



UNIVERSITI SAINS MALAYSIA



MASTER OF MEDICINE MMED (SURGERY)

*Department of Surgery
School of Medical Sciences
Universiti Sains Malaysia
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Kelantan*

**TRAINING CURICULLUM FOR TRAINEES AND SUPERVISORS
UNIVERSITI SAINS MALAYSIA**

-2022-

MASTER OF MEDICINE (GENERAL SURGERY)

The Master of Medicine (MMed) programme was a cabinet decision which gives the Malaysian public universities the task of postgraduate medical speciality training. The aim of the programme is to produce specialist in various medical, surgical and laboratory sub-specialities to man the hospitals of both ministry of health and university hospital.

The Master of Medicine – General Surgery is conducted by 6 most established public universities in Malaysia and 1 private institution. They are:

1	UNIVERSITI SAINS MALAYSIA (USM)
2	UNIVERSITI MALAYA (UM)
3	UNIVERSITI KEBANGSAAN MALAYSIA (UKM)
4	UNIVERSITI ISLAM ANTARABANGSA MALAYSIA (UIAM)
5	UNIVERSITI PUTRA MALAYSIA (UPM)
6	KPJ UNIVERSITY COLLEGE
7	UNIVERSITI ITM (UITM)

The main stakeholders in the programme are:

1. Ministry of Higher Education Malaysia – Public universities
2. Ministry of Health Malaysia
3. The Armed Forces

PROGRAMME CURRICULUM

1. Overview of the programme

Master of Medicine in General Surgery is a structured residency training programme of between the minimum of 4 years to a maximum of 7 years duration.

The general objectives of the Master programme are:

To produce competent and safe general surgeon who can function as teachers and consultants capable of managing common surgical emergencies and elective surgeries independently

To produce competent general surgeon that capable in practicing safe surgical technique
To foster effective interdisciplinary collaborative scholarships
Are compassionate and guided by ethical principles in decision-making
Able to recognize their limitations and will seek proper consultation
To produce surgeons who are capable to teach patients and their families about the patient's health needs
Provide cost effective care to surgical patients and families within the community
Demonstrate leadership skills in managing the surgical teams and services
Capable of advancing the practice of surgery through research, audit and scientific writing
Demonstrate critical analytical thinking and be innovative in approaching common and rare clinical situations
Compassionate towards patients, subordinates and support staffs

Admission Requirements

Applicants should possess the following:

MBBS/MD/MBChB/MBBCh degree from a recognised university or any other relevant qualifications that can be registered with the Malaysian Medical Council.

Minimum 2 years experience after graduation, either in hospitals or other institutions.

Minimum 1 year experience in General Surgery rotation.

Malaysian applicants are also required to attend a pre-test (MEDEX) and interview before the final selection.

In good mental and physical condition.

Additional requirement for International Applicants – eligible for temporary practicing registration

Language Requirement - A minimum score of 550 in TOEFL (Test of English as a Foreign Language) or a minimum score of 6.0 in IELTS (International English Language Testing System)

Pass in undergraduate qualifying examination, a prequalification for obtaining Malaysian Medical Council practicing license.

Programme structure

The programme is divided into 3 phases aimed at progressive mastery of knowledge, skills and attitude, increasing responsibilities and independence.

PHASE I (YEAR 1) THE FUNDAMENTALS OF MEDICAL SCIENCES
PHASE II (YEAR 2 AND 3) SURGICAL SUBSPECIALTIES ROTATION.
PHASE III (YEAR 4) - SPECIALIST-IN-TRAINING

PHASE I (YEAR 1) THE FUNDAMENTALS OF MEDICAL SCIENCES

The general objective is to enable students to acquire knowledge of the basic sciences and principles of surgery and to apply them in the clinical problem solving and decision-making process in the management of patients and performance of operative procedures under supervision.

Trainees will spend 1 year in General Surgery wholly or 6 months General Surgery plus 6 months of either Traumatology / Accident and emergency.

Specific Objectives:

At the end of Year 1, trainees will be able to demonstrate their ability to:

1. Acquire and apply the knowledge of the principles of surgery and basic medical sciences in the clinical reasoning process of diagnosis and management of surgical disorders. Topics in **anatomy, physiology, general pathology, principles of surgery and basic microbiology.**

2. Provide appropriate initial care based on basic surgical principles by:
 - a) Performing a general assessment and instituting the initial management (basic resuscitation and routine investigations)

 - b) Arranging for further management of the patient in consultation with senior colleagues

 - c) Performing the following procedures with competency at the level of indirect

supervision:

Venous cut-down

Insertion of naso-gastric tube

Urinary catheterisation

Insertion of Central Venous Catheter

Insertion of Chest tube

Insertion on Sengstaken Blackmore tube

Diagnostic Peritoneal Lavage

Thoracocentesis

Paracentesis

Open Appendicectomy

Open hernioplasty

Circumcision

Excision of Lumps

Incision & Drainage of superficial abscess

Proctoscopy

Rubber Band ligation of Haemorrhoids

Sigmoidoscopy

Different biopsy techniques – fine-needle, core-needle, incision & excision

Exposure to major surgery

3. Critically appraise and apply information from the literature and other published data in case write-ups and scientific writing.

4. Identify the areas of deficiency in their performance, find appropriate educational resources, use the new knowledge and skills in the care of patients and evaluate their personal learning progress.

Progress Assessment

Progress of the trainees is assessed by:

Observation and report of the supervision using the criteria contained in the Supervisor's Evaluation Forms.

Completion of one year in General Surgery wholly or 6 months General Surgery plus 6 months of Traumatology / Accident and emergency.

Satisfactory completion of minimum 2 individual case write-ups.

Logbooks entries and skill assessments which are checked by the supervisor.

Direct observation of procedural skills of the core procedures listed

Part 1 Examination

The examination is aimed at assessing the trainee's knowledge of anatomy, physiology, pathology, microbiology, principles of surgery and application of the knowledge in problem solving and decision making.

It consists of:

1	Theory component a. Essay/ short notes question (20%) b. Multiple true-false questions/ EMQ) (40%)
2	Clinical components a. Objective simulated clinical examination-OSCE (10%) b. Clinical examination- long case and short case -OSPE (10%) c. Viva-voce (20%) – anatomy, physiology, pathology, principles of surgery and microbiology

Criteria for passing the Part I MMed (Surgery) Examination

1. Total Marks more than 50%
2. Pass ALL THREE components separately with more than 50% marks
 - a. Theory -
 - b. Clinical – mandatory to pass OSPE and OSCE separately
 - c. Viva voce

The candidate at the end of first year and the fulfilling all the criteria is allowed to sit for the Part 1 examination. Repeat examination is at 6 monthly intervals. The candidate is allowed 3 attempts of the part 1. Failing the examination at the third attempt will result in the candidate being barred from proceeding to the next phase of the study.

Criteria for promotion to Year 2

A trainee is promoted to Year 2 if he/she satisfies the following criteria:

- Satisfactory reports from supervisors and head of departments.
- Completed minimum 2 case write-ups
- Satisfactory completion of surgical procedures logbooks entries
- Passed part I examination or its equivalent as accepted by the university (candidates with completion of Part B MCRS with pass marks will be exempted of the Part I examinations)
- Direct observation of procedural skills of basic core procedures listed.

PHASE II (YEAR 2 AND 3) SURGICAL SUBSPECIALTIES ROTATION.

The general objective is to enable students to acquire knowledge, skills, and attitude appropriate for the management of patients in the various surgical subspecialties which will be useful in their general surgical practice. Six rotations of 3 months each which includes **Neurosurgery, Cardiothoracic Surgery, Urology, Paediatrics Surgery and Anaesthesia & intensive Care**. Candidate can choose to do **additional** postings in this phase of training in any of the general surgery subspecialty, such as **Plastic Surgery, vascular surgery, breast and endocrine, upper GI, colorectal, or hepatobiliary**.

Specific Objectives

1. Acquire and apply the knowledge of the principles of surgery and basic medical sciences in the clinical reasoning process of diagnosis and management of surgical disorders in the various subspecialties.
2. Provide appropriate initial care based on basic surgical principles by:
 - a. Performing a general assessment and instituting initial management (routine investigations and basic resuscitation).
 - b. Arranging for further management of the patient in consultation with senior colleagues in the rotation, with particular attention to the principles involved and the role of the multidisciplinary team.

Neurosurgery: Assessment, resuscitation and surgery of head injury patient, Raised intracranial pressure.

Assessment and resuscitation tumour and vascular abnormalities, Spinal diseases.

Cardiothoracic Surgery: Critical care management, Cardio pulmonary bypass, Chest trauma or lung metastasis.

Plastic Surgery: Assessment and resuscitation of burns victim, Wound management and care, Wound coverage, Cleft palate and lips, Skin cancers and reconstructive surgery.

Urology: Urological trauma, Calculi, Genito-urinary tract tumour, Urinary tract obstruction, Urinary bypass.

Paediatrics Surgery: Assessment and resuscitation in neonate and children.

Delicate tissue handling, Careful haemostasis, Special problem child, Common paediatrics emergencies- intussusceptions, abdominal pain, trauma.

Head and Neck swellings.

Malrotation and volvulus, abdominal wall defects and common paediatric urological conditions (VUR, hypospadias).

c) Assisting / performing in the following operative procedures specific to the rotation selected with competency at the level of indirect supervision.

Neurosurgery: Burr holes, craniotomies, craniectomies, formal tracheostomy, cryothyroidotomy, insertion and removal of ventriculo-peritoneal shunt, extraventricular drainage (EVD) and tumour surgery.

Cardiothoracic: Closed Chest tube insertion, vein graft, Thoracotomy, Thoracoscopy, pleurodesis.

Paediatrics surgery: Colostomy - emergency or elective, Herniotomy – emergency or elective, hydrocele, circumcision, orchidopexy, Incision and Drainage of superficial abscesses, Simple laparotomy, Appendicectomy and experience in major surgery (ARA & Hirschsprung Disease).

Anesthesiology/ICU : ICU care (option)

Plastic Surgery: Wound closure, skin grafting, simple flaps.

3. Critically appraise and apply information from the literature and other published data in case write-ups, formulation of research protocol and other scientific writing.

4. Carry out clinical audit.

5. Identify the areas of deficiency in their performance, find appropriate educational resources, use the new knowledge and skills in the care of patients and evaluate their personal learning progress

Criteria for promotion to year 3

A trainee is promoted to year 3 if he/she satisfies the following criteria:

- Satisfactory report from supervisors and head of departments/units of subspecialties rotations.
- Completed a total of 3 case write-ups since Year 1
- One publication. (or equivalent)
- Satisfactory completion of log book entries
- Satisfactory progress report of the dissertation project (data collection)
- Satisfactory Direct Observational Procedural Skills for core procedures
- Completed protocol presentation of dissertation project.
- Completed **application** of ethical approval of dissertation project.
- Satisfactory Direct Observational Procedural Skills for core procedures (for the rotations completed)

Criteria for promotion to year 4

A trainee is promoted to year 4 if he/she satisfies the following criteria:

- Satisfactory report from supervisors and head of departments of subspecialties rotations
- Completed a total of 4 case write-ups since Year 1
- 2 publications (or equivalent)
- Satisfactory completion of log book entries
- Completed all compulsory rotations.
- Satisfactory progress report of the dissertation project (data collection)
- Satisfactory Direct Observational Procedural Skills for core procedures

PHASE III (YEAR 4) – SPECIALIST-IN-TRAINING

The general objective is to enable the trainee to function as the Registrar/Consultant-in-Training of the surgical team and to manage critically ill patients. He/she will be the right-hand person to the consultant. Each candidate will be placed as a 'Consultant-in-Training' and be expected to function independently in resource and patient management. The candidate will spend this phase of training in General Surgery which includes managing surgical conditions of the gastrointestinal tract from the oesophagus to the anus, the breast, endocrine surgery, hernia and some skin disorders, initial assessment of patients with peripheral vascular disease and trauma (abdomen, thorax and management). Candidates are encouraged to carry out case studies to understand the general processes of diseases and gain experience in research principles and methodologies. Candidates are also required to submit a dissertation based on a research project conducted during the training.

Specific Objectives

1. Apply the knowledge of the principles of surgery and basic medical science in clinical problem solving and decision-making and in providing peri-operative care, emergency coverage and care to critically ill patients competent skills and appropriate attitudes
2. To gain competence in assessing, managing conditions requiring emergency surgery.
3. To apply life saving damage limitation procedures to allow stabilization of the patient prior to onward definitive treatment.
4. Management of patient with infections of the skin, superficial tissue, acute abdominal emergencies, gastro-intestinal haemorrhage and patient with trauma according to the ATLS protocol.
5. Perform the following operative procedures with competence at level 3:

Simple mastectomy

Incisional hernia repairs

Difficult inguinal hernia repairs

Varicose vein operation

Femoral embolectomy

Perforated peptic ulcer

Under-running of bleeding ulcer

Splenectomy

Small bowel closure of perforations and anastomoses

Colostomy and closure

Ileostomy and closure

Suturing of facial wounds

Tracheotomies

Re-laparotomy

Axillary clearance

Open Cholecystectomy

Right hemicolectomy

Sigmoid colectomy

Partial gastrectomy

Thyroid lobectomy

Open hemorrhoidectomy

Femoral hernia repair

Difficult incisional hernia repair

OGDS

Colonoscopy

Diagnostic laparoscopy

Basic laparoscopic surgery e.g laparoscopic appendicectomy

(Especially those required in gazettelement period) (appendix A)

Assist in the following procedures with competence at level 2:

Anterior resection of rectum

Left hemicolectomy

Hartmann's procedure

Subtotal colectomy

Total gastrectomy

Oesophagectomy

Distal pancreatectomy

Whipple's operation

Liver resection

Adrenalectomy

Difficult thyroidectomy – redo and total

Parathyroidectomy

Abdominal aortic aneurysm operation

Femoro-popliteal bypass

Endoscopic retrograde cholangio-pancreatography

Laparoscopic Cholecystectomy

Advanced laparoscopic surgery

6. Be a role model in teaching and training junior doctors and other health personnel.

7. Assist the consultant in performing the managerial duties of the ward and team work(ensure academic activities are conducted: ward rounds, journal club, X-ray conference, Clinico-pathological conference (CPC), etc, maintain discipline and unit cohesiveness, arranges duty roster, prepares theatre list).

8. Critically appraise and apply information from the literature and other published data in case write-ups, research project and other scientific writing.

9. Carry out clinical audit.

10. Identify the areas of deficiency in their performance, find appropriate educational resources, use the new knowledge and skills in care of patients and evaluate their personal learning progress.

Assessment

A trainee is eligible to take Part II examination if he satisfies the following criteria:

- Satisfactory report from supervisor
- Completed minimum 5 case write-ups with 2 publications by 3 months preceding the final examination
- Completed loose binding of dissertation/ research project by 6 months preceding the final examination
- Log book completed and checked by head of department 3 months prior to the examination
- The final dissertation has been satisfactory graded by the internal examiners

*** If the trainee does not satisfy the above requirements he/she will not be allowed to take the Part II examination and is deemed to have failed that attempt.**

Part II Professional Examination

Consist of two components: written theory (essay), & Clinical + viva-voce

1. Essay

The written consist of two papers (paper I&II). There are 7 questions in each paper. Two long essays (40 minutes) and five short essays(20 minutes).

The questions are aimed at testing the trainee's ability to demonstrate appropriate decision-making in critically analysing and synthesising information and understanding of the principles of surgery, operative surgery, and surgical pathology.

Candidate must have 50% of the accumulated marks to have passed the essay component.

***Candidate must pass the essay component before he can proceed to the clinical & viva-voce component of the exam.**

2. Clinical components

The clinical consist of **two long cases and three short cases.**

Long case: In each long case, candidate will be examined by three examiners for a period of 30 minutes. He will clerk the patient in their presence, present the case, conduct a physical examination, and answer questions from the examiners.

Short case: In each case, candidate will be examined by three examiners over ten minutes. This section is aimed at testing the candidate ability to elicit a sign, give differential diagnosis and management plan.

***Candidate must have 50% accumulated marks to be considered to have passed this component of the examination.**

3. Viva-voce:

The viva-voce comprise of four tables with two examiners in each. It is aimed at probing the trainee's knowledge and ability to interpret information and solve problems in the principles of surgery, operative surgery, surgical radiology and pathology.

The tables are:

- Principles Of Surgery I,
- Principles Of Surgery II, Journal Reading,
- Operative Surgery
- Surgical Pathology.

***Candidate must have 50% accumulated marks before considered to have passed this component.**

Criteria for passing MMed (Surgery) Part II examination

1. Total overall marks must be 50% and above
2. Candidate must pass all the components of the examination.
 - a. Theory
 - b. Clinical – long cases (2 cases) and short cases (3 cases)
 - c. Viva voce – Principle 1, Principle 2, Operative Surgery and Surgical Pathology.
3. Candidates who passed the essay/theory component but could not pass any of the clinical or viva-voce, they are allowed for 2 more attempts without taking essay/theory but if they still could not pass the clinical and viva voce, they will need to take the essay/theory again in the Part II examination.
4. The candidates are allowed to take part II examination until the whole duration of surgical training of 7 years has been reached.

SUPERVISION AND ROLE OF THE SUPERVISOR

Supervision is the dynamic process in which the supervisor encourages and participates in the development of the trainee. Supervision is fundamental to the educational process and is imperative in the learning system.

The two major roles of supervision are:

1. Objective evaluation of trainee's performance using appropriate methods of assessment and
2. Establishing a relationship that will help the trainee to self-actualise and become self-directed learners and highly motivated individuals.

Thus it is the responsibility of the supervisor to:

Have a good understanding of and commitment to the programme to facilitate learning by the trainee.

Assist the trainee in monitoring his/her progress and to be prepared for assessments.

Ensure that the trainee satisfies all requirements of the programme.

Be a good role model and to continue upgrading his/her skills in relevant areas.

The supervisors for the Part I should have at least **2 years' experience** post gazettement and supervisors for Part 2 should have at least **3 years' experience** in the general surgery.

Role of the Head of Department

The head of department is responsible for the smooth implementation of the programme in their units. The supervisors are nominated for appointment by the head of department and a copy of their names as well as the trainees supervised and mentored by them are sent to the Universiti Sains Malaysia post graduate office. The head of department together with the programme and candidate supervisors will carry out regular interviews with the trainees to decide on the eligibility for promotion to the next academic year and to appropriately recommends to the department.

Under this system there will be three supervisors:

Candidate supervisor

Programme supervisor

Clinical Coordinator

Candidate supervisor

The candidate supervisor is the specialist who is directly in charge of the trainee for the duration of the posting. The Candidate Supervisor will be the lecturer/ surgeon under whom the Candidate is working.

Tasks

1. Organizes tutorial and other academic activities such as clinic-pathological conference (CPC), Grand Rounds, X-ray conference, mortality/morbidity conference, journal club etc.
2. Supervises the trainee's progress by assessing the skills performance, logbook entries and other criteria contained in the Supervisor Evaluation forms.
3. Evaluates case write-ups
4. Submit supervisor's assessment reports to USM through the head of department.
5. Provides guidance and mentoring by ensuring student needs are met (e.g. required clinical practice, adequate time for study and rest etc), guides and supervises the trainee's research project or dissertation.
6. Liaise with programme supervisor regarding trainees posting, problems etc.
7. Carries out regular interviews with the trainees together with the head of department and the programme supervisor to decide on their eligibility for promotion to the next academic year and to make appropriate recommendation to the USM department of surgery.
8. Participate in programme evaluation.

Programme Supervisor

The hospital has several trainees and supervisors in the surgical discipline. The programme supervisor is appointed from amongst the supervisors who will ensure that the trainees are given an all round general surgical training and appropriate experience in the subspecialties.

Task

1. Arranges the rotations for the trainees as required by the programme
2. Ensure reports of candidates are submitted to USM
3. Liaise with the universities on programme implementation
4. Helps trainees and candidate supervisors
5. Participates in programme evaluation

RESPONSIBILITIES OF THE TRAINEE

First of all we wish to welcome you as a colleague in the discipline of surgery.

Values

There are values which a trainee must develop and possess right from the start of the programme. While acknowledging that the trainees have specific learning needs, the trainee nevertheless must develop a sense of belonging to the unit they are attached to and to be committed as a member of a team (to avoid the so-called 'trainee' mentality), and function as an effective apprentice to the supervisor. **Trainees should not perceive "service" load as an obstacle to their learning and must place patient care first and foremost in all his/her approaches, conscious of the aim to develop professional as well as managerial and leadership skills.** Trainees must accept that they have an obligation to provide service to the nation while undergoing and after graduating from the in-service programme.

Training Objectives

Trainees are responsible for their learning. Learning is defined as the process that results in a relatively permanent change in behaviour because of the acquisition of the new knowledge, skills and attitudes. The supervisor's role is to facilitate and guide but not to spoon-feed.

Tasks

Each trainee is expected to:

1. Provide holistic and comprehensive patient care appropriate to the level of training with full commitment and appreciation of the patient as human being with feelings, families, and other responsibilities.
2. Appreciate the cost of care by appropriately selecting investigations and treatment.
3. Be directly responsible to the senior colleagues and consultant in patient care and other duties.
4. Be aware and acknowledge the limitation in providing care and to seek and respect the guidance and consultation in the performance of duties from all members of the surgical team.
5. Develop effective interpersonal skills and mutual respect in the relationship with all

members of the surgical team.

6. Participate actively in all activities of the unit (CPC, Grand Rounds, journal club, morbidity/mortality audits, and quality assurance).
7. Continue learning as self-directed learners who are stimulated by problems presented by patients.
8. Satisfy course requirement according to schedule and to constantly assess their own progress with the supervisor every 2-4 weeks.
9. Develop professional qualities of responsibility, trustworthiness, availability, caring etc. as described in the supervisor evaluation form.

Learning in the Open System

EVALUATION TOOLS

There are values which the trainees must develop and possess right from the start of the programme. The trainee must develop a sense of belonging to the unit they are attached to, be committed as an integral part of the service team and function as an effective apprentice to the supervisor. The service they perform is an essential and integral part of learning. Apart from learning how to care for the surgical patients, they must also develop professional qualities, managerial and leadership skills as well as demonstrate the ability to be self-directed learners who are motivated to continually improve their performance.

Thus, the assessment of practice is a very important component of the progress evaluation. The tools used in the assessment emphasize the links to practice. Trainees are encouraged to meet and discuss their performance regularly with their supervisors and mentors to obtain early feedback, to subsequently take the initiative to search for the relevant information to improve themselves.

The tools used are aimed at assessing different competencies:

No	Tool	Assessment
1	Supervisors report	Objective – Pass/Fail
2	Case Write-up	Satisfactorily / not
3	Dissertation	Pass with Level 1 or 2 (minor correction)
4	Logbook	Satisfactorily/ Not
5	Direct observational procedural skills assessment	Competent/ incompetent

How to write Case Write-up

Satisfactory completion of case write-up is a criteria for promotion. Please refer to the objectives of the relevant year for the number of the case write-ups to be submitted

1. Select the case of your wish to write on. The criteria to help you select the cases include: presence of an interesting feature such as unusual manifestations of a common problem, rarity, problem in management, adopting new techniques/approach or lesson learnt from cases managed.
2. The case write up must follow the standard case report guidelines (CARE Guidelines) consist of Title, Authors & Affiliations, Abstract, Introduction, Case Report, Discussion and References.
3. Make sure all relevant data such as imaging, intra and post operative pictures as well as histopathological images are available.
4. The manuscript should follow the aspect mentioned below :

The title should be short, concise & informative

The First Author is the MMed Candidates and The corresponding Author **MUST BE** the respective department of surgery Consultant / Supervisor

Affiliations for First Author and Correspondance are :

1.Department of Surgery, School of Medical Sciences, Health Campus,
Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.

2.Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

An abstract of not more than 250 words stating the type of case being presented and aspect of management to be discussed

An introduction which should contain the objectives of the write-up

The body (case report) which should describe the relevant history, clinical findings, diagnosis, investigations, treatment and follow-up

Discussion of 1-2 aspects of the problem, critically reviewing, analyzing and synthesizing evidence from the literature to draw your own conclusions

A reference of at least 5 articles (Student can use either Vancouver Style or USM Harvard Style)

A length not exceeding 1000 words using precise language

5. Show the first draft to the supervisor. The corrections should be returned within 2 weeks.
6. Modify the write-up as suggested and re-submit until the supervisor is satisfied that the write-up has achieved acceptable standard.
7. The candidate **MUST** complete 5 (FIVE) case write ups before the final assessment at year 4 of candidature.
8. Minimum of 3 (THREE) Case Write ups **MUST BE** published to Citation Indexed Journal (ISI, SCOPUS or MyCite)
9. Files the cases for final submission for that academic year
10. Case write-ups constitute one of the essential components of continuous assessment.
11. Any attempt of Plagiarism will be considered as an offense and action will be taken.
12. The Candidate **MUST** attend at least once the case write up workshop organized by the department or from other trusted bodies/ organizations / universities

Guidelines for Research Project and Dissertation

Every trainee will be given the opportunity to participate in a workshop on Research Methodology (in the 2nd year) where they will develop skills in writing a research protocol, to conduct the research project and to report their findings. During the workshop, candidate will be given an opportunity to present the topic of their choice to the department.

1. By the first 3 months of Year 2 candidate must identify the suitable topic for the research project, and discussed with his supervisor.
2. Review the literature on the topic, keeping an annotated bibliography
3. Develop a research protocol with guidance from the supervisor (*)
4. Present the protocol in your department
5. Submit the protocol with the department of Surgery, USM
6. Once the protocol is approved, you should start data collection mid of Year 2.
7. The completed dissertation or manuscript must be submitted 6 months before the Part 2 examination.

The length should not exceed 30,000 words and should contain the following;

Abstract of not more than 300 words

Introduction

Materials and methods

Results

Discussion

Conclusion

References

Appendix

(*) Two mechanisms for research topics identification are

- i. Topic identified by the department for the candidates to choose from and then Supervisors are allocated by the department
- ii. The candidates are allowed to approach any lecturer/supervisor and come up with a topic of mutual agreement.

Intellectual / Academic Plagiarism

The department (and the institution) does not condone any form of plagiarism (copying) of another person's / student work. Any portion of another person's work / research which a student wishes to quote or mention in the case write-up or dissertation, should be duly acknowledge and with prior permission (where indicated). Disciplinary actions will be instituted if plagiarism has been proven beyond doubt, to have taken place.

Supervisor's Evaluation Report

All trainees will be closely observed by the supervisor throughout the posting. The competencies and qualities to be observed as well as the criteria for evaluation are described in the evaluation form (see Appendix A)

With the guidance from this checklist trainees should endeavour to develop the competencies and qualities listed, aiming for excellence in all dimensions

The trainee is encouraged to use this evaluation form as a guideline to informally discuss his/her progress with the supervisor throughout the posting. The supervisor is also expected to provide continual formative feedback to the trainee based on this evaluation form

At the end of the posting the supervisor will fill out the evaluation in duplicate. Please retain one copy and send the other copy to the Department of Surgery, USM.

The department of Surgery will send a copy to the postgraduate secretariat, USM. It is emphasized again that case write-ups and logbook completions are essential components of the

Supervisor Continuous Evaluation Report. Candidates are reminded that, unsatisfactory report (<45%) of two consecutive postings will mean no promotion to the next phase.

Log Book (see Appendix)

Students are required to maintain an up-to-date record of the procedures they have participated in, either as assistants or done on their own. The log book must be updated at least every 3 months. The log book is one of the criteria for phase to phase. The completed log book has to be signed by the supervisor at the end of each posting.

Part 1

RECOMMENDED TEXTBOOKS AND JOURNALS

Surgery and Anatomy

Dimick JB, Upchurch Jr GR, Alam HB, Pawlik TM, Hawn MT, Sosa JA. Mulholland & Greenfield's Surgery: Scientific Principles and Practice. Lippincott Williams & Wilkins; 2021 Jun 4. (7th edition)

Last's Anatomy: Regional and Applied: R.J. Last and Chummy S 12 e, Churchill Livingstone/Elsevier 2011

B D Chaurasia's Human Anatomy: Regional and Applied Dissection And Clinical 4, 8th Edition CBS Publishers & Distributors ISBN: 8123923309

Moore's Clinically Oriented Anatomy ; Arthur F Dalley II, A.M.R Agur 9th Edition ; Wolters Kluwer Law & Business, 2022 ISBN: 1975154127

Gray's Anatomy for Students, 4th Edition, Churchill Livingstone ; ISBN: 978-0-323-39304-1

Snell Clinical Anatomy by Regions 10th edition 2018, Lippincott Williams and Wilkins ISBN: 1496345649

Netter's Atlas of Human Anatomy 8th Edition Saunders-Elsevier

Kirk's Basic Surgical Techniques 7th Edition - March 27, 2018 Author: Fiona Myint ; eBook ISBN: 9780702073205 ; Paperback ISBN: 9780702073229

Principles of Surgery.

- **Principles and Practice of Surgery** 8th Edition - February 26, 2022 Editors: O. James Garden, Rowan W Parks, Stephen J. Wigmore eBook ISBN: 9780702082535 Paperback ISBN: 9780702082528 Elsevier
- **Revision notes on Principles of Surgery** Tan Peng Kok, APAC Publishers, 1994, 9813045019

Pathology

Pathologic Basis of Diseases Robbin, Cotran RS, Kumar V, Dan Robbins L. Pub: WB Saunders, Philadelphia: Author: Cotran, Ramzi S. 11th book of Pathology, ELBS/Edwards Arnold. 10th Edition 2020 . Pub: Edward Arnold, London.

Rosai and Ackerman's Surgical pathology John R Goldblum, Laura W lamps, Jesse K Mc Kenney & Jeffrey L Myers. 11th edition. Elsevier

Physiology.

Review of Medical Physiology by William F. Ganong, 26th Edition 2019. Lange Basic Science

Board review series, Physiology, 7th Edition 2018; Linda S. Costanzo, Williams & Wilkins

Guyton and Hall Textbook of Medical Physiology, 13th Edition, Elsevier.

Physiology at a glance Jeremy PT Ward, Goger W Linden 4th Edition; Wiley-Blackwell

Microbiology.

Medical Microbiology 9th Edition Patrick R Murray, Ken S Rosenthal & Michael A Pfaller Elsevier. ISBN – 978-0323673228

Medical Microbiology and Infection at a Glance, 5th Edition. Stephen H Gillespie, Kathleen B Bamford. Wiley

Part 2

Farquharson's Textbook of Operative General Surgery by M. Farquharson & J. Hollingshead & B. Moran 10th edition

Essentials of Surgical Practice Cuschieri, A. 5th Editions 2015.

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The Washington Manual of surgery, Klingensmith, Mary E. 8th Ed Wolter Kluwer Lippincott Williams & Wilkins ISBN- 978-1-97-512006-1

Essential General Surgical Operations R. M. Kirk, 6th Edition Churchill Livingstone

Kirk's Basic Surgical Techniques 7th Edition Fiona Myint 2018 Elsevier

Zollinger's Atlas of Surgical Operations, 10th Edition, McGraw Hill ISBN- 978-0071797559

Current Surgical Diagnosis and Treatment 15th Edition by Gerard M Doherty 2020 McGraw Hill ISBN 9781260468960

Bailey and Love's Short Practice of Surgery 28th Edition by P Ronan O'Connell, Andrew W McCaskie & Robert D Sayers 2018. ISBN 9780367548117

Management of Trauma Pitfall and Practice 2nd Edition. Robert F Wilson, Alexander J. Walt

THE SYLLABUS FOR MASTER OF SURGERY

The broad areas of knowledge, skill and attitude are indicated below:

This is not intended to be exhaustive or exclusive. Obviously it is not possible to put down areas of skill or attitude very precisely, but rather they are to be imported in the course of training.

Part 1

A. Anatomy

Candidate will be required to have knowledge of the structure and functions of all systems of the body where applicable to common clinical conditions. A basic knowledge of histology will be required in order to understand the function of tissues and organs as well as growth, degeneration and repair, without a detailed knowledge of cellular structures. Details of embryology will not be required other than understanding of embryology basis of those congenital anomalies which are compatible with life, but which require surgical correction either in the neonatal period or later in life.

Nervous System: Head and Neck

The anatomy of the scalp and the cranial cavity in relation to head injuries and raised intracranial pressure.

CSF formation and circulation

Origin, course, distribution and testing of cranial and peripheral nerves.

General organisation and function of the autonomic nervous system.

Anatomy relevant to common operations in the neck, such as biopsy of cervical nodes and neck dissection.

Respiratory System

Anatomical basis of maintenance of the airway, tracheostomy, laryngotomy and the management of crushing and penetrating wounds of the chest. Thoracic walls, intercostals

spaces, diaphragm and surgical approaches to thoracic viscera. Surface marking of pleura, lungs and the heart. Anatomy of the thoracic viscera. Anatomical aspects of paracentesis, thoracic and chest drainage.

Cardiovascular System

Anatomy of the heart, pericardium and coronary circulation.

Major arteries and veins: course and distribution relevant to injuries, disease, investigations and surgical procedures.

Gastrointestinal System

Anatomy relevant to function, pathology and surgery of the gastrointestinal tract and related structures.

The general configuration of the peritoneal cavity.

Anterior and posterior abdominal walls and relationships of viscera

Anatomical aspects of abdominal incisions, paracentesis abdominal, inguinal and femoral hernia.

Anatomy relevant to common problems of the pelvic floor, anal canal, sphincters and ischio-rectal fossa.

Genito-urinary System

Anatomy relevant to function, pathology and surgery of the urinary tract and male and female genital organs.

Endocrine System & Breast

Anatomy relevant to function, pathology and surgery of the endocrine and the breast.

Musculo-Skeletal System

Anatomy relevant to the function, pathology and surgery of bones and joints and of the main muscle groups.

The anatomical basis of investigations assessment and initial management of common soft tissue injuries, articular, vascular and peripheral nerve injuries and head infections. The emphasis will be on anatomy relevant to acute trauma.

B. Applied Physiology

There will be emphasis on the Pathophysiology and the treatment of fundamental surgical situations, such as organ failure, increased intracranial pressure and shock. Detailed knowledge related to the surgical subspecialities such as bone metabolism or the detailed biochemistry of secretion and control of hormones will not be required.

Blood and Reticulo-endothelial system

Function of the haemopoietic and reticulo-endothelial systems.

Blood groups and transfusion of blood products: hazards of transfusion.

Haemostasis and fibrinolysis: control of haemorrhage.

Functions of plasma proteins.

Nervous System

General principles of excitable tissues: synaptic transmission in somatic and autonomic nervous system.

Drugs affecting neurotransmitters.

Pain and its control

Management of an unconscious patient and spinal injuries

Respiratory System

Mechanism of respiration and general principles of respiratory control: factors affecting drugs, trauma, and shock lung.

Transport of oxygen and carbon dioxide

Assessment of pulmonary function: respiratory failure and other common derangements of respiratory function.

Oxygen therapy and ventilatory support.

Cardiovascular System

Assessment of cardiac and vascular functions and monitoring techniques.

Control of heart, ECG Cardiac failure, inotropic and chronotropic drugs

Blood flow and its measurement

Capillary function and fluid exchange

Pathophysiology and management of shock

Control of body fluid compartments

Gastrointestinal System

Physiology and assessment of abnormalities of secretion, absorption and motility

Endocrine function of the gastro-intestinal tract

Functions of the hepato-biliary system and the pancreas and their assessment

Jaundice and hepatic failure

Urinary System

Functions of the urinary tract and its assessment

Control of water balance and osmo-regulation

Management of oliguria and renal failure

Endocrine System

Function, secretion and control of hormones and assessment (detailed biochemistry is not required)

Testicular and ovarian functions

Musculo-skeletal System

Principles of physiology of muscle, joints and bone

Calcium metabolism

General

Acid-base balance and its disturbances

Fluid and electrolytes balance and its disturbances

Normal nutritional requirements, enteral and parenteral nutrition

Metabolic response to trauma and sepsis

Pathophysiology and management of burns

C. General Pathology

The candidate will be expected to have a sound knowledge of the principles of pathology and microbiology (including virology) in a surgical context, including inflammation, infection and neoplasia. The response of the tissues to injury, disturbances of growth (metaplasia, atrophy, hypertrophy and hyperplasia) degenerative processes, and repair and regeneration. With regards to common surgical pathology diagnosis; the candidate will be expected to have a broad knowledge of the pathology and principles of management.

General

Immunology

Immune response (humoral and cellular), immunodeficiency, immune-suppression, organ transplantation and Pathophysiology of rejection.

Genetic

Genetics as applied to surgical practice.

Neoplastic Diseases

Pathology, surgery, radiotherapy, chemotherapy,
immunology

Management of Multiple trauma (including war injuries)

Rehabilitation

Principles of management following amputations, gastro-intestinal resections and cardio- pulmonary disease and major trauma.

Pathology Specimens

Biopsy techniques, frozen sections biopsy , handling fixation and transport of
specimens

Aspiration cytology

Quality Assurance

Surgical audit, computing in medicine, clinical research techniques and statistical methods in surgery.

Part 1 and 2 Principles of Surgery

The candidate will be tested on this knowledge of the general principles of practice of surgery

In Part 1 the stress is more towards the understanding of basic processes and their applications to surgery. In Part2 the stress is more on applications of basic principles in day-to-day management.

Principles:

Prophylaxis of Thromboembolic Disease

Surgery in Hepatitis and HIV carriers - special precaution

Pain Control. Pathophysiology of Pain. Differences between acute and chronic pain

Respiratory Failure – recognition and treatment

Assessment and Management of Fluid and Electrolyte Balance

Blood Transfusion – indication; hazards; complication; plasma substitutes

Surgically important Micro-organisms/ principles of Microbiological Diagnosis

Septic shock – Pathophysiology and Principles of management

The Source of Surgical Infection – Prevention and Control

Principles of Aseptic and Antiseptic Technique

Principles of Sterilisation

Skin Preparation and Antibiotics Prophylaxis

Pathophysiology of the Body Response to Infection

The Spleen – Its Role in Health and Disease; Splenectomy and Hypersplenism

Local and Regional Anaesthesia

Suture and Ligature Material

Principles of Incision and their Closure

Diathermy

Pathophysiology of Wound Healing – Classification of Surgical Wound, Principles of Wound Management

Principles and precaution in disorder of coagulation and haemostasis.

Complications of Wound Healing – Wound Dehiscence, Scar, and Contracture

Principles and Techniques of Biopsy and Cytological Sampling

Haemorrhage and Shock

Respiratory Failure – Pulmonary Oedema; “Shock Lung”; ARDS; Lobar and Pulmonary Collapse

Acute Renal Failure in a Surgical Patients

Carcinogenesis; Principles of Molecular Biology of Cancer and Genetic Factors

Benign & Malignant Neoplasm and Mechanisms of Metastases

Epidemiology of Common Cancers: Principles of Screening and Principles of Treatment

Surgical Aspect of Disordered Haemostasis and Haemolytic Disorders of Surgical Importance

Haemorrhagic Disorders; Disorders of Coagulation

Immune Response to Trauma, Infection and Tissue Transplantation

Principles of Research; Design and Analysis of Clinical Trials

Postoperative Pulmonary and Non-pulmonary Complications

Principles of Wound Drainage and Wound Dressings Diagnostic

Therapeutic Uses of Radioisotopes

Monoclonal Antibodies and Their Applications in Clinical Practice

Tumour Markers in Surgical Practice

Uses and Limitations Electromechanical

Hazards in the Operating Room

Patient's Safety in the Operating Room – Precautions in the Anaesthetised Patients

Metabolic Response to Trauma/ Surgery

Malnutrition in Surgical Patients

Acid-Base Homeostasis and Disturbance in the Acid-Base Balance and Principles of Management

Principles of Transplantation / Advances, Uses and Limitations

Principles of minimally invasive surgery, Uses and Limitations

Diagnostic Methods

Imaging techniques

Endoscopy

Interventional Radiology

Pre-operative Assessment and Management Surgery at the

Extremes of Life

Theatre Techniques

Aseptic techniques and sterilisation

Anaesthesia in general, maintenance of homeostasis

Basic surgery techniques: suturing and suture materials, dressings, plasters

Diathermy

Tourniquet

Wound Healing

Wound dehiscence Scars and contractures

Haemorrhage shock, burns

Fluids Electrolytes Balance

Surgical Oncology, Radiotherapy & Chemotherapy

Post-operative Complications

Sepsis in Surgery

Acute and chronic inflammation

Wound infections, Septicaemia

Special infections: Viral (hepatitis, AIDS) Bacteria (tetanus, gas gangrene)

Tuberculosis

Antiseptics

Antibiotic policies

Intensive care

Surgical nutrition

Surgical Haematology and transfusion practice.

Part 2

Operative Surgery

Specific Operations

Nervous System

Exposure for extradural/subdural haemorrhage

Extraventricular drainage (EVD)

Abscess drainage

Cardio-Respiratory System

Tracheostomy

Cricothyroidectomy

Chest drainage

Thoracotomy

Sternotomy

Gastro-intestinal System

Abdominal incision and closure

Laparotomy for peritonitis, intestinal obstruction, abdominal trauma – blunt and penetrating

Perforated peptic ulcer Small bowel resection

Intestinal decompression

Appendectomy (open and laparoscopic)

Colostomy

colonic perforation

ruptured viscus hollow or solid

Peritoneal toilet and drainage

Minor ano-rectal conditions

Hernia repair

Gastrectomy

Cholecystectomy (open and laparoscopic)

Cholecystectomy & common bile duct exploration

Cholectomies

Haemorrhoids, fissure, fistula

Splenectomy

Gastrointestinal Bypass

Genito-urinary system

Suprapubic bladder drainage

Cystostomy

Exposure of Kidney

Drainage of perinephric abscess

Operations for scrotal swellings

Endoscopic technique

Endocrine and Breast

Breast abscess

Image guided biopsy/surgery

Duct and nipple surgery

Sentinel lymph node biopsy

Biopsy and excision of breast lump

Mastectomy, Axillary dissection

Breast conserving surgery

Thyroidectomy: Hemi, total & Re-operative

Adrenal Surgery

Parathyroidectomy

Musculo-Skeletal System and Soft Tissue

Skin lesions

Free skin grafts and observe in different type of flaps Skin wounds

and superficial infection

Lymph node biopsy

Practice Procedures

Laparoscopy

Endotracheal intubation

Upper gastrointestinal endoscopy

Venous access

Insertion of Peritoneal Dialysis catheter

Fine needle aspiration

Core Needle biopsy

Vascular

Varicose veins surgery

Creation of AV fistula

Ligation of AV fistula

Mycotic aneurysm excision

Embolectomy

Ankle-Brachial Pressure Index

Interpret Duplex scan, CTA, DSA

Exposure of major arteries and veins

Peripheral aneurysm surgery.

Surgical Radiology

Modern surgical practice depends heavily on imaging techniques. A surgeon must be able to:

Diagnostic

Plain X-rays

Ultrasound

CT Scan

Mamogram

MRI

PET scan

Therapeutic

The student must be aware of the role radiologists in Interventional/ Therapeutics techniques as applied to the field of general surgery.

Systemic Pathology

Nervous System

Neoplasia conditions

Raised intracranial pressure, skull fractures, closed head injuries and spinal injuries

Respiratory System

Neoplastic conditions of trachea-bronchial tree

Intrathoracic sepsis

Chest trauma

Cardiovascular System

Aneurysm

Peripheral vascular disease

Coronary artery disease

Acute mesenteric ischemia

Thrombosis/ embolism

Venous insufficiency and lymphoedema

Gastro-intestinal System

Salivary gland conditions

Acute dysphagia

Bleeding oesophageal varices

Boerhaavs syndrome

Neoplastic inflammatory and functional conditions of the gastro-intestinal tract

Peptic ulceration and its related complications Gastro-
oesophageal reflux

Inflammatory bowel disease Intestinal fistula

Biliary disease: acute and chronic cholecystitis, empyema, mucocoele, acute biliary colic,
cholangitis, obstructive jaundice, gall stone ileus

Acute and chronic pancreatitis

Cirrhosis and portal hypertension

Acute abdominal emergencies

Hernias

Peri-anal sepsis, pilonidal disease, acute painful peri-anal conditions, massive lower gastro-
intestinal bleeding, acute colitis, colonic volvulus

Acute diverticular disease

Genito-urinary System

Neoplastic conditions of the genitor-urinary system

Obstructive uropathy.

Urinary infection and stones

Testicular maldescent and tumours

Acute Scrotum and scrotal swellings

Endocrine and Breast

Benign and malignant breast disease

Diseases of thyroid, parathyroid, adrenal and pituitary glands

Implications of endocrine disease on surgery in general

Plastic and reconstructive surgery

Principles of skin cover by grafts and flaps.

Skin Cancers

Procedures for credentialing in general surgery

Core procedures : the specialist general surgeon is credentialed to do these procedures after master of surgery (or recognized equivalent qualifications) and the following prerequisite gazettement period.

Extra credentialing is required for the following procedures. The criteria for credentialing depend on the procedure.

Discipline	Core procedure	Extra credentialing
Head and neck	Submandibular gland excision Thyroid – hemithyroidectomy, total thyroidectomy and subtotal thyroidectomy. Branchial cyst Thyroglossal cyst Preauricular sinus Tracheostomy	Parotid surgery Radical/ functional neck dissection Parathyroid surgery
Breast	Lumpectomy Mastectomy axillary dissection Microdochectomy Hookwire localization biopsy	Breast reconstruction (pedicled flap) Free flap reconstructions are performed by plastic and reconstructive surgeons
Thoracic	Thoracotomy for chest trauma Lung resection	Other procedures are performed by cardiothoracic surgeons
Gastrointestinal and hernias	All hernias (inguinal, umbilical , incisional) Perforated peptic ulcer Gastrojejunostomy and pyloroplasty Under-running of bleeding peptic ulcer Partial gastrectomy Gastrostomy Stoma creations – colostomy and ileostomy Repair of traumatic tear in the diaphragm Small bowel resection and anastomosis Right hemicolectomy Hemorrhoidectomy Simple fistula in ano Lateral sphincterotomy	Total gastrectomy Oesophagectomy Repair of oesophageal perforation Reflux surgery Anterior resection for rectal cancer Stapled hemorrhoidopexy Complex fistula-in-ano Laparoscopic resections of the gastrointestinal tract (except appendicectomy) Sphincter reconstructive surgery Lap TAPP Lap TEP
Hepatobiliary	Open cholecystectomy Laparoscopic cholecystectomy Choledochotomy and t-tube drainage	Liver resections Whipple operation Pancreatic debridement and necrosectomy Puestow’s operation

	Biliary bypass (Roux-en-Y hepaticojejunostomy) Hepatic debridement Distal pancreatectomy Perihepatic packing of liver injury Splenectomy Pancreatic pseudocyst drainage (cystgastrostomy)	Excision of choledochal cyst and reconstruction Biliary reconstructions for iatrogenic injuries
Endoscopy	Upper GI endoscopy (oesophago-gastro-duodenoscopy) Lower GI endoscopy (colonoscopy)	Bronchoscopy ERCP Enteroscopy
Vascular surgery	Femoral embolectomy Vascular access Minor vascular trauma High sapheno-femoral ligation and varicose veins stab avulsion	Infre-renal aortic aneurysm Above knee bypass
Neurosurgery	Craniotomy for evacuation of extradural and subdural haematoma Craniectomy	Other procedures are performed by neurosurgeons
Urology	Vesicolithotomy Varicocele Hydrocele (adult) Diagnostic cystoscopy Retrograde pyelogram Ureterolithotomy Emergency nephrectomy	Other procedures are performed by urologists
Paediatric surgery	Hernia (more than 6 months) Hydrocele Laparotomy for acute abdomen Colostomy Splenectomy	Other procedures are performed by paediatric surgeons
Plastic and reconstructive surgery	Split skin graft Simple closure of wounds	Other procedures are performed by plastic and reconstructive surgeons

Contributors:

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- 18. Dr Muhammad Faeid Bin Othman**

Lampiran 1



Borang Penilaian (Pemerhatian Secara Langsung Kemahiran Prosedur - DOPS)

Master of Medicine (Surgery)

Nama Pelajar : _____ Tahun Pengajian : _____

Name Penilai : _____

Hospital : _____ Tempat : _____ Unit Kepakaran : _____

Prosedur : _____ Tarikh : _____

Parameter Penilaian	Tidak Memuaskan	Sederhana	Memuaskan	Cemerlang
Skala	1	2	3	4
Dapat memahami indikasi, anatomi yang berkaitan, dan teknik prosedur.				
Penerangan yang jelas, lengkap dan memperoleh kebenaran prosedur daripada pesakit				
Dapat membuat penyediaan sebelum prosedur dengan betul				
Penggunaan ubat tahan sakit dan bius dengan betul sekiranya memerlukan				
Kemahiran teknik prosedur				
Teknik aseptik yang betul				
Mengetahui limitasi kemahiran sendiri dan bila untuk mendapatkan bantuan				
Nota selepas prosedur dan arahan rawatan seterusnya				
Kemahiran komunikasi				
Professionalisme				

Penilaian Keseluruhan:

Kompeten		Tidak Kompeten	
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Tidak dapat dinilai (Sebab) :

Komen Penilai:

Komen Pelajar:

Tandatangan Penilai

Tarikh:

Tandatangan Pelajar

Tarikh:

