria if he is a UM graduate or two (2) criteria if he is not a UM graduate listed below:
  - (i) possesses related working experience not less than five (5) years;
  - (ii) published at least one (1) publication in a refereed journal in the related field;
  - (iii) Passed the interview conducted by the Faculty; or
  - (iv) Passed the Faculty's special assessment.

## Language Requirement

- (1) A non-citizen applicant who wishes to follow a degree programme of study shall fulfil the English Language competency requirement determined by the University if he obtained his degree from a university or institution of higher learning which does not use English Language as the medium of instruction for the relevant degree.
- (2) English Language competency requirement for non-citizen applicants are as follows:
  - (a) to obtain a minimum score of 600 on the paper-based total (PBT), a score of 250 for the computer-based total (CBT) or a score of 100 for the internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
  - (b) to obtain a minimum score of band 6 and above on the International English Language Testing System (IELTS) (Academic)
  - (c) score according to the respective programmes standard if it is higher than (a) and (b); or
  - (d) If programme standard states that the TOEFL or IELTS (Academic) score is lower than the minimum score of the University, these programmes should follow the minimum score set by the University as stated in (aa) or (bb).
- (3) Notwithstanding anything in paragraph (B), subject to Senate's approval and based on the requirements of the Doctoral Degree programme, the Faculty may consider other qualification/competency in English Language apart from that stated in paragraph (B) above.
- (4) A non-citizen applicant with the background as stated below is exempted from the English Language requirement:
  - (a) from a Country where the National Language is the English Language;
  - (b) to use the academic qualification from an institution which uses English Language fully as their medium of instruction; or
  - (c) has studied in Malaysia and plans to further his studies at a higher level subject to the requirement in (bb).

## 2. Duration of study

- (1) The minimum duration of study shall be four (4) semesters.
- (2) The maximum duration of study shall be twelve (12) semesters.

## 3. Structure of Programme

### i. Thesis:

To supplicate for the degree of Doctor of Philosophy, a candidate shall submit a thesis (not more than 100,000 words) which must be original work on a subject approved by the Senate on the recommendation of the Faculty and at the discretion of the examiners be examined in such manner as the examiners think fit on the subject matter of the thesis and related subjects;

A candidate may not submit this thesis earlier than twenty four (24) months nor later than five (5) years after the date of his initial registration except with the approval of the Senate.



**ii. Research Methodology (MVX8001) (3 credits):**

1. Candidate must successfully complete Research Methodology Course (MVX8001) within the first two (2) semester of registering as a student at University of Malaya.
2. Pass Proposal Defense by Semester II.

**4. Supervision**

- (1) The supervisor for a candidate shall be appointed when the area of research is approved.
- (2) The co-supervisor and/or consultant may be appointed at any time when required.

**5. Title of Research**

The area of research for the dissertation shall be determined when the candidate is accepted for admission to the programme of study.

**6. Submission**

- (1) A candidate who is required to follow such course or courses as determined by the Faculty shall not be permitted to submit the dissertation until the Dean confirms that they have followed the course or courses satisfactorily.
- (2) A candidate shall submit his/her thesis for examination within the period of candidature.

➤ **MVX8001: Research Methodology (3 credits)**

**Course Learning Outcomes**

At the end of the course, students are able to:

- (1) Formulate the problem statement, research questions and / or hypotheses.
- (2) Critically appraise relevant literature from authoritative sources within respective research field.
- (3) Design appropriate research methods for their respective projects.

**Synopsis**

This course is designed to provide knowledge and skills to candidates regarding conducting research projects. The course consists of an overview of skills required for designing research proposals, conducting literature review, selecting appropriate research methods, writing reports and thesis, considering ethical issues, plagiarism and the use of the Turnitin software – statistical measures and the relevant use of analysis software.

**Main Reference**

- (8) Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
- (9) Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
- (10) Chinna K, Choo WY, Krishnakumari K. Statistical Analysis Using SPSS: Pearson Malaysia Sdn Bhd; 2012.
- (11) Guide for the Care and Use of Laboratory Animals (NRC 2011), National Academy of Sciences (8<sup>th</sup> Edition)
- (12) World Health Organization. Laboratory Biosafety Manual, 3rd Edition, 2004.
- (13) <http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf>
- (14) U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, 2009. <http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf>

**Assessment Weightage**

Continuous Assessment: 100%

Final Examination: -

**Name of Programme :** Doctor of Public Health  
**Mode :** By Mixed Mode  
**Faculty :** Faculty of Medicine

### **1. Classification of Programme**

The Doctor of Public Health programme is a mix mode programme (coursework and research) which the credits for the coursework component comprise less than thirty (30) percent of the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Doctor of Public Health degree.

### **2. Entry Requirements**

- (1) A Master of Public Health degree with a CGPA of not less than 3.0 (or its equivalent); or
- (2) A Master's degree in the relevant Public Health field with a CGPA of not less than 3.0 (or its equivalent); and
- (3) Have work related experience of at least one (1) year or for a certain period that has been decided by the Department from time to time

#### **Language Requirement**

A non-Malaysian applicant whose degree is from a university or institution of higher learning where the medium of instruction for that degree is not in English language shall be required to:

- (1) Obtain a score of 600 for a paper-based total (PBT); a score of 250 for a computer-based total (CBT) or a score of 100 for an Internet-based total (IBT) for the Test of English as a Foreign Language (TOEFL); or
- (2) Obtain a band of 6 for the International English Language Testing System (IELTS) (Academic).

### **3. Duration of Study**

- (1) The minimum duration of study shall be six (6) semesters.
- (2) The maximum duration of study shall be twelve (12) semesters.

### **4. Structure of Programme**

The Doctor of Public Health programme of study with a total of 84 credit hours comprises the two following parts:

- (1) Part 1 which consists of courses with a total of 24 credits includes –
  - (a) One Compulsory Core Course of three (3) credits;

- (b) One Compulsory Internship Course of six (6) credits;
  - (c) Two Compulsory Professional Area Core Courses of three (3) credits each; and
  - (d) Three Professional Specialisation Courses of three credits each.
- (2) Part 2 which consists of research that leads to a thesis of 60 credits.
- A candidate must successfully complete Part 1 before he is allowed to proceed to Part 2.
- A candidate shall attain a minimum of grade B in the Compulsory Core Course MWA8001 – Advanced Research Methods.
- (3) The list of courses for the programme of Doctor of Public Health is provided in List 1.

## **5. Registration**

- (1) Registration for the courses of study shall commence the week prior to the start of the relevant semester.
- (2) A candidate is required to register for at least three (3) credits in any semester except where the candidate has been permitted to withdraw from the semester concerned.

## **6. Attendance**

- (1) A candidate shall attend all programmes of instruction and research in respect of the programme of study he is attending except where the candidate has been granted medical or maternity leave by a registered medical officer or has been given leave of absence by the Dean of the Faculty.
- (2) A candidate may with the approval of the Faculty undergo a part of the programme of study at another institution.

## **7. Supervision**

- (1) The Faculty shall appoint at least two (2) supervisors for each candidate not later than two months after the registration of the candidate.
- (2) The maximum number of supervisors for each candidate allowed by the faculty is three (3). For a candidate requiring more than three supervisors, the Department shall provide justification to the Faculty.
- (3) The co-supervisor and/or consultant shall be appointed when required.
- (4) A consultant shall be appointed for a candidate who undertakes part of his programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

## **8. Title of Research**

The title of the thesis for a candidate shall be submitted to the faculty for approval.

## 9. Submission

A candidate shall submit his/her thesis for examination within the period of candidature.

## 10. Examinations for the Degree

(1) The Examination leading to the degree of Doctor of Public Health shall consist of an examination; or examinations in each of the courses prescribed for Part 1 of the Doctor of Public Health degree programme as follows:

- (a) One Compulsory Core Course of three (3) credits;
- (b) One Compulsory Internship Course of six (6) credits;
- (c) Two Compulsory Professional Area Core Courses of three (3) credits each; and
- (d) Three Professional Specialisation Courses of three credits each.

(2) Examination Components and Allocation of Marks:

(a) Taught Courses

The components of the taught courses and the marks to be allocated to the components of the courses prescribed for the Examination shall be:

### Component Allocation of Marks (Maximum)

(i) Continuous Assessment	50 -100%
(ii) End of Semester Examination	0- 50%
<b>Total</b>	<b>100%</b>

(b) The Senate may on the recommendation of the Faculty amend the allocation of marks for the components of a course for the Examination.

(3) Write a thesis of 60 credit hours in Part 2.

(4) Course Grade Requirements

Course grades are subjected to regulations prescribed in the University of Malaya (Doctoral Degree) Rules 2019 and University of Malaya (Doctoral Degree) Regulations 2019.

## 11. Award of Degree

No candidate shall be recommended for the award of the Degree of Doctor of Public Health unless he has completed all parts of the course and has passed the prescribed Examinations.

## List 1

### List of Courses

#### Part 1: Coursework Component

##### Compulsory Core Course

Course Code	Course Title	Credits
MWA8001	<i>Advanced Research Methods</i>	3

##### Compulsory Internship Course

Course Code	Course Title	Credits
MWA8006	<i>Professional Internship</i>	6

##### Professional Area Core Courses

Course Code	Course Title	Credits
MWA8004	<i>Essentials of Epidemiology in Public Health</i>	3
MWA8005	Health Policy and Leadership	3

##### Professional Specialization Courses

Course Code	Course Title	Credits
<b>(3) Area : Health Services Management</b>		
MWA8003	<i>Economic Evaluation in Health Care</i>	3
MWA8007	<i>Human Resource Planning and Management</i>	3
MWA8008	<i>Health Law and Ethics</i>	3
MWA8009	<i>Health Economics</i>	3
MWA8010	<i>Health Logistics Management</i>	3
MWA8011	<i>Quality in Health</i>	3
<b>(4) Area : Family Health</b>		
MWA8012	Women's Health	3
MWA8013	Child and Adolescent Health	3
MWA8014	Lifetime Health	3
MWA8015	Nutrition and Lactation Management	3
MWA8016	Society, Behaviour and Health	3
<b>(1) Area : Environmental Health</b>		
MWA8017	Environmental Pollution	3

MWA8018	Food Technology and Health	3
MWA8019	Waste Management	3
<b>(4) Area : Occupational Medicine</b>		
MWA8020	Human Factor and Ergonomics	3
MWA8021	Disability Assessment	3
MWA8022	Occupational Lung Diseases	3
MWA8023	<i>Occupational Safety and Health Management Systems</i>	3
<b>(5) Area: Epidemiology in Health</b>		
MWA8024	<i>Advanced Epidemiology</i>	3
MWA8025	Clinical Epidemiology	3
MWA8026	Epidemiology of Communicable Diseases	3
MWA8027	Epidemiology of Non Communicable Diseases	3
<b>(6)Area : Biomedical Statistics</b>		
MWA8028	Analysis of Rates and Proportions	3
MWA8029	Statistical Computing	3
MWA8030	Introduction to Meta-Analysis	3
MWA8031	Principles of Clinical Trials	3
MWA8032	<i>Qualitative Methods in Health Research</i>	3
MWA8033	<i>Critical Readings and Special Topics in Epidemiology</i>	3
MWA8034	<i>Nutritional Epidemiology</i>	3

## Part 2: Research Component

Code	Title	Credits
MWA8002	Tesis <i>Thesis</i>	60

## **CORE COURSES**

### **➤ MWA8001: Advanced Research Methods (3 credits)**

#### ***Learning Outcomes***

At the end of this course, the candidate is able to:

- (1) Evaluate the various methods of data collection, questionnaire design, data management, data analysis utilising quantitative and/or qualitative research design to develop a research proposal
- (2) Apply ethical issues in conducting research
- (3) Write a research proposal

#### ***Synopsis***

This course aims to further develop students understanding on the principles, concepts and methods of public health and health service research. The content of this course covers the theoretical considerations and practical steps of planning, implementation of research as well as the ethical principles and challenges of conducting research. In this course, higher level methods of appraisal and review of literature will be discussed. More complex form of study design will be examined in-depth with consideration of both qualitative and quantitative methods. Students will be guided to develop the skills required to disseminate research plans and findings in a range of contexts.

Individual discussions with supervisor are mandatory in order to complete this course.

#### ***Main References***

1. Guest G, Namely E. Public Health Research Methods. Sage Publishing; 2015
2. Szklo M, Nieto FJ. Epidemiology Beyond the Basics. Jones and Bartlett Publishers; 2014
3. Creswell JW. Research Design Qualitative, Quantitative and Mixed Method Approaches. Sage Publishing; 2018, 5<sup>th</sup> Edition
4. Amdur R, Bankert E. Institutional Review Board: Member Handbook: Jones & Bartlett Publishers; 2011
5. Liangputtong P. Research Methods in Health: Foundations for Evidence-Based Practice. Oxford University Press, 2017
6. Gough, D. Oliver, S. and Thomas, J. An introduction to systematic reviews. London: Sage. 2012

#### ***Assessment Methods***

Continuous Assessment: 100%

Final Examination: -

### **➤ MWA8002: Thesis (60 Credits)**

#### ***Learning Outcomes***

At the end of this course, the candidate is able to:

1. Demonstrate a critical understanding of situational analysis, research, health policy, project management within the context of public health setting
2. Demonstrate the synthesis of knowledge based on critical appraisal of a situation, definition of a research problem, collection and analysis of relevant primary or secondary data, and the interpretation of these findings
3. Produce a thesis relevant to his/her research problem.

#### ***Synopsis***

The DrPH thesis is the final academic test of candidate's competency addressing a practical problem confronting a leader in public health practice. The focus of the programme is on the scholarship of application and translation of health practice. This module requires candidate to apply key features of



the taught curriculum to improve understanding of an important public health-related issue. The thesis will demonstrate candidate's mastery of skills and knowledge needed to lead a health-related programme, suggest change in the guideline or policy and/or develop new methods to accomplish the stated goals. The thesis must be based on original research, worthy of publication and acceptable to the department.

### **Main References**

1. Bowling, A. 4th Edition, (2014) Research Methods in Health: Investigating Health and Health Services, Open University Press.
2. Fink A (2005) Conducting Research Literature Reviews (second edition). Sage: London
3. Rothman, K.J. (2002). Modern Epidemiology (2<sup>nd</sup> Edition). Philadelphia, PA: Lippincott-Raven
4. Rose, G. (1993). The Strategy of Preventive Medicine. Oxford: Oxford University Press
5. Detels Rogers, McEwen James, Beaglehole Robert, and Tanaka Heizo (2002) Oxford Textbook of Public Health. Oxford. Oxford University Press

### **Assessment Methods**

Final Examination: 100%

### **➤ MWA8004: Essentials of Epidemiology in Public Health (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Apply the principles and methods of epidemiology and the quantitative approach to clinical and public health problems.
2. Identify the important elements of study design, data analysis and inference in epidemiology research
3. Define ethics and its importance to epidemiology, and solve problems of dealing with uncertainty in making public health policies.

### **Synopsis**

This course will provide an orientation to epidemiology as a basic science for public health and clinical medicine. It provides an introduction to the terminology and methods used in the core scientific practices of public health. It will address the principles of the quantitative approach to clinical and public health problems. One of the important components in understanding these concepts is through literature appraisal. Critical readings in epidemiology will enable candidates to make objective, sound and independent evaluations of the literatures read.

### **Main References**

1. Rothman, K.: Modern Epidemiology, Lippincott-Raven Publishers, 3rd edition. 2008
2. Gordis Leon: Epidemiology, W.B. Saunders Co., Philadelphia, 4<sup>th</sup> Ed 2008
3. Bland, Martin. An introduction to medical statistics. 3<sup>rd</sup> edition. Oxford University Press. 2005.
4. Karuthan Chinna, Krishnan K. Biostatistics for the Health Sciences. McGraw Hill. 2009.
5. Beaglehole R, Bonita R. Basic Epidemiology. WHO 2<sup>nd</sup> ed 2006
6. Friis, Robert H : Epidemiology for Public Health Practice, Sudbury, MA, Jones and Bartlett Publishers, 4<sup>th</sup> ed 2009
7. Robert A. Day, Barbara Gastel. How to write and publish a scientific paper, 7<sup>th</sup> ed Greenwood 2011

### **Assessment Methods**

Continuous assessment: 50%

Final Examination: 50%

## ➤ MWA8005: Health Policy and Leadership (3 credits)

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Evaluate the different processes involved in the formulation of health policies and the impact of health policies on performance of health systems
2. Evaluate type of leadership skills required in public and private health sectors.

### **Synopsis**

An introductory course on the study of public policy & leadership. It explains the basis, development and importance to public health, rules and regulations formulation and its impact on organisation and community. The student will also be exposed to the role of advocacy (persuasion) which is used to convince policy makers (governments) on its adoption. The role of good leadership in public health practitioner will also be explored in this activity.

### **Main References**

1. Buse K, Mays, N, Walt G. 2012. *Making Health Policy. 2<sup>nd</sup> Edition*. London. Open University Press.
2. Roberts MJ, Hsiao W, Berman P, Reich MR. 2004. *Getting health reform right*. New York: Oxford University Press.
3. Chee HL, Barraclough S (eds). 2007. *Health care in Malaysia. The dynamics of provision, financing and access*. Oxford. Routledge.

### **Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

## ➤ MWA8006: Professional Internship (6 credits)

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Determine the healthcare system and the policy in the implementation of the healthcare programs.
2. Integrate the relationship of public health problems, the role of society and pressure groups in the formulation of policy and implementation of healthcare programs.
3. Experience the politics of getting problems to the government's perception and priorities.

### **Synopsis**

An introductory course on the study of public policy & leadership. It explains the basis, development and importance to public health, rules and regulations formulation and its impact on organisation and community. The student will experience the role of advocacy (persuasion) which is used to convince policy makers (governments) on its adoption. Practicing good leadership and management of public health system.

### **Main References**

1. Goodwin N. Leadership in Healthcare, Routledge, Abingdon, Oxford, UK 2006.
2. Harrison MI. Implementing Change in Health Systems. SAGE Publications, London, UK 2004.
3. Abdul Hamid AK. Medical Ethics, Etiquette and Law. University Malaya Press, Kuala Lumpur 2006.
4. Yadav H. Hospital Management. University Malaya Press, Kuala Lumpur 2006.
5. Ghani SN, Yadav H. Health Care in Malaysia. University Malaya Press, Kuala Lumpur 2008.

### **Assessment Methods**

Continuous Assessment: 100%

## **ELECTIVE COURSES**

### ➤ **MWA8003: Economic Evaluation in Health Care (3 credits)**

#### ***Learning Outcomes***

At the end of this course, the candidate is able to:

1. Apply the common tools for Economic Evaluation studies.
2. Make decision based on the various methods of costing for healthcare
3. Conduct a health economic evaluation project.
4. Interpret the findings of economic evaluation studies

#### ***Synopsis***

This course provides the skill in conducting health economic evaluation and evaluating the various economic evaluation studies.

#### ***Main References***

1. Folland S, Goodman A, Stano M. 2012. *The Economics of Health and Health Care*. New Jersey: Pearson Prentice Hall, 7<sup>th</sup> Edition.
2. Michael F. Drummond, Bernie O'Brian, Greg L. Stodart, George W. Torrance. 2002.
3. Methods for the Economic Evaluation of Healthcare Programmes. 2<sup>nd</sup> Edition. Oxford Medical Publications. 2005
4. WHO Guide To Cost-Effectiveness Analysis. 2003. WHO Geneva.

#### ***Assessment Methods***

Continuous Assessment: 100%

### ➤ **MWA8007: Human Resource Planning and Management (3 credits)**

#### ***Learning Outcomes***

At the end of this course, the candidate is able to:

1. Explain the concepts of human resource planning and management in health care organization.
2. Identify and implement the various methods and principles used in planning human resource, recruit, train and appraise in health care organization.

#### ***Synopsis***

This course deals with most of the facets of current thinking on human resource management. The aim is to equip potential public health specialists in health and hospital services management with the knowledge, attitudes and skills to deal with human resources in the future.

#### ***Main References***

1. The World Health Report. Working Together for Health, WHO, 2006.
2. Yadav, H. Hospital Management. University of Malaya Press, Kuala Lumpur, 2006.
3. McMahon R., Barton E., Piot M. On Being in-Charge: A guide to management in primary health care; WHO, Geneva, 2007.
4. Gopee N., Galloway J. Leadership and Management in Healthcare; Sage Publications Ltd. London, 2nd Edition, 2014.
5. Fred Lee. If Disney Ran Your Hospital. Second River Healthcare, 2008.

#### ***Assessment Methods***

Continuous Assessment: 50%

Final Examination: 50%

## ➤ MWA8008: Health Law and Ethics (3 credits)

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Assess relevance and impact of relevant health laws to the management and administration of health services.
2. Assess relevance of the ethical basis of health care guidelines and laws governing provision of health care

### **Synopsis**

An introductory course in the assessment of the application and impact of various laws governing the provision of health care services. Students will also review ethical basis for such health laws.

### **Main References**

1. Wu MA. The Malaysian Legal System; 3<sup>rd</sup> Ed. Pearson Malaysia, Petaling Jaya, 2009.
2. Abdul Hamid AK. Medical Ethics, Etiquette and Law; University of Malaya Press, Kuala Lumpur, 2008.
3. Mappers TA. Biomedical Ethics; 7<sup>th</sup> Ed. McGraw-Hill, Boston, 2010.
4. Roberts M.J., Hsiao W., Berman P., Reich M.R.. Getting health reform right; Oxford University Press, New York, 2004.

### **Assessment Methods**

Continuous assessment: 50%

Final examination: 50%

## ➤ MWA8009: Health Economics (3 credits)

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Apply the concepts of economics to healthcare.
2. Conduct a health economic evaluation project.
3. Make comparison on the respective healthcare system and the healthcare financing system in the world and identify the strength and weaknesses of each system

### **Synopsis**

This course provides the skill in conducting health economics evaluation and evaluating the various financial and healthcare systems in the world.

### **Main References**

1. Folland S, Goodman A, Stano M. 2012. *The Economics of Health and Health Care*. New Jersey: Pearson Prentice Hall, 7<sup>th</sup> Edition.
2. Michael F. Drummond, Bernie O'Brian, Greg L. Stodart, George W. Torrance. 2002.
3. Methods for the Economic Evaluation of Healthcare Programmes. 2<sup>nd</sup> Edition. Oxford Medical Publications. 2005
4. WHO Guide To Cost-Effectiveness Analysis. 2003. WHO Geneva.
5. S.N.Ghani, H. Yadav. Health Care in Malaysia, Universiti Malaya Press, Kuala Lumpur 2008.

### **Assessment Methods**

Continuous assessment: 100%

## ➤ **MWA8010: Health Logistics Management (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Explain how technology in health is developed, adopted, diffused, used, assessed and managed.
2. Determine the various logistics tasks in patient-related medical secondary processes with specific reference to information and documentation management, drug management, maintenance of medical equipment and facilities, logistics of sterile goods, and disposal of hazardous waste.
3. Determine the various logistics tasks in patient-related non-medical secondary processes with specific reference to food management, management of linen and laundry, and cleansing services.
4. Determine the various logistic tasks in patient remote tertiary processes with specific reference to management of administrative demands, mail service, and disposal of non-hazardous waste.

### **Synopsis**

This course introduces the concepts of health technology assessment, defines the scope of health technology assessment and management. It does also explore the other aspect of health logistics which is related to this course.

### **Main References**

1. Kara BY, Sabuncuoglu I, Bidanda B (Eds). Global Logistics Management, 2014. CRC Press.
2. Sebastian, Hans-Jürgen, Kaminsky, Phil, Müller, Thomas (Eds.) Quantitative Approaches in Logistics and Supply Chain Management; 2013. Springer International Publishing Switzerland.
3. USAID DELIVER PROJECT, Task Order 1. 2011. The Logistics Handbook: A Practical Guide for the Supply Chain Management of Health Commodities. Arlington, Va.: USAID DELIVER PROJECT, Task Order 1.
4. Mark Graba. Lean Hospitals: Improving Quality, Patient Safety, and Employee Satisfaction. Productivity Press. 2008 (ISBN-13: 9781420083804).
5. James R. Langabeer. Health Care Operations Management: A Quantitative Approach to Business and Logistics. Jones & Bartlett Publishers, US. 2007. (ISBN: 0763750514)
6. Joseph S. Pliskin, Shimeon Pass. Focused operations management for health services organizations. John Wiley and Sons, 2006.(ISBN 078798454X, 9780787984540)
7. Jan Walburg, Helen Bevan, John Wilderspin and Karin Lemmens. Performance management in health care: improving patient outcomes: an integrated approach. Routledge, US, 2006.(ISBN10:0-415-32397-5)
8. Jan Vissers, Roger Beech. Health Operations Management: Patient Flow Logistics in Health Care (Routledge Health Management), 2005. (ISBN-10: 0415323967)
9. Mohd Hishamuddin Harun (2001). Integrated Telehealth, The Malaysian Experience.
10. Banta D, Luce BR (1993) Health Care Technology and its Assessment Technology Assessment in Health care for Developing Countries. International Journal of Technology Assessment in Health Care, Cambridge University Press 1996.

### **Assessment Methods**

Continuous Assessment 60%,  
Final examination: 40%

## ➤ **MWA8011: Quality in Health (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Describe the concepts of quality assurance in health care.
2. Develop quality assurance programme in health care organization.
3. Apply quality assurance programme in health care organization.

## **Synopsis**

This course introduces the philosophy of quality in health from planning to the process. It also covers health management and the importance of leadership, teambuilding and internalization of quality.

## **Main References**

1. Al- Assaf, A.F., Sheikh, M. Quality Improvement in Primary Health Care: A Practical Guide. WHO publication, Eastern Mediterranean Series, No. 26. 2004
2. Bengoa, R., Kwar, R., Key, P., Leatherman, S., Massoud, R., Saturno, P. Quality of Care: A process for making strategic choices in Health System. WHO publication. 2006.
3. Maimunah A Hamid, A.F.Al-Assaf, Azman Abu Bakar, Low Lee Lan. Measuring and Managing Quality of Health Care. Training Module: Managing Performance. Institute for Health System Research. Ministry of Health Malaysia. 2004
4. Maimunah A Hamid, A.F.Al-Assaf, Haniza Mohd. Anuar, Low Lee Lan. Measuring and Managing Quality of Health Care. Training Module: Promoting Quality. Institute for Health System Research. Ministry of Health Malaysia. 2004
5. Maimunah A Hamid, A.F.Al-Assaf, Rozaini Mohd Zain, Low Lee Lan. Measuring and Managing Quality of Health Care. Training Module: Implementing Quality & Improving Performance. Institute for Health System Research. Ministry of Health Malaysia. 2007
6. Lucy Gilson (ed.) (2012) Health Policy and Systems Research: A Methodology Reader. Alliance for Health Policy and Systems Research, WHO.
7. WHO (2010) The World Health Report 2010. The Health Systems Financing: the path to universal coverage. Geneva, World Health Organization.

## **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

## **➤ MWA8012: Women's Health (3 credits)**

## **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Recommend population based approach to improved women's health.
2. Analyse gender roles and the impact of gender inequalities in women.
3. Differentiate and decide the beneficial and harmful practices including traditional practices in MCH and its dangers during antenatal care, labour and post partum.

## **Synopsis**

Aspects on women's health will be covered in detail. The topics such as gender issues and violence and infertility will be covered to give a wider perspective of women's health. Basically the health of the women depends on many issues beyond the scope of health services and these will be discussed. International issues related to women's health will be discussed.

## **Main References**

1. Boston Women's Health Book Collective. A Touchstone Book, New York London Toronto Sydney.
2. [Laura Reichenbach](#), [Mindy Jane Roseman](#). 2009. Reproductive health and human rights : the way forward. University of Pennsylvania Press.
3. Theo Stickley. 2008. Learning about mental health practice. John Wiley and Sons.
4. Lawrence S. Neinstein. 2007. Adolescent health care: a practical guide. Lippincott & Wilkins.
5. International Journal of Gynaecology and Obstetrics (Volumes 2011-2015) Official publication of FIGO The International Federation of Gynecology and Obstetrics <http://www.ijgo.org/issues>.

**Assessment Methods**

Continuous Assessment: 100%

➤ **MWA 8013: Child and Adolescent Health (3 credit)**

**Learning Outcomes**

At the end of this course, the candidate is able to:

1. Integrate the importance and principles of early childhood development and the relationship between health and nutrition, psychological and social development of children.
2. Critically analyse the child & adolescent health programmes implemented in Malaysia
3. Perform a situational analyses on child & adolescent Health problem and strategies future programmes.

**Synopsis**

Child health will cover in more detail on the topics that have been covered in MPH syllabus. Communicable and non-communicable diseases will be covered. New areas like child abuse, new vaccines and the child's rights will also be discussed.

The adolescent health includes the theories of behaviour change, access to health care, and guidelines to preventive services available in the country.

**Main References**

1. [Graham Scambler](#). Sociology as applied to medicine (6<sup>th</sup> edition). Elsevier Health Sciences, 2008.
2. David R. Shaffer, Katherine Kipp. 2009. Developmental Psychology : Childhood and Adolescence. Cengage Learning.
3. [Judith E. Brown](#), [Janet S. Isaacs](#), [U. Beate Krinke](#) (3<sup>RD</sup> Eds). Nutrition Through the Life Cycle. 2008 Thomson Learning.
4. World Health Organization (WHO). Core competencies in Adolescent Health and Development for Primary Care Providers. 2015.
5. World Health Organization (WHO). mhGAP Intervention Guide for mental, neurological and substance use disorders in non-specialized health settings. 2014. <http://www.paho.org/mhgap/en/>

**Assessment Methods**

Continuous Assessment: 100%

➤ **MWA8014: Lifetime Health (3 credits)**

**Learning Outcomes**

At the end of this course, the candidate is able to:

1. Apply knowledge and principle of Public Health to current lifetime health problem.
2. Critically appraise Family Health Programmes implemented in Malaysia
3. Perform a situational analysis of public Health problem across the Lifetime and strategies future program

**Synopsis**

This will discuss the health problems of the segments of the population from womb to tomb and how the issues are addressed in the country. The physical, social, psychological and emotional, problems will be discussed.



### **Main References**

1. Susan Krauss Whitbourne. The aging body – Physiological changes and physiological consequences. Springer –Verlag 1985
2. Nessa Casey. The Epigenetics Revolution. Columbia University Press NY 2013
3. Marlene Goldman, Rebecca Trois. Women and Health. Academic Press, 2012
4. Bruno Lunenfeld. Textbook of Men's Health and Aging 2<sup>nd</sup> ed. CRC Press, 2007
5. [Judith E. Brown](#), [Janet S. Isaacs](#), [U. Beate Krinke](#) (3<sup>RD</sup> Eds). Nutrition Through the Life Cycle. 2008 Thomson Learning.

### **Assessment Methods**

Continuous Assessment: 100%

#### ➤ **MWA8015: Nutrition and Lactation Management (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Critically appraise current health problems, the evidence relating dietary factors to health and disease with methods of implementation.
2. Analyse Nutritional Plan of Action Malaysia (NPAM) and the implementation for communities which are at risk for nutritional disorders
3. Discuss the principles and concepts for nutritional supplement feeding, types and benefits.

### **Synopsis**

The course will cover in more detail topics on the latest strategies and programmes in nutrition.

### **Main References**

1. Buttriss JL et al, 2017. Public health nutrition .2<sup>nd</sup> edition. Wiley-Blackwell
2. Frances Sizer, Ellie Whitney. 2013. Nutrition: Concepts and controversies. 13th ed. Brooks Cole.
3. B. Koletzko et al (2015) Paediatric Nutrition and Practice. 2<sup>nd</sup> Revision. Karger.
4. Walter Willett (2013) .Nutritional Epidemiology. 3<sup>rd</sup> edition. Oxford University Press
5. Hazreen Abdul Majid et al. 2019. Malaysian Health and Adolescents Longitudinal research Team Study Handbook. UM Press.

### **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

#### ➤ **MWA8016: Society, Behaviour and Health (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Critically appraise the contribution of medical sociology to health, health beliefs and practices, deviance, labelling, stigmatisation and social control.
2. Analyse the social determinants of health & the implications of social class on planning health policies and programmes.
3. Apply the concept of mass media, social marketing and community development approach in Health Promotion.



## **Synopsis**

The Society, Behaviour and Health course will provide current knowledge in the field of behavioural sciences and health promotion.

## **Main References**

1. William C. Cockerham. Medical Sociology 13<sup>th</sup> Edition. Pearson Education Inc. Prentice Hall NJ 2011
2. Michelle L. Inderbitis, Kirstin A Bates, Randy R. Garney. Deviance and Social Control. SAGE Publications Inc USA 2013
3. James F McKenzie, James T Girvan, Randall R Cottrell. Principles and Foundation of Health promotion and education 5<sup>th</sup> Edition. Benjamin Cummings 2012
4. Karen Glanz, Barbara K Rimer, K. Viswanath. Health Behavior: Theory, Research and Practice 5<sup>th</sup>. Edition. Jossey Boss 2015.
5. Rose Weitz. 2009. The Sociology of Health, Illness, and Health Care. Cengage Learning.

## **Assessment Methods**

Continuous Assessment: 100%

### ➤ **MWA 8017: Environmental Pollution (3 credits)**

## **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Identify the various environmental pollutants.
2. Evaluate the pollutants related to human health.
3. Formulate pollution prevention and control programmes related to human health.

## **Synopsis**

This course will provide the candidate with in-depth knowledge of environmental pollution and its relation to human health. The candidate will learn different types of environmental pollution in general followed by each specific pollutant and possible health risks and prevention and control. The candidate will have better understanding of the diseases related to pollution and plan for prevention programmes to reduce the effect of pollution on human health.

## **Main References**

1. Santra SC. Environmental Science, Jan 2004. New Central Book Agency, Calcutta.
2. Jerry A. Nathanson M.S. P.E. and Richard A. Schneider M.S. P.E. Basic Environmental Technology: Water Supply, Waste Management and Pollution Control (6th Edition), 2014, Prentice Hall;
3. Occupational and Environmental Health: Recognizing and Preventing Disease and Injury, Barry S. Levy David H. Wegman Sherry L. Baron , Rosemary K. Sokas, Oxford University Press; 6 edition, 2011
4. Understanding Environmental Health: How We Live in the World, Nancy Irwin Maxwell Jones and Bartlert learning 2013
5. Lippmann M, Cohen BS, Schlesinger RB. Environmental Health Science, 2003. Oxford University Press, USA.
6. Levy, Barry S.Occupational and environmental health : recognizing and preventing disease and injury 5th ed , 2005 New York : Lippincott Williams and Wilkins
7. Current occupational & environmental medicine 4th ed. LaDou, Joseph, New York : McGraw-Hill, 2007.
8. Basic Environmental Health, Annalee Yassi, Oxford University Press 2001

## **Assessment Methods**

Continuous Assessment: 100%

## ➤ **MWA8018: Food Technology and Health (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. identify various food-borne diseases and food processing critical control points
2. evaluate Food Safety and Quality Control
3. formulate Food Technology and Health Hazards Management

### **Synopsis**

This course will provide the candidate with in-depth knowledge of food technology in relation to human health. The candidate will learn different types of food processing, food safety and quality control in various stages in general and ministry in particular. The candidate will have better understanding of the current issues related to foods and how to involve in prevention and control of the food related health hazards in the community.

### **Main References**

1. Lima, Giuseppina P. P., Vianello, Fabio (Eds.). Food Quality, Safety and Technology. 2014. Springer-Verlag Wien.
2. CURRENT Occupational & Environmental Medicine: Fourth Edition. 2007. McGraw-Hill Companies.
3. Codex alimentarius. Food hygiene basic texts 3rd ed. Joint FAO/WHO Codex Alimentarius Commission. Rome: Food and Agriculture Organization of the United Nations, 2003.
4. Lippmann M, Cohen BS, Schlesinger RB. Environmental Health Science, 2003. Oxford University Press, USA.
5. FAO/WHO guidance to governments on the application of HACCP in small and/or less-developed food businesses World Health Organization. Rome : World Health Organization [and] Food and Agriculture Organization of the United Nations, 2006.
6. Food safety handbook Schmidt, Ronald H., Hoboken, N.J. : Wiley-Interscience, 2003

### **Assessment Methods**

Continuous Assessment: 100%

## ➤ **MWA8019: Waste Management (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Identify the different types of waste in the environment and various solid waste, waste water and excreta disposal systems
2. Evaluate various existing wastes management and disease control
3. Recommend new wastes management and disease control methods

### **Synopsis**

This course will provide the candidate with in-depth knowledge of wastes management and its relation to human health. The candidate will learn different types of various waste disposal systems and how to apply in different situations. The candidate will have better understanding of the current issues related wastes and management, and how to involve in prevention and control of the waste related health hazards in the community.

### **Main References**

1. Santra SC. Environmental Science, Jan 2004. New Central Book Agency, Calcutta.
2. Lippmann M, Cohen BS, Schlesinger RB. Environmental Health Science, 2003. Oxford University Press, USA.
3. Levy, Barry S. Occupational and environmental health : recognizing and preventing disease and injury 5th ed , 2005 New York : Lippincott Williams and Wilkins

4. Current occupational & environmental medicine 4th ed. LaDou, Joseph, New York : McGraw-Hill, 2007.
5. Basic Environmental Health, Annalee Yassi, Oxford University Press 2001

#### **Assessment Methods**

Continuous Assessment: 100%

### ➤ **MWA8020: Human Factor and Ergonomics (3 credits)**

#### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Describe the relationship between ergonomics, human factors, the limits of human capacity and diseases.
2. Evaluate the workstations and work environment in relationship to ergonomics principles
3. Recommend modifications to the workstations and work environment to improve ergonomics

#### **Synopsis**

This course will provide the candidate with an in-depth knowledge of ergonomics and human factors. The candidate will learn workplace assessment and the limits of human capacity. The candidate will have better understanding of the diseases related to ergonomics and workstation design.

#### **Main References**

1. Handbook of Human Factors and Ergonomics. 4th ed. Gavriel Salvendy 2012 John Wiley.
2. Current Occupational and Environmental Medicine 5<sup>th</sup> ed. LaDou, Joseph, New York : McGraw-Hill, 2014
3. Hunter's Diseases of Occupations. 10<sup>th</sup> ed. Peter J Baxter, Tar-Ching Aw, Anne Cockcroft, Paul Durrington, J Malcolm Harrington. CRC Press

#### **Assessment Methods**

Continuous Assessment: 100%

### ➤ **MWA 8021: Disability Assessment (3 credits)**

#### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. analyse the principles of disability assessment based on AMA guidelines and SOCSO guidelines
2. evaluate the level of disability and impairment of individuals for the purpose of compensation and return to work
3. recommend an appropriate programme for return to work in a disabled person

#### **Synopsis**

This course will provide the candidate the skill to conduct Disability and Impairment Assessment and develop return to work programmes.

#### **Main References**

1. AMA Guide to the Evaluation of Permanent Impairment, Linda Cocchiarella, Gunnar B.J Andersson. 6<sup>th</sup> Edition, AMA Press, 2010
2. SOCSO. Guidelines on the Diagnosis of Occupational Diseases. 1<sup>st</sup> Ed (Revised), SOCSO, 2009.
3. SOCSO. Guidelines on Impairment and Disability Assessment of Traumatic Injuries, Occupational Diseases and Invalidity. 3<sup>rd</sup> Ed, SOCSO, 2013.
4. Employee's Social Security Act 1969.
5. Fitness for work: the medical aspects. 4<sup>th</sup> Ed. Palmer, Keith T. 2007 Oxford University Press.

### **Assessment Methods**

Continuous Assessment: 100%

#### ➤ **MWA8022: Occupational Lung Diseases (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. identify the types of Occupational Lung Diseases that occur due to workplace exposures
2. diagnose and manage the individual with occupational lung diseases
3. manage return to work and compensation issues in occupational lung diseases

### **Synopsis**

The course will provide the candidate the knowledge and skills on the types of occupational lung diseases, diagnosis, management, return to work and compensation issues related to occupational lung diseases.

### **Main References**

1. A Clinical Guide to Occupational and Environmental Lung Diseases. 1<sup>st</sup> Ed. 2012. Humana Press.
2. Occupational and Environmental Lung Diseases: Diseases from Work, Home, Outdoor and Other Exposures. 1<sup>st</sup> Ed. 2010. Wiley-Blackwell
3. Current Occupational and Environmental Medicine 5<sup>th</sup> ed. 2014 LaDou, Joseph, New York : McGraw-Hill
4. Hunter's Diseases of Occupations. 10<sup>th</sup> ed. Peter J Baxter, Tar-Ching Aw, Anne Cockcroft, Paul Durrington, J Malcolm Harrington. CRC Press
5. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007
6. AMA Guide to the Evaluation of Permanent Impairment, Linda Cocchiarella, Gunnar B.J Andersson. 6<sup>th</sup> Edition, AMA Press, 2010
7. SOCSO. Guidelines on the Diagnosis of Occupational Diseases. 1<sup>st</sup> Ed (Revised), SOCSO, 2009.

### **Assessment Methods**

Continuous Assessment: 100%

#### ➤ **MWA8023: Occupational Safety and Health Management Systems (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Analyse the OSH management systems and standards like ISO, OSAS 18000 and ILO-OSH MS
2. Evaluate Occupational Health Policy and management systems to the needs of an organisation
3. Recommend OSH management systems in improving safety and health issues in an organisation

### **Synopsis**

This course will provide the candidate the knowledge on the International Labour Organisation-Occupational Health Management Systems. The course will include the planning and implementation of the system in an organisation.

### **Main References**

1. British Standard Institution. Occupational health and safety management systems. Guidelines for the implementation of OHSAS 18001:2015. BSI.
2. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2011

3. Factories and Machinery Act 1967 (Act 139) & regulations and rules : Malaysia. Kuala Lumpur : International Law Book Services, 2013.

#### **Assessment Methods**

Continuous assessment: 100%

#### ➤ **MWA8024: Advanced Epidemiology (3 credits)**

##### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Apply and analyse the history of epidemiology, epidemiologic concepts, analytical approaches, and interpretation of study results.
2. Identify modelling issues in multivariate regression analysis for etiologic studies (case control and cohort studies).
3. Perform survival analysis, mathematical modelling and the causal theory.

##### **Synopsis**

Epidemiology provides the scientific basis for much of public health and clinical practice. The current revolution in health care and disease prevention indicates that the demand for valuable results from this field will continue to grow. This module provides in-depth discussion for understanding the common problems faced in the design, conduct and analysis as well as interpretation of research. Topics on causal inferences will be discussed in much wider perspective.

##### **Main References**

1. Lash, T., M. Fox, and A. Fink, Applying Quantitative Bias Analysis to Epidemiological Data. 2009, New York: Springer.
2. Nieto J and Szklo M, Epidemiology: Beyond the Basics 3rd Edition 2014. Burlington, Jones and Bartlett Learning.
3. Myriam Hunink M.G and Weinstein M.C, Decision Making in Health and Medicine: Integrating Evidence and Values 2nd Edition 2014 Cambridge University Press
4. Creswell, J.W, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 4th ed. 2014 Los Angeles: Sage

#### **Assessment Methods**

Continuous Assessment: 100%

#### ➤ **MWA8025: Clinical Epidemiology (3 credits)**

##### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. apply the principles and methods of clinical epidemiology and related issues
2. critically appraise the quantitative epidemiology literature, including clinical guidelines and patient-based measures used in clinical setting

##### **Synopsis**

The aim of the course is to introduce the candidates to make rational evidenced based decisions in clinical practice. Clinical epidemiology attempts to answer clinical questions relevant to the daily practice of medicine and to improve patient care. It focuses on individuals or groups of patients in clinical settings. The tasks of clinical epidemiology in clinical sciences, the concepts, methods and tools will be presented and discussed; particular emphasis will be place on the use of randomised trials and observational study design.

### **Main References**

1. Adams Simon T, Leveson Stephen H. Clinical prediction rules BMJ 2012; 344 :d8312
2. Grobbee Direderick E, Arno W. Hoes. Clinical Epidemiology, Principles, Methods and Applications for clinical research. Jones and Bartlett. 2014

### **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

## **➤ MWA8026: Epidemiology of Communicable Diseases (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Interpret infectious diseases epidemiology, including outbreak investigation, surveillance, analysis of infectious diseases data, and laboratory testing of specimens;
2. Evaluate the different control strategies for infectious diseases, including infection control, antimicrobial management, immunization, risk factor modification, and screening;
3. Apply Infectious Disease Modelling for informed decision-making.

### **Synopsis**

This course is designed to provide students with an overview of the principles and practices of infectious diseases epidemiology with focus on how the presence and control of communicable diseases affects public health locally, nationally and internationally.

### **Main References**

1. Webber R. Communicable diseases A Global Perspective: 2012.
2. Nelson K, Williams C. Infectious disease epidemiology: theory and practice: Jones and Bartlett Publishers; 2013.
3. Modeling Infectious Disease Parameters Based on Serological and Social Contact Data: A Modern Statistical Perspective (Statistics for Biology and Health) 2012. Niel Hens, Ziv Shkedy, Marc Aerts, Christel Faes, Pierre Van Damme, Philippe Beutels

### **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

## **➤ MWA8027: Epidemiology of Non Communicable Diseases (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Apply principles of life course approach to non-communicable disease epidemiology
2. Appraise molecular biomarkers in measuring exposure, susceptibility and disease outcomes in epidemiological studies of non-communicable diseases
3. Distinguish between determinants of disease at an individual level and at a population level

### **Synopsis**

The course is designed to provide an in-depth understanding on the epidemiology of several important non-communicable diseases and conditions. The focus of this course is on the principles and methods of epidemiology and prevention that are of particular relevance to non-communicable diseases. The course introduces the new aspects in epidemiology ie: Mendelian randomization, molecular biomarkers etc.

## **Main References**

1. Randall H. Epidemiology of Chronic Diseases Global Perspective, Jones and Bartlett Publishers; 2013
2. Kuh D, Ben-Shlomo Y. A Life course approach to Chronic Disease Epidemiology, Oxford University Press, 2004
3. Remington P, Brownson R, Wegner M. Chronic Disease Epidemiology - Prevention and Control. APHA Press, 2016, 4th Edition

## **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

### ➤ **MWA8028: Analysis of Rates and Proportions (3 credits)**

## **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Construct various measures of health occurrences
2. Perform statistical analysis for categorical data
3. Perform statistical analysis for time to event data

## **Synopsis**

This module will emphasize concepts and methods for analysis of data that are of categorical and rate-of-occurrence (e.g., incidence rate), and time-to-event (survival duration). The module will divide into two parts. The first part covers topics such as measures of association, 2x2 tables, stratification, matched pairs, logistic regression and model building. The second half of the module covers methods for analysis of rates and survival data. These includes hazard, survivor, and cumulative hazard functions, Kaplan-Meier and actuarial estimation of the survival distribution, comparison of survival using log rank and other tests, regression models including the Cox proportional hazards model, adjustment for time-varying covariates, and use of parametric distributions (exponential, Weibull) in survival analysis. Class material will include presentation of statistical methods for estimation and testing, along with current software (Stata, SPSS, SAS) for implementing analysis of survival data. Applications of statistical methods will be emphasized.

## **Main References**

1. Bernard Rosner. Fundamentals of Biostatistics. 6th Edition. Duxbury Thomson Learning. 2015.
2. David G Kleinbaum, Mitchel Klein. Survival Analysis: A Self-Learning Text. 3rd Edition, Springer 2011.
3. Multivariate Data Analysis. 6<sup>th</sup> Edition. Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL, Pearson Prentice Hall 2006.
4. Hosmer D.W. and Lemeshow, S. Applied Logistic Regression. 2<sup>nd</sup> Edition. John Wiley & Sons. 2000.

## **Assessment Methods**

Continuous Assessment: 100%

### ➤ **MWA8029: Statistical Computing (3 credits)**

## **Learning Outcomes**

At the end of this course, the candidate is able to:

1. manage and process data in terms of secure and safe storage, data cleaning and data editing.
2. perform appropriate statistical analyses for the right type of data
3. create and use codes (syntax/commands) in performing data analysis operations



## **Synopsis**

This module will emphasize concepts and methods for analysis of data by the use of statistical program. In this course the students are exposed to current statistical program i.e. Stata, SPSS, SAS. It is a prerequisite that the students have already acquired a good understanding of basic principles of statistics before using such programs.

## **Main References**

1. Bernard Rosner. Fundamentals of Biostatistics. 6th Edition. Duxbury Thomson Learning. 2015.
2. Hosmer D.W and Lemeshow S. Applied Logistic Regression. Wiley, 2013.
3. Neil H.S, Essentials of Multivariate Data Analysis, 2013

## **Assessment Methods**

Continuous assessment: 80%

Final Examination: 20%

### ➤ **MWA8030: Introduction to Meta-Analysis (3 credits)**

## **Learning Outcomes**

At the end of this course, the candidate is able to:

1. develop a protocol of conducting meta analysis
2. develop search strategies and critically appraise the evidence
3. interpret statistical methods used to pool estimates
4. explain heterogeneity and meta regression

## **Synopsis**

This is an introduction of meta-analysis and is concerned with the use of existing data to inform clinical decision-making and health care policy, the course focuses on research synthesis (meta-analysis). The principles of meta-analytic statistical methods are reviewed, and the application of these to data sets is explored. Application of methods includes considerations for clinical trials and observational studies. The use of meta-analysis to explore data and identify sources of variation among studies is emphasized, as is the use of meta-analysis to identify future research questions.

## **Main References**

1. Micheal Borenstein, Larry V.H, Introduction to Meta Analysis;Kindle Edition; 2011.
2. Flora H, James M, Handbook for Clinical Research: Design, Statistics, and Implementation: Paperback; 2014.
3. Mike W.L, Meta-Analysis: A Structural Equation Modelling Approach.Wiley;2015

## **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

### ➤ **MWA8031: Principles of Clinical Trials (3 credits)**

## **Learning Outcomes**

At the end of this course, the candidate is able to:

1. critique a clinical trial
2. Design and prepare a proposal for clinical trial
3. Conduct a clinical trial



## **Synopsis**

The module is designed for individuals interested in the scientific, policy, and management aspects of clinical trials. This provides an understanding of the principles of clinical trials. Topics include the types of clinical research, organization, study design, treatment allocation, randomization and stratification, quality control, protocol adherence and compliance, sample size requirements, patient consent, and interpretation of results. It will also cover ethical considerations, safety data reporting and data collection techniques. Students design a clinical investigation in their own field of interest, write a proposal for it, and critique recently published medical literature.

## **Main References**

1. Friedman L, Furberg C, Demets D. Fundamentals of Clinical Trials: Springer-Verlag GmbH; 2014
2. Hulley S, Stephen R, Designing clinical research: Lippincott Williams & Wilkins; 2013.
3. Cleophas T, Zwinderman A, Cleophas T, Cleophas E. Statistics Applied to Clinical Trials: Springer; 5<sup>th</sup> Edition. 2012.

## **Assessment Methods**

Continuous assessment: 100%

## **MWA 8032 Qualitative Methods in Health Research (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Apply qualitative methodologies in their research projects
2. Critically appraise quality of qualitative research in the literature.
3. Discuss ethical issues in the conduct of qualitative research

## **Synopsis**

This course is mainly concerned with the development of capacities and skills in using a range of qualitative research techniques in health. It is expected that the students will be familiar with the theoretical foundations of qualitative research and common methods of data collection, sampling techniques, validity, ethical issues, and data analysis to apply in their research projects. The unit also seeks to enhance students' knowledge and skills to critically assess qualitative research by the end of the course.

## **Main References**

1. Deborah K. Qualitative and Mixed Methods in Public Health. Sage Publications.2011.
2. Gregory S, Emily N, Public Health Research Methods; Sage Publications.2014
3. Pope C & Mays N. Qualitative research in health care. 3<sup>rd</sup> edition. Blackwell Publishing. 2008.

## **Assessment Methods**

Continuous assessment: 100%

## **➤ MWA8033: Critical Readings and Special Topics in Epidemiology (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. critically appraise hybrid study designs that can be used for data collection;
2. synthesize scientific evidence to refute research questions; and
3. critically appraise scientific articles for errors and bias

## **Synopsis**

This course examines common problems in the design, analysis, and interpretation of observational studies. Problems of exposure and disease definitions, time-dependent effects, confounding, and misclassification are considered in the light of data sources typically available. Relevant statistical

methods are discussed. The module also discusses the surge of epidemiology activities, its expanded scope and influence to other disciplines.

### **Main References**

1. Ann A, George R.S, Essential of Epidemiology in Public Health; 3<sup>rd</sup> Edition, Jones and Barlette; 2013
2. Rothman K, Greenland S, Lash T. Modern epidemiology: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.
3. Diederick E Grobbee & Arno W.Hoes. Clinical epidemiology: Principles, Methods and Applications for Clinical Research. Jones & Bartlett Publishers, Boston. 2009.

### **Assessment Methods**

Continuous Assessment: 100%

#### ➤ **MWA8034: Nutritional Epidemiology (3 credits)**

### **Learning Outcomes**

At the end of this course, the candidate is able to:

1. Conduct various methods of nutritional assessments
2. Analyse nutritional data
3. Apply the principles of nutritional epidemiology to clinical practice

### **Synopsis**

This course is designed for candidates who are interested in conducting or better interpreting epidemiologic studies relating diet and nutrition to health and disease. There is an increasing awareness that various aspects of diet and nutrition may be important contributing factors in chronic disease. This course aims to examine epidemiologic methodology in relation to nutritional measures, and to review the current state of knowledge regarding diet and other nutritional indicators as etiologic factors in disease.

### **Main References**

1. Rothman K, Greenland S, Lash T. Modern epidemiology: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.
2. Willett W. Nutritional epidemiology: Oxford University Press; 2013
3. Edelstein S, Sharlin J. Life cycle nutrition: an evidence-based approach: Jones and Bartlett Publishers; 2009.
4. McNaughton S, Exercise DUSo, Program NSFL, Deakin University. Faculty of Health M, Nursing, Program BSFL. Nutritional epidemiology: Study guide and readings: Deakin University; 2007.
5. Gibson R. Principles of nutritional assessment: Oxford University Press; 2005.

### **Assessment Methods**

Continuous Assessment: 50%

Final Examination: 50%

### **K. PATHMARAJAH MEMORIAL AWARD**

The K. Pathmarajah Memorial Award is an annual award established from the income of a fund of RM10,800.00 donated by members of the Manipal Alumni Association, family and friends in memory of the late Dr. K. Pathmarajah formerly lecturer in the Faculty of Medicine.

#### **Rules**

1. The K. Pathmarajah Memorial Award shall be awarded to the best student in the Part II Examination for the Degree of Master of Anesthesiology.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners for the examination concerned.
3. The award shall take the form of a gold medal up to a value of RM500.00.
4. The gold medal shall not be awarded in any academic year if no candidate is deemed worthy of the award. In such event the funds available for that academic year shall be carried forward for additional awards in any subsequent academic year if there is more than one candidate worthy of the award.

### **DR. RANJEET BHAGWAN SINGH AWARD**

The Dr. Ranjeet Bhagwan Singh Award has been established from the income of a fund of Ringgit 5,000 donated to the University of Malaya by Dr. Ranjeet Bhagwan Singh for award to the best student in the Master of Pathology Examination.

#### **Rules**

1. The Dr. Ranjeet Bhagwan Singh Award shall take the form of a gold medal which shall be awarded annually by the Senate of the University of Malaya to the best student in the Master of Pathology Examinations.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
3. No award shall be made if there is no candidate of sufficient merit in any academic year. In such event, the fund available shall be carried forward to provide for an additional award in another year if there are more than one candidate of sufficient academic merit.
4. The cost of the award shall be met from the income derived annually from the donation.

### **MASTER OF RADIOLOGY PRIZE**

The Master of Radiology Prize was established with a donation of Ringgit Ten Thousand from Pribumi Sdn. Bhd. and Ringgit Five Thousand from Meditel Electronics Sdn. Bhd. to the University of Malaya. The prize will be awarded annually to a student with the best overall achievement in the Master of Radiology Program based on the final examination for the degree of Master of Radiology. The cost of the prize will be met from the income derived annually from this donation.

### **Rules**

1. The Master of Radiology Prize shall be awarded annually to one student with the best achievement in the Program based on the final examination for the Degree of Master of Radiology.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
3. A candidate who has failed in any of the Part I, Part II or Final Assessment shall not be considered for this prize.
4. The first award shall commence based on the academic achievement of the student in the examination for the 2001/2002 Academic Session.
5. The prize will be in the form of cash with a value of RM600.00.
6. No award shall be made in any academic year if there is no candidate of sufficient academic merit. In such an event, the funds available will be carried forward to provide for additional awards in any subsequent academic year where there is more than one candidate of sufficient merit.

### **MASTER OF MEDICAL PHYSICS PRIZE**

The Master of Medical Physics Prize was established with a donation of Ringgit Ten Thousand from Primabumi Sdn. Bhd. and Ringgit Five Thousand from Meditel Electronics Sdn. Bhd. to the University of Malaya. The prize will be awarded annually to a student with the best overall achievement in the Master of Medical Physics Program based on the final examination for the degree of Master of Medical Physics. The cost of the prize will be met from the income derived annually from this donation.

### **Rules**

1. The Master of Medical Physics Prize shall be awarded annually to one student with the best achievement in the Program based on the final examination for the Degree of Master of Medical Physics.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
3. A candidate who has failed in any of the Semester I or Semester II Examination shall not be considered for this prize.
4. The first award shall commence based on the academic achievement of the student in the examination for the 2001/2002 Academic Session.
5. The prize will be in the form of cash with a value of RM600.00.
6. No award shall be made in any academic year if there is no candidate of sufficient academic merit. In such an event, the funds available will be carried forward to provide for additional awards in any subsequent academic year where there is more than one candidate of sufficient merit.

## **DR. JOHN BOSCO AWARD**

The John Bosco Award is an annual award established from the John Bosco Memorial Fund which was started with donations from family and friends of the late Professor John Bosco, former head of the Department of Medicine.

### **Rules**

1. The John Bosco Award is to be given to the best and most worthy candidate who passes the part II and final examination for the degree of Master of Internal Medicine. He or she must not fail in any section of the exams clinical or written and the candidate should show consistent performance through his or her training.
2. The award shall be in the form of a book prize and the total value of RM2000.00.
3. Dr. John Bosco award shall be made on every session by the Senate on the recommendation of the Board of Examiners concerned.
4. The award may be withheld if no candidate is deemed to be of sufficient merit in any academic year. In such event, the fund shall be carried forward to provide for an additional award in another year if there is more than one candidate of sufficient academic merit.

<b>1</b>	<b>TAN SRI DANARAJ MEDICAL LIBRARY</b>
<b>2</b>	<b>IMAGING LABORATORY</b>
<b>3</b>	<b>MULTIDISCIPLINARY LABORATORIES</b>
<b>4</b>	<b>CLINICAL SKILLS LABORATORY</b>
<b>5</b>	<b>COMPUTER LABORATORIES</b>
<b>6</b>	<b>MEDICAL ILLUSTRATION AND MULTIMEDIA DEVELOPMENT UNIT</b>
<b>7</b>	<b>ANATOMY RESOURCE</b>
<b>8</b>	<b>CENTRAL PATHOLOGY MUSEUM</b>
<b>9.</b>	<b>CENTRE POINT</b>
<b>10.</b>	<b>THE CUBE</b>

## 1. TAN SRI DANARAJ MEDICAL LIBRARY



### **SERVICES**

#### **Academic Services Tan Sri Danaraj Medical Library**

The Medical Library on the 3rd floor of the faculty contains around 100,000 volumes and subscribes to around 2,000 current journals. An extensive collection of reference works printed indexing and abstracting services are maintained. It permits access to a number of databases both on-line and on compact disk in the various fields of medicine and allied health care. In addition, the library offers cassette-tape, tape-slide, video-viewing and discussion room facilities, inter-library loan, photocopying and document binding services. Branch libraries are at the Klang and Kuala Langat District Complexes. These libraries aim to provide good quality and friendly service in a pleasant environment. Care of all library material is essential to maintaining this standard. Instructions regarding the use of facilities should be obtained from library staff.

The Main UM Library situated in the main campus contains more than 1 million volumes, a microfilm processing unit and photostating facilities.

#### **Library times:**

Mon-Fri: 0800 – 1700 hr



## 2. IMAGING LABORATORY

### Imaging Laboratory



The objective of the Medical Imaging Programme is to expose the students to every phase of medical imaging and encourage a disciplined approach to problem solving. The four-year program is structured to introduce each medical imaging subdivision. Basic understanding of individual techniques is emphasized, followed by hands-on experience aimed at challenging the student to accept increasingly greater responsibilities as the training program progresses in the imaging laboratory (College of Radiography) and Biomedical Imaging Department. In addition to conventional radiography and nuclear medicine, training will be available in

computer sciences, related imaging technologies, angiography, and interventional radiography. Equipment, facilities, and personnel are available to develop expertise in all areas of medical imaging. The Biomedical Imaging Department have:



#### **Mobile X-ray**

6 sets of AMX 4 Plus  
3 sets of GE AMX 4 wifi digital



#### **General Radiographic Machines**

Room 1 to Room 6 = DRX Evolution Carestream





### 3 MRI scanners:

1. GE 3 T SIGNA with HIFU
2. GE 1.5 T SIGNA
3. Siemens MAGNETOM C 0.35 T Open MRI



### Mammography

Siemens Mammomat 3000 Nova CR  
Siemens Mammomat Novation DR

## 3. MULTI-DISCIPLINARY LABORATORIES

A special facility at FOM is the multidisciplinary laboratories commonly known as the MD Labs (I and II). As their name implies, these labs serve various purposes which include wet and dry laboratory practicals, tutorials, self-directed learning stations, structured paraclinical examinations as well as for tutorial and self learning. It also serves as a home-based for the students.

## 4. CLINICAL SKILLS LABORATORIES

The Clinical Skill Laboratory (CSL) of Faculty of Medicine provides facilities for the teaching of clinical skills and procedures. It is equipped with wide range of simulators. The centre allows medical and paramedical students and doctors to use these simulators for learning and practicing the clinical skills and procedures in a safe, controlled environment.

For detail information check its webpage: <http://www.ummc.edu.my/csl>.



## **5. COMPUTER LABORATORIES**

The computers laboratories equip with a total of 90 computers are available to students of UMMC for various computer-aided learning programmes. These laboratories are opened up to 5:00 pm on working days.



## **6. MEDICAL ILLUSTRATIONS AND MULTIMEDIA DEVELOPMENT UNIT**

This unit is a centre for the production of media and resources to support teaching and research at the faculty. Comprehensive photographic and graphic services are offered as well as a fully equipped video unit. Other services include management of the Faculty's lecture theatres and audiovisual equipment.

## **7. ANATOMY RESOURCE CENTRE**

The Anatomy Resource Centre (ARC) has been designed to emphasise clinically relevant anatomy and stimulate 'active learning' in students in a pleasant conducive environment. Although designed as a multidisciplinary resource primarily for medical students, it also serves the needs of dental students and others from the allied health sciences as well as postgraduate health professionals. In addition, the ARC plays a very vital role in educating the public about the importance of anatomy in clinical medicine (see below).



Key features include potted and plastinated cadaveric specimens, a range of diagnostic images and clinical scenarios quizzes. In addition, activity stations have been designed to focus on interactive learning through multimedia computers, educational anatomy software/ medical websites as well as anatomy videotapes. Dedicated timetable slots in the Phase I medical course encourage self-learning in the ARC by medical students. All regular ARC users are issued with security smart cards to enter and exit the centre. User profile of the ARC is continuously recorded and analysed from computerised door entry records. Student perception of ARC educational value is assessed regularly through feedback questionnaires surveys.

## 8. **CENTRAL PATHOLOGY MUSEUM**





## 9. **CENTRE POINT**

Level 4, Faculty of Medicine



## 10. **THE CUBE**

Level 4, Faculty of Medicine



<b>1</b>	<b>ACCOMMODATION</b>
<b>2</b>	<b>SCHOLARSHIP &amp; SPONSORSHIP UNIT (UBT)</b>
<b>3</b>	<b>STUDENT HEALTH CLINIC</b>
<b>4.</b>	<b>UM MEDICAL CENTRE</b>
<b>5.</b>	<b>STUDENT COUNSELING SERVICES</b>
<b>6</b>	<b>KOMPLEKS PERDANASISWA</b>
<b>7.</b>	<b>MASJID</b>
<b>8.</b>	<b>PHARMACY</b>
<b>9.</b>	<b>BANKING FACILITIES SERVICES</b>
<b>10.</b>	<b>LIBRARY</b>

## **1. ACCOMMODATION**

The Ibnu Sina Residential College houses 700 Faculty of Medicine students. A branch hostel in Klang, next to the Hospital is specially for medical students in Stage 3. Full board and lodging is provided at reasonable rates.

Further information for on-campus or off-campus accommodation can be obtained from the Student Affairs Section, UM.

Contact Number: 03-79673216

Email: [hep\\_penginapan@um.edu.my](mailto:hep_penginapan@um.edu.my)

## **2. SCHOLARSHIP & SPONSORSHIP UNIT (UBT)**

This unit, located in the Academic Administration and Services Centre, UM handles applications for scholarship/loans from national, state and statutory bodies, including private companies and philanthropic organizations.

Contact Number: 03-79676276

## **3. STUDENT HEALTH CLINIC**

This service is available to all students throughout the year. The clinic is situated at:

Student Health Clinic  
Bangunan Siswarama  
Faculty of Arts and Social Science  
University of Malaya  
50603 Kuala Lumpur

Contact Number: 03-79676445

Email: [kkpum@um.edu.my](mailto:kkpum@um.edu.my)

Mon-Fri: 0800 – 1700

No service on Saturday, Sunday/ Public Holiday

## **4. UM MEDICAL CENTRE**

A 24-hour emergency medical service is available to all UM students at the Accident & Emergency Unit of the UM Medical Centre.

## **5. STUDENT COUNSELING SERVICE**

A confidential counseling service available for all UM students, is offered by the Psychology Management & Counseling Section, which is situated at the Perdanasiswa Complex.

The UM Medical Center provides an added counseling service for its students. For further information, please refer to current faculty notices on Counseling Service.

Contact Number: 603 79673244/ 2099

## **6. KOMPLEKS PERDANASISWA**

Foodstuff, souvenir shop and electronic accessories, Automated Teller Machine (ATM), Gazebo, and Speaker Corner are available at Perdana Siswa Building.

## **7. MASJID**

Masjid Al-Rahman is situated at the main entrance to UM. A surau is situated adjacent to the hospital. A newly built surau is situated in the Faculty of Medicine at level 4 between the Department of Anatomy and Molecular Medicine.

## **8. PHARMACY**

These shops are available on ground floor at Kompleks Kesihatan Wanita dan Kanak-Kanak (KWKK).

## **9. BANKING FACILITIES**

A CIMB auto-teller machine is available on the ground floor of the main hospital block. Bank Islam is situated on the ground of new High Impact Research building in the campus.

## **10. LIBRARY**



The University of Malaya Library encompasses a network of libraries and through this network the Library is able to provide comprehensive services and facilities using the discipline-based approach.

Through the Library's home page at <http://umlib.um.edu.my>, one is able to explore the multitude of services as well as the various facilities available to the users. The collection within the Library has been developed in line with the teaching, learning and research needs of the University. The Library now holds more than 1.4 million titles with over 2.1 million items in various formats. In addition to that the Library provides access to more than 85 online databases comprising of more than 46,000 e-journal titles and more than 150,000 e-book titles.

Librarian's Office  
Level 3, Central Library  
University of Malaya  
50603 Kuala Lumpur  
Tel: +603-7967 3206

## NEW BOOKS DISPLAY

Our most recently new books displayed at the strategic corner. You are welcome to browse this selection and feel free to borrow material from this corner.

- **LOCATION : LEVEL 1**



## THESES & DISSERTATION



This collection contains articles, books, research syntheses, conference papers and technical reports, newspapers in microfiche & microfilm format. The collection available at the Central Library.

**LOCATION : LEVEL 2**



## REFERENCE



Reference sources such as dictionaries, encyclopedias, handbooks, directories and resource guides to research are available.

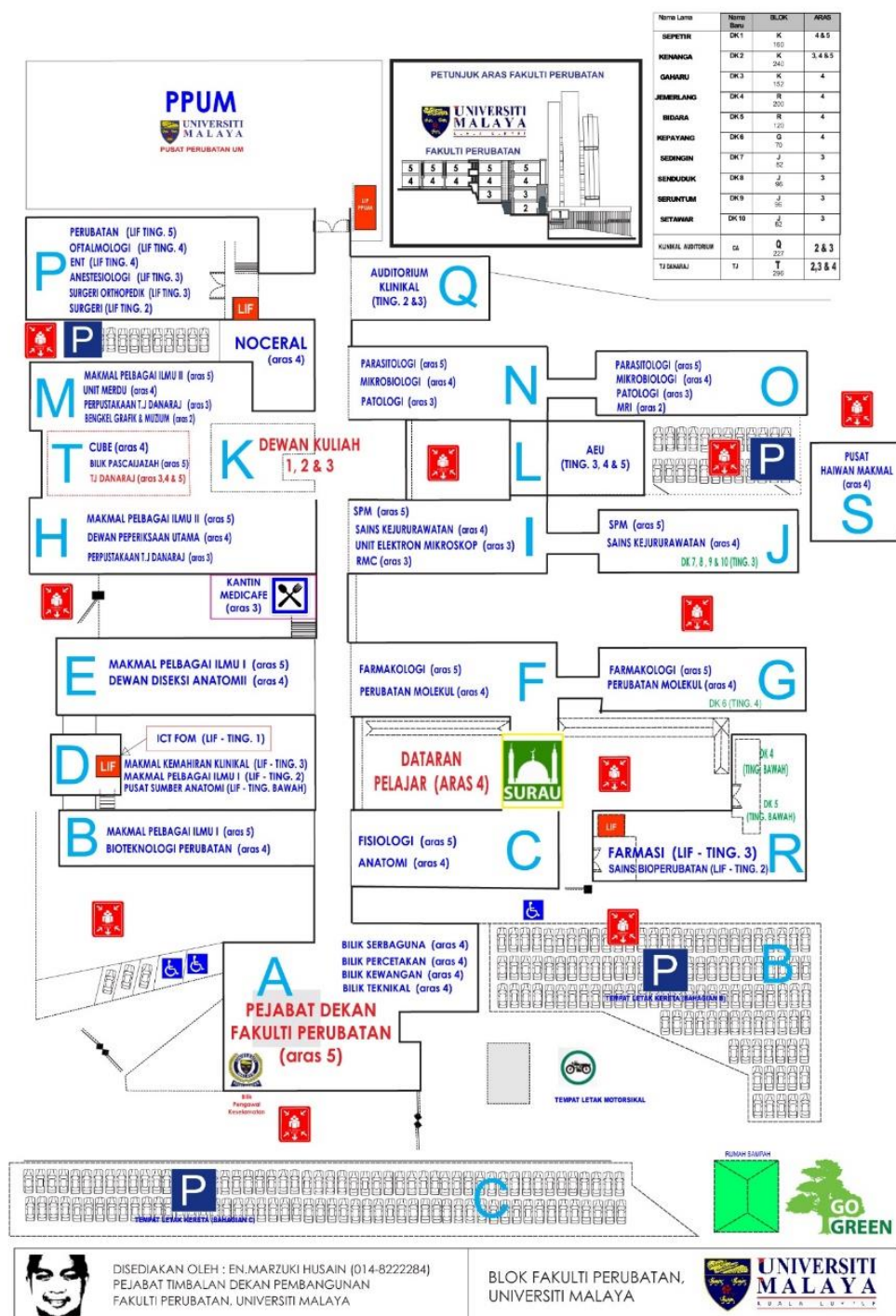
- **LOCATION : LEVEL 3**

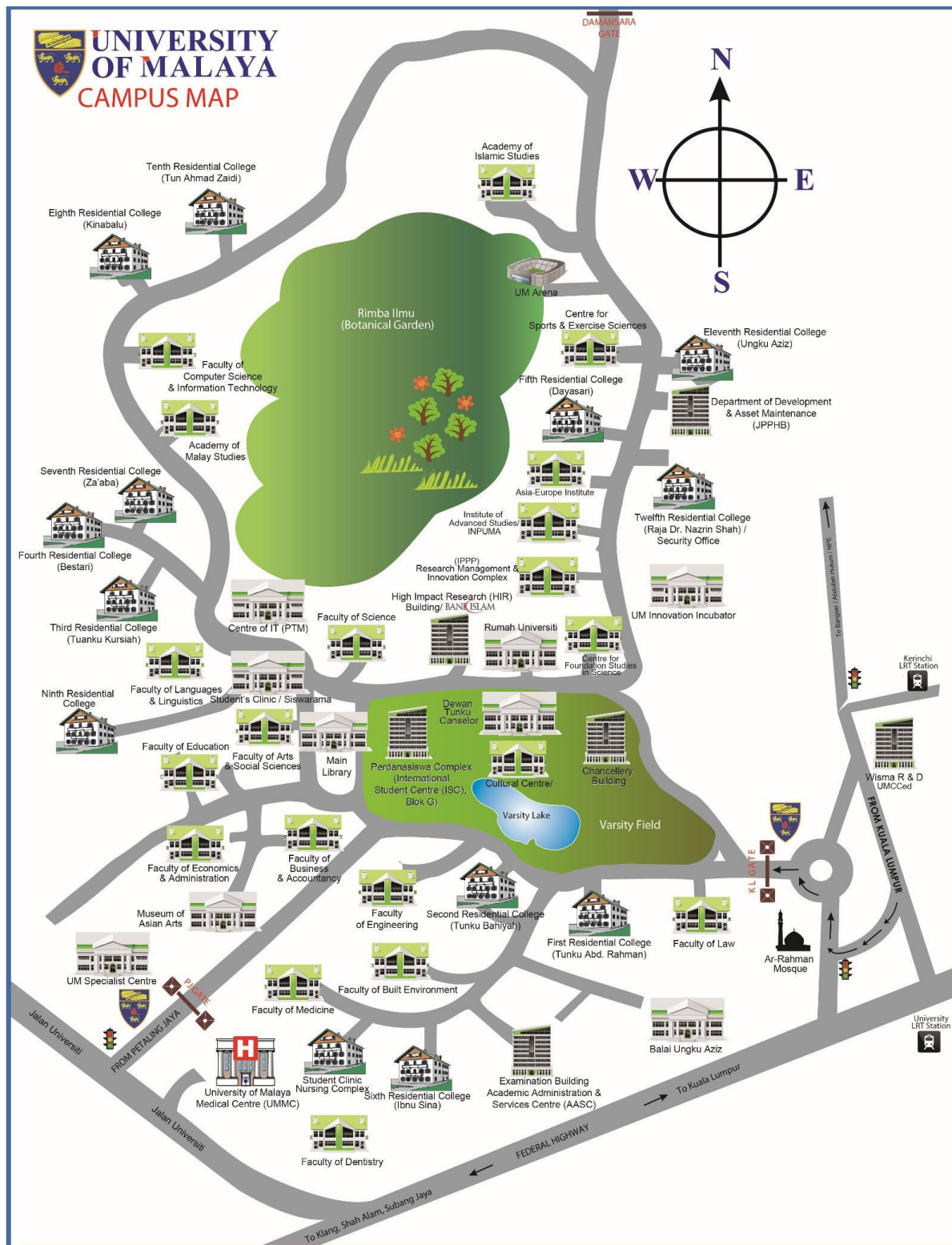
## VIDEO & AUDIO



The University of Malaya Library has a collection of media to support research and teaching and learning. Among the collections in the media unit are VHs, CDs, black plates, blu-rays. There is a collection that can only be used in the library using the equipment provided. In addition, non-academic materials such as movies can be borrowed according to loan eligibility

- **LOCATION : LEVEL 4**







*Thank  
you*

**POSTGRADUATE SECTION, DEAN'S OFFICE**

**FACULTY OF MEDICINE  
UNIVERSITI MALAYA**