

Maharashtra University of Health Sciences (MUHS), Nashik

Maharashtra University of Health Sciences

General Surgery including Orthopedics, Anesthesiology and Radiodiagnosis

Curriculum implementation of 2024 Admission Batch and onwards

1. Preamble

This document is guided by NMC CBME Guidelines 2024 (Notification No. D-11011/500/2024 Academic Cell e-8284443 dated 12 September 2024) and ongoing CBME updates.

2. Teaching Hours

Teaching Hours, competencies are as per NMC guidelines for 2024

Theory Hours for General Surgery (Phase-wise)

Subject: General Surgery	Large group teaching	SGT/ Practicals/ Tutorials/ Seminars	SDL	Total
MBBS Phase-2	20	-----	----	20
MBBS Phase-3, part 1	30	50	20	100
MBBS Phase-3, part 2	90	153	30	273

Theory Hours for Orthopedics, Anesthesia and Radiodiagnosis (Only in Phase III part II)

Subjects	MBBS Phase-3, part 2			
	Large group teaching	SGT/ Practicals/ Tutorials/ Seminars	SDL	Total
Orthopedics	30	50	20	100
Anesthesiology	08	10	08	26
Radiodiagnosis	08	10	08	26

General Surgery and allied Subjects Clinical Posting duration in weeks

Phase/Subjects	Phase II	Phase III / I	Phase III / II	Total
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General Surgery	6	5	13	24
Orthopedics	0	2	6	08
Anaesthesia	0	0	2	02
Radiodiagnosis	0	0	2	02

3. AETCOM Modules allotted for Surgery and allied subjects

4.4	Shows How	Demonstrate empathy in patient encounters
4.4	Shows How	Communicate care options to patient and family with a terminal illness in a simulated environment
4.5	Knows How	Identify and discuss and defend medico-legal, socio-cultural, professional and ethical issues in physician - industry relationships
4.6	Shows How	Identify conflicts of interest in patient care and professional relationships and describe the correct response to these conflicts

Distribution of above AETCOM modules within General Surgery and allied subjects is to be decided at college level.

Paper 1 -4.4

Paper 2 -4.5, 4.6

4 Paper-Wise Distribution of Topics for Prelims and University Theory Summative Examinations

	Section Topics
	Paper 1
Section A	MCQs on all topics of paper I of Surgery
Section B	General Surgery: including Metabolic response to injury, Shock, Blood and blood components, Burns, Wound healing and wound care, Surgical infections, Surgical Audit and Research, Nutrition and fluid therapy, Transplantation, Biohazard disposal, Trauma, Skin and subcutaneous tissue, other relevant general surgery topics. Head and Neck: Developmental anomalies of face, mouth and jaws, Oropharyngeal cancer, Disorders of salivary glands (except Neurosurgical disorders) Endocrine Surgery: Thyroid and parathyroid, Adrenal glands, Breast Vascular diseases

	Ethics & AETCOM (module 4.4 A and B ,4.6) Abdomen- including Hernia, Peritoneum, GIT tract including esophagus, stomach, small intestine, colon rectum and anal canal, Liver, Spleen, Pancreas, Biliary tract, minimally invasive Surgery
	Paper 2
Section A	MCQs on all topics of the paper II (General Surgery Orthopedics, Anesthesia, Radiology)
Section B	Cardio-thoracic - Chest - Heart and Lungs, Genitourinary System- Kidney ureter and urinary bladder, Penis, Testis and scrotum, Plastic surgery, Oncology, Pediatric Surgery, Neurosurgical disorders, Investigation of surgical patient, Pre, intra and post- operative management
Section C	Orthopedics- Skeletal Trauma & Poly trauma, Fractures in UL & LL, bone Infection, skeletal tuberculosis, Rheumatoid Arthritis and related inflammatory diseases, Degenerative Disorders <i>LBA/CX/Lumbar PIVD</i> , Metabolic disorders (Rickets/ Osteomalacia), Poliomyelitis (PPRP), Cerebral palsy, Bone tumors, Peripheral Nerve injuries, Congenital lesions(CTEV/DDH/Spina Bifida), Procedural skills (AE/BK/AK casts, Thomas Splint, BB FA splintage, Strapping for shoulder clavicle trauma, and Central/Peripheral IV access, Bladder catheterization, splintage, Counseling skills,(Counseling- prognosis of fractures, Complications, amputations), Consent obtaining, Referral to higher center. AETCOM Module 4.5 (Orthopedic) Radiology, Anesthesia and pain management,

4. Internal Assessment

Theory

Subject	Phase II	Phase III / I	Phase III /II	Phase III /II	Total	Conversion out of 200
	IA 1	IA 2	IA 3	Prelim		
	A	B	C	D	E	F
General Surgery	25	25	75	200 (Paper I + Paper II, 100 marks each)	400	E / 2
Orthopedics			50			
Anesthesiology			13			
Radio-diagnosis			12			
Total	25	25	150	200	400	200

Note: IA of orthopaedics, radio-diagnosis and Anaesthesiology shall be conducted by respective departments and a copy of marks shall be communicated to General Surgery department.

Skeleton of Theory Paper for IA 1 and IA 2 (General Surgery)

Question No.	Type of Question	Marks
1) MCQ; 5 MCQs Gen Surgery	Recall, Comprehension and Problem-solving type Minimum 2 scenario-based questions	$1M \times 5 = 5$
2) Long Answer Questions	One out of two Structured case based LAQ -system based, integrated and problem oriented	$10M \times 1 = 10$
3) Short Answer Questions	any 2 out of 3 (one clinical reasoning, one AETCOM 4.4)	$5M \times 2 = 10$

Skeleton of Theory Paper for IA 3 (General Surgery)

Question No.	Type of Question	Marks
1) MCQ; 15 MCQs Gen Surgery	Recall, Comprehension and Problem-solving type Minimum 5 scenario-based questions	$1M \times 15 = 15$
2) Long Answer Questions	Two out of three Structured case based LAQ -system based, integrated and problem oriented	$10M \times 2 = 20$
3) Short Answer Questions	any 4 out of 5 (one clinical reasoning, one AETCOM)	$5M \times 4 = 20$
3) Short Answer Questions	any 4 out of 5	$5M \times 4 = 20$

Skeleton of Theory Paper for IA 3 (Orthopedics)

Question No.	Type of Question	Marks
1) MCQ; 10 MCQs Gen Surgery	Recall, Comprehension and Problem-solving type Minimum 5 scenario-based questions	$1M \times 10 = 10$
2) Long Answer Questions	Two out of three Structured case based LAQ -system based, integrated and problem oriented	$10M \times 2 = 20$

3) Short Answer Questions	any 4 out of 5 (one clinical reasoning, one AETCOM)	5M x 4 =20
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Skeleton of Theory Paper for IA 3 (Anesthesia)

Question No.	Type of Question	Marks
1) MCQ; 5 MCQs Gen Surgery	Recall, Comprehension and Problem-solving type Minimum 2 scenario-based questions	1M x 5 =5
3) Short Answer Questions	any 2 out of 3 (one clinical reasoning, one AETCOM)	4M x 2 =8

Skeleton of Theory Paper for IA 3 (Radiodiagnosis)

Question No.	Type of Question	Marks
1) MCQ; 4 MCQs Gen Surgery	Recall, Comprehension and Problem-solving type Minimum 2 scenario-based questions	1M x 4 =4
3) Short Answer Questions	any 2 out of 3 (one clinical reasoning, one AETCOM)	4M x 2 =8

Practical

Subject	Phase II	Phase III / I	Phase II /II	Phase II /II	Total	Conversion out of 200
	IA 1 #	IA 2 #	IA 3 #	Prelim *		
	A	B	C	D		
General Surgery	25	25	75	200	400	E / 2
Orthopedics			50			
Anesthesiology			13			
Radio-diagnosis			12			
Total	25	25	150	200	400	200

Note: 1. IA of orthopaedics, radio-diagnosis and Anaesthesiology shall be conducted by respective departments and a copy of marks shall be communicated to General Surgery department.

2. Clinical Post ending exams will be considered as Practical assessments. They should be conducted and completed during allotted clinical postings by respective departments.

3. Prelims will be conducted for 200 marks similar to per MUHS Summative Exam.

End of posting examination General Surgery IA1 and IA 2

IA examination	Clinical Case including communication skills	Demonstration of clinical signs	OSCE	Table viva [Surgical pathology, Instruments, Logbook, Journal]	Practical Total
IA 1	13	04	04	04	25
IA 2	13	04	04	04	25

End of posting examination General Surgery IA3

	Long Case	Short Case	Total		
	Long case (25) + Communication skills (5)	Short case (10) + demo of clinical signs (5)	Instruments Operative procedures, Logbook	OSCE	
Max marks	30	15	15	15	75

- \$\$ OSCE conduction: demonstration of clinical skills, Psychomotor skills, higher reasoning and applied thinking and communication skills. OSCEs here do not mean spotters.

#End of posting examination Orthopedics (Phase III part II)

Heads	Short case Ortho	Ortho OSCE (10 M x 2 stations)	Ortho viva
Marks	20	20	10

#End of posting examination for Radiodiagnosis

IA examination	Spots 3 spots 2 marks each = 6 marks	Viva	Practical Total
IA I	NA		
IA 2	NA		
IA 3	6 Marks	6 Marks	12 Marks

End of posting examination for Anesthesiology

	Spots / drugs/ instruments 3 spots 2 marks each = 6 marks	Viva	Practical Total
IA I	NA		
IA 2	NA		
IA 3	6 Marks	7Marks	13 Marks

* Skeleton of Theory Paper as per NMC 2024 regulations (for Prelims and University Summative Examinations)

Paper 1 –General Surgery

Question No.	Type of Question	Marks
1) MCQ; 20 MCQs Gen Surgery	Recall, Comprehension and Problem-solving type Minimum 5 scenario-based questions	1M x 20 = 20
2) Long Answer Questions	Two out of three Structured case based LAQ -system based, integrated and problem oriented	10M x 2 = 20
3) Short Answer Questions	any 4 out of 5 (one clinical reasoning, one AETCOM 4.4)	5M x 4 = 20

4) Long Answer Question	Two out of three Structured case based LAQ	10M x 2 = 20
5) Short Answer Questions	Four out of five SAQ	5M x 4 = 20

Paper 2 – General Surgery& Allied

Question no	Type of Question	Marks
1)MCQ: 20 questions 12 MCQ General Surgery + 5 Ortho + one radiology+ one anaesthesiology +one dentistry	Recall, Comprehension and Problem-solving type Minimum 5 scenario-based questions	1M x 20 = 20
2) Long Answer Questions	Two out of three Structured case based LAQ system based, integrated and problem oriented	10M x 2 = 20
3) Short Answer Questions	any 4 out of 5 Gen. Surgery One on SAQ on <i>AETCOM Module 4.5</i> or 4.6	5M x 4 = 20
4) SAQ	any 4 out of 5 (1 Gen. Surgery, 2 Radio diagnosis, 2 Anaesthesia	5M x 4 = 20
ORTHOPEDICS (Section C)		
5) Long Answer Question	One out of two – Structured LAQ Ortho	10M x 1 = 10
6) Short Answer Questions	Any 2 out of 3 (Orthopedics)	5M x 2 = 10

Practical Marks Structure for Prelims and University Summative Exams.

Heads	Long case	Short case Surgery	Short case Ortho	Table viva Surgery			Ortho OSCE (10 M) + table viva (10M)	Total (200 Marks)
Subheads	Long case 50 + Communication skills 10	Short case 20 + demo of clinical signs 10	Short case 20 + demo of clinical signs 10	X-rays and Surgical Pathology Journal record book	Instruments Operative procedures Logbook	OSCE		
Marks	60	30	30	20	20	20	20	
	a	b	c	d	e	f	g	H=a+b+c+d+e+f+g= 200 marks
Roll no.								

5. Continuous internal assessment:

In addition to above formative assessments for theory and practical, colleges are encouraged to conduct continuous internal assessment (CIA) by home assignments, class tests, seminars, museum study, library assignments, clinical case presentations, problem solving exercises, participation in project for health care in the community, Quiz, Certification of competencies, log book evaluation, SDL skills etc. Such assessment shall be the ongoing process, without any quantification of assessment outcome. Qualitative feedback and guidance, aimed at obtaining the certifiable skills and achievements of the competencies, should be provided to the students. The results of this CIA shall not be a part of the marks of formal internal assessments and hence shall not be used to determine the eligibility to appear for the MUHS examination.

Competencies: As per NMC Guidelines for Competency Based Medical Education (CBME) Curriculum 2024, dated 12/09/2024

Note:

- 1. Journal / Logbook pattern remains unchanged.*
- 2. Recommended books: Remains unchanged.*

6. Eligibility to appear for MUHS final examination

1. Eligibility based on Internal Assessment

A student must secure at least 50% of the total marks (combined in theory and practical / clinical; and minimum 40% in theory and practical separately) for internal assessment in a particular subject in order to be eligible for appearing at the final University examination of that subject. Following are the details.

	Total marks	Converted to	Conversion formula	Eligibility criteria (based on converted marks)	
				Individual	Total
Theory(Including 1 st , 2 nd PCT and Prelims)	400	200	Total marks obtained / 2	80	200 (Theory + Practical)
Practical (Including Phase II posting ending, Phase III/I posting ending and Prelims)	400	200	Total marks obtained / 2	80	

- While preparing Final Marks of Internal Assessment, the rounding-off marks shall be done as illustrated in following table.

Total Internal Assessment Marks	Final rounded marks
133.01 to 133.49	133
133.50 to 133.99	134

Internal assessment marks will not to be added to marks of the University examinations and will be shown separately in mark list.

During the course:

If Internal assessment (IA) marks are less for any of the theory / practical IA examinations, the students/parents must be intimated about the possibility of being detained, much before the next IA examination, so that there is sufficient time to improve.

No extra IA examination shall be conducted for such students, to improve their score, rather such students are mentored and guided, so that they improve in subsequent IA examinations. However, only one extra examination can be conducted after preliminary examinations, ONLY for those students who have missed any of IA examinations due to genuine reasons (see below for details).

Extra examination for students who have missed IA examination due to genuine reasons

If a student has missed any of the IA examinations due to genuine reasons, then such students must apply to academic committee of the concerned college, for permission to appear for one extra examination which is to be conducted after prelim examination. Academic committee, after verifying the genuineness for his/her absence, may permit such students to appear for one extra examination (one theory and one practical).

Even if a student has missed two or more theory / two or more practical examinations, then such student can appear for ONLY one extra examination. In such situations, eligibility should be considered after totaling the marks of the appeared examinations, without changing the denominator.

At the end of Phase III / II, after prelim and extra examination (if applicable):

If a student fails to secure 40% marks and theory and practical individually and 50% combined marks in practical, such students shall be detained from appearing for the subject in regular university examination of that batch.

Remedial measures for detained students

- I. In spite of above measures, if student is still not meeting the IA criteria to be eligible for regular MUHS exam he/she shall be detained from appearing in regular university examination.
- II. Remedial IA examination is to be conducted before the supplementary examination. The examination shall be conducted as per the final MUHS examination theory and practical pattern.
- III. The student is eligible to appear for MUHS supplementary examination, if he/she secures minimum 40% marks in theory and practical (80/200 each) AND minimum 50% combined marks (200/400).

2. Eligibility based on attendance

To be eligible to appear for final MUHS examination, students must have at least 75% attendance in theory and at least 80% attendance in practical.

During the course:

If attendance is less during any quarterly/ six monthly/ periodic monitoring, the students/parents must be intimated about the possibility of being detained much before the final university examination, so that there is sufficient time for improving their attendance.

Such students may be offered any of the locally possible remedial measures such as attending classes with previous batches (without affecting other subjects' attendance) or extra classes. However, scheduling of such remedial measures are optional for a college, and no such student can claim eligibility to appear for MUHS examination on the basis of non-scheduling of such remedial measures. The decision of scheduling of such remedial measures will be taken as per the absolute discretion of head of the department, considering the available resources.

At the end of phase:

If attendance is less at the end of regular classes for the subject, the student is detained to appear in regular university examination of that batch (for that subject).

Remedial measures for detained students

- i. In spite of above measures, if student is still not meeting the criteria to be eligible for regular MUHS exam, he/she shall be detained to appear in regular university examination.
- ii. If his/her attendance is $> 60\%$ in theory and practical, then remedial measures can be offered to such detained students, (after regular MUHS examination), so that they can complete the attendance criteria to be eligible to appear for supplementary examination. Detained students may be offered any of the locally possible remedial measures such as attending classes with previous batches (without affecting other subjects' attendance) or extra classes.
- iii. If the attendance is $< 60\%$, such students are neither eligible for remedial measures nor eligible for supplementary examination. Such students must attend all the classes including lectures, practical, postings etc with next batch and appear for regular

MUHS examination of next batch, for the subject.

Recommended Books and Reference Books

- **Textbooks:**
 - Bailey & Love's Short Practice of Surgery, 27th Edition, Recent editions as published
 - SRB's Manual of Surgery 7th edition, Recent editions as published
 - S.Das- A Concise Textbook of Surgery, 6th edition, Recent editions as published
 - Maheshwari's Essential Orthopedics, Recent editions as published
 - Apley's System of Orthopedics and Fractures 10th Edition
 - Turek's Orthopedics Principles and Their Applications, 8th edition
- For Clinical Surgery
 - S.Das- A Manual of Clinical Surgery, 9th edition, Recent editions as published
 - SRB's Bedside Clinics in Surgery, Recent editions as published
 - Makhan Lal Saha, *Bedside Clinics in Surgery* 4th edition, Recent editions as published
- **Reference Books:**
 - Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice 21st edition
 - Schwartz's Principles of Surgery, 11th edition
 - Campbell's Operative Orthopedics, 14th edition
 - Rockwood and Green's Fractures in Adults and Children, 10th edition
 - Ebenezer's Orthopedics for Undergraduates, Recent editions as published
- **Additional Resources:** [e.g., Digital libraries and journals]

Logbook and Journal Framework

- Note that printing is at institutional level.
- Additional details of CIA to be added into previous logbook