Subject- Human Anatomy

Subject Code: Hom UG-AN

1. PREAMBLE

Anatomy is a study of the structural organization and development of man from gross to cellular aspects along with exploring the interrelationship of different tissues, organs and systems.

An important aspect for the homoeopathic student to grasp is the essentially holistic approach emphasized by Hahnemann. From that perspective, study of anatomy is not a study of isolated organs, parts or tissues but that of a hierarchical system which is intimately interconnected and functions with a purpose of striking balance when in a state of adaptation. The subtle ways in which this balance is lost through a malfunctioning of the vital force needs to be appreciated. This can occur when anatomy is taught with applied anatomy in the background. This delivers an immediate clinical relevance in the mind of the student who is being simultaneously being exposed to clinical practice in the OPD and IPD.

While anatomy explores the structural organization of man, physiology gives us an understanding of the functional organization of the human being. These subjects, which are in reality the two sides of the coin, need to be taught interdependently. This enables the student to develop an insight into the essential interconnection of both in normal health and how both these alter when the disease process gets initiated in the system. This will also reduce the number of teaching hours due to avoiding duplication of information. While the clinical integration is taking place, homoeopathic connection is emphasized when the relevance of the Homoeopathic subjects being taught in the 1st year (Philosophy, Materia Medica, Pharmacy and Repertory), is simultaneously brought to the forefront and hence student centred teaching of the first BHMS year be achieved.

Advances in the understanding of tissues and cell structures which subsume functions of the organs and systems can afford a fertile area for exploring the action of drugs of Materia medica.

2. PROGRAMME OUTCOMES

At the end of BHMS program, a student must

1. Develop the competencies essential for primary health care in clinical diagnosis and treatment of diseases through the judicious application of homoeopathic principles

2. Recognize the scope and limitation of homoeopathy and to apply the Homoeopathic Principles for curative, prophylactic, promotive, palliative, and rehabilitative primary health care for the benefit of the individual and community.

3. Discern the relevance of other systems of medical practice for rational use of cross referral and life saving measures, so as to address clinical emergences

4. Develop capacity for critical thinking and research aptitude as required for evidence based homoeopathic practice.

5. Demonstrate aptitude for lifelong learning and develop competencies as and when conditions of practice demand.

6. Be competent enough to practice homoeopathy as per the medical ethics and professionalism.

7. Develop the necessary communication skills to work as a team member in various healthcare setting and contribute towards the larger goals of national policies such as school health, community health, environmental conservation.

8. Identify and respect the socio-demographic, psychological, cultural, environmental & economic factors that affect health and disease and plan homoeopathic intervention to achieve the sustainable development Goal.

3. COURSE OUTCOMES

At the end of the course, I BHMS student must be able to-

1. Discuss the evolution of life and the developmental anatomy and genetics of human.
2. Explain the ethics of Anatomy, such as Anatomy act, Body donation & receiving procedure and its legal aspects, develop respect to the human cadaver.
3. Differentiate the structural organization of man from micro to macro and its evolution from embryo
4. Correlate the structural organization of man with functional organization and its applied aspect
5. Apply anatomy knowledge to achieve vertical integration with clinical subjects
6. Correlate structural organization of man with homeopathic philosophy and concept of man, Homoeopathic Materia Medica, Repertory and Pharmacy.
7. Correlate structural organization in interpreting different investigations

4. TEACHING HOURS

Sr No.	Subject	Theoretical Lecture	Practical / Tutorial / Seminar / Clinical Posting
01	Anatomy	325 hrs.	330hrs.

TEACHING HOURS (THEORY)

Sr. No	**Paper-I**		
	A **List of Topics**	**B** **Term**	**C** **Teaching Hours**
1	General Anatomy	I	20
2	Head, Neck & Face	II	40
3	Central Nervous System	II	40
4	Upper Extremities	I	50
5	Embryology	I	25

Sr. No	Paper-II		
	A **List of Topics**	**B** **Term**	**C** **Teaching Hours**
1	Thorax	II	25
2	Abdomen & Pelvis	III	55
3	Lower Extremities	III	50
4	Histology	I	20

TEACHING HOURS (PRACTICAL)

Sr. No			
	A **List of Topics**	**B** **Term**	**C** **Teaching Hours**
1	Head, Neck & Face	II	24
2	Central Nervous System	II	18

3	Upper Extremities	I	72
4	Thorax	II	48
5	Abdomen & Pelvis	III	66
6	Lower Extremities	III	72
7	Histology	I	18
8	Embryology	I	12

5. COURSE CONTENT (THEORY)

Syllabus Planning:

(a) Syllabus should start with revision of some of important topics of BIOLOGY- (To connect Biology to Medical Science) Origin of Earth-Environment - Origin of LIFE-Evolution of Human Lives.
(b) The complete course of Human Anatomy should be subdivided in number ofmodules-according to topics/region/system.
(c) Syllabus of other subjects of same year should plan out where the maximum integration (Vertical & Horizontal) of topics is possible.
(d) Theory/Practical/Tutorial/Clinical posting should be arranged in parallel.
(e) Integrated Syllabus planning of whole year should be briefed to clinician where clinical postings are going to be arranged for application of classroom knowledge to clinical knowledge.
(f) Each module should be planned according to the need of system-Co-relation with Homoeopathy & time dimension. (No. of hours)
(g) At the end of each module knowledge should be assessed by arranging joint seminars.(Application of classroom knowledge to practical understanding)

A. Theory:-

The curriculum includes the following from an introductory stage which would include

1. Anatomy Act
2. Body donation procedure and its legal aspects.
3. Develop respect to the human cadaver, empathy towards diseased and sense of gratification for the voluntary body donors and their families
4. Anatomy and Ethics

The rest of the contents have been detailed below:

1. General Anatomy: -

1.1 Modern concepts of cell and its components; cell division, types with their significance.

1.2 Tissues- Theory & demonstration of each basic Tissue (Structure, Location & Function)-Organ formation- Histology.

1.3 Genetics

1.4 Basics of General Anatomy-

i. Definition & Subdivision of Anatomy
ii. History of Anatomy
iii. Anatomical Terms, Position & Movements
iv. Superficial and Deep fasciae
v. Muscles
vi. Bones
vii. Joints
viii. Blood vessels
ix. Lymphatic system
x. Nerves

2. Developmental anatomy (Embryology): -

2.1 Male & Female reproductive organs (Superficial)

2.2 Spermatogenesis
2.3 Oogenesis
2.4 Fertilization
2.5 Formation of Germ Layers-Tissue formation & its classification
2.6 Notochord
2.7 Yolk Sac
2.8 Amniotic Sac
2.9 Developmental embryogenic disk
2.10 Placenta
2.11 Development of abdominal organ
2.12 Development of cardio vascular system
2.13 Development of nervous system
2.14 Development of respiratory system
2.15 Development of body cavities
2.16 Development of uro-genital system

3. Regional or systemic anatomy:

Each of the areas below will cover: -

(a) Osteology
(b) Syndesmology (Joints)
(c) Myology
(d) Angiology
(e) Neurology
(f) Splanchnology (Viscera and Organ)
(g) Histology
(h) Surface anatomy

(i) Applied anatomy
(j) Radiographic anatomy
(k) Correlation with homoeopathic subjects

This will be taught under the following regions: -

3.1 Upper and Lower extremities
3.2 Head, Neck and Face
3.3 Brain- CNS
3.4 Thorax- Respiratory & Cardio vascular system

3.5Abdomen- GIT, Metabolism, Excretory, RE system, Lymphatics & Reproductive

Practical – Lab work – Field – Clinical Hospital work

1. Dissection of whole Human Body, Demonstration of dissected parts.- Small group discussion
2. Identification of histological slides, related to tissue & Organs. -Microscope/OHP slides
3. Students shall maintain Practical-Dissection & Histology record and clinical journals

THEORY

Sr. No.	Topics	Hrs	Term
1	**GENERAL ANATOMY**		I

	3.5 Modern concepts of cell and its components; cell division, types with their significance	2	
	1.1 Tissues- Theory & demonstration of each basic Tissue (Structure, Location & Function)-Organ formation- Histology	2	
	3.6 Basics of General Anatomy- xi. Definition & Subdivision of Anatomy xii. History of Anatomy xiii. Anatomical Terms, Position & Movements xiv. Superficial and Deep fasciae xv. Muscles xvi. Bones xvii. Joints xviii. Blood vessels xix. Lymphatic system xx. Nerves	 2 1 1 1 2 2 2 1 1 1	

	1. Anatomy – Physiology Seminar on cell	1	
	2. Anatomy – Physiology Seminar on Musculoskeletal System	1	
	Total Hours	**20 hrs**	
2	**EMBRYOLOGY & GENETICS**		I
	1. Developmental anatomy (Embryology): - 1.1 Male & Female reproductive organs (Superficial) 1.2 Spermatogenesis 1.3 Oogenesis 1.4 Fertilization 1.5 Formation of Germ Layers-Tissue formation & its classification 1.6 Notochord 1.7 Yolk Sac 1.8 Amniotic Sac 1.9 Developmental embryogenic disk 1.10 Placenta 1.11 Development of abdominal organ	 2 1 1 1 3 1 1 1 2 1	

	1.12 Development of cardio vascular system 1.13 Development of nervous system 1.14 Development of respiratory system 1.15 Development of body cavities 1.16 Development of uro-genital system	1 2 2 2 2 2	
	Total Hours	**25 hrs**	
3	**HISTOLOGY**		I
	1. Modern concept of cell, tissue & systemic structure	1	
	2. Connective tissue	1	
	3. Histology lectures-General	3	
	4. Epithelial tissue	1	
	5. Nervous tissue	1	
	6. Histology lectures of specific organs	13	
	Total Hours	**20 hrs**	
4	**UPPER LIMB**		I

	1. Brachial plexus	2	
	2. Mammary Gland	2	
	3. Shoulder Joint	2	
	4. Median nerve and wrist joint	2	
	5. Muscles of scapular region	2	
	6. Muscles of shoulder region	2	
	7. Back and Intermuscular spaces around scapula	2	
	8. Arm- Post. Aspect	1	
	9. Radial nerve	2	
	10. Forearm – superficial extensor	2	
	11. Forearm- Deep extensor	2	
	12. Elbow joint	2	
	13. Radioulnar joint	1	
	14. Extensor retinaculum	1	
	15. Ulnar nerve	2	
	16. Hand- post. Aspect	2	
	17. Pectoral region	2	

	18. Arm- Ant. Aspect	2	
	19. Musculocutaneous nerve	1	
	20. Cubital fossa	1	
	21. Forearm- superficial flexors	2	
	22. Forearm- deep flexors	2	
	23. Median nerve	2	
	24. Flexor retinaculum	1	
	25. Brachial, Ulnar & Radial artery	3	
	26. Venous drainage of upper limb	2	
	27. Anatomy – Physiology Seminar on nerves of upper limb & nervous system	1	
	28. Integrated lecture with Surgery on Joints of Upper limb	1	
	29. Tutorial	1	
	Total Hours	**50 hrs**	
5	**LOWER LIMB**		III
	1. Introduction to lower limb	1	

	2. Hip Joint	2	
	3. Knee Joint	2	
	4. Arches of foot	2	
	5. Sacral Plexus	1	
	6. Gluteal region	2	
	7. Back of thigh	2	
	8. Sciatic nerve	2	
	9. Popliteal fossa	2	
	10. Lat. Compartment of leg	2	
	11. Post. Compartment of leg	2	
	12. Femoral, popliteal & tibial artery	3	
	13. Ankle joint	2	
	14. Peroneal nerve	2	
	15. Median compartment of thigh	2	
	16. Obturater nerve	1	
	17. Femoral Triangle	2	

	18. Front of thigh& Tensor Fascia Lata	3	
	19. Femoral vessels	2	
	20. Ant. Compartment of leg	2	
	21. Venous drainage of lower limb	2	
	22. Saphenous vein	2	
	23. Retinaculum (Lat., Ant. & medial)	2	
	24. Sole of foot	2	
	25. Femoral nerve	1	
	26. Anatomy – Physiology Seminar on nerves of lower limb & nervous system	1	
	27. Integrated lecture with Surgery on Joints of Lower limb	1	
	28. Tutorial	1	
	Total Hours	**50 hrs**	
6	**THORAX**		II
	1. Introduction to thorax	1	

	2. Development of Heart and lung	2	
	3. Pericardium and Heart	2	
	4. Coronary circulation	1	
	5. Lungs and pleura	3	
	6. Trachea	1	
	7. Oesophagus	1	
	8. Thoracic duct	1	
	9. Diaphragm	1	
	10. Aorta	2	
	11. Mediastinum	2	
	12. Azygous vein	1	
	13. Sup. Vena cava	1	
	14. Inf. Vena cava	1	
	15. Integrated lecture with Surgery on Radiology of Thorax	1	
	16. Anatomy – Physiology Seminar on Respiratory System	1	

	17. Tutorial	1	
	18. Anatomy – Physiology Seminar on Cardiovascular System	1	
	19. Revision	1	
	Total Hours	**25 hrs**	
7	**ABDOMEN**		III
	1. Introduction to Abdomen	1	
	2. Development of Abdominal organs	2	
	3. Oesophagus	1	
	4. Stomach	2	
	5. Duodenum	1	
	6. Small intestine	2	
	7. Revision	2	
	8. Caecum	1	
	9. Appendix	1	
	10. Large intestine	2	
	11. Rectum	2	

	12. Anal canal	1	
	13. Liver	2	
	14. Abdominal aorta	1	
	15. Female genital system	4	
	16. Post. Abdominal wall	2	
	17. Male reproductive system	2	
	18. Ant. Abdominal wall	2	
	19. Pancreas	2	
	20. Gall Bladder	1	
	21. Spleen	2	
	22. Kidney	2	
	23. Supra renal gland	1	
	24. Ureter	1	
	25. Urinary bladder	2	
	26. Pelvic diaphragm	1	
	27. Portal venous system	1	
	28. Peritoneum	2	
	29. Extrahepatic biliary apparatus	2	

	30. Walls of pelvis	1	
	31. Revision	6	
	Total Hours	**55 hrs**	
8	**HNF**		II
	1. Introduction to HNF	1	
	2. Ear	1	
	3. Tongue	1	
	4. Face- muscles	2	
	5. Contents of Orbit	1	
	6. Lachrymal apparatus	1	
	7. Extraocular muscles	2	
	8. Ant. Triangle of neck	2	
	9. Post. Triangle of neck	1	
	10. Common & Internal carotid artery	1	
	11. External carotid artery	1	
	12. Sternocleidomastoid muscle	1	
	13. Fascias of neck	1	

	14. Suboccipital triangle of neck	1	
	15. Contents of vertebral canal	1	
	16. Cranial cavity	2	
	17. Supra &Infra hyoid muscle	1	
	18. Vertebral artery	1	
	19. Scalp	1	
	20. Eyeball	2	
	21. Oral cavity	1	
	22. Pharynx	2	
	23. Larynx	2	
	24. Eustachian tube	1	
	25. Parotid gland	1	
	26. Submandibular gland	1	
	27. Thyroid gland	1	
	28. Muscles of mastication	1	
	29. Jugular vein	1	
	30. Lateral wall of Nose	1	
	31. Revision	3	

	Total Hours	**40 hrs**	
9	**CNS**		II
	1. Introduction to Brain	1	
	2. IIIrd Ventricle and IVth Ventricle	2	
	3. Pons	2	
	4. Medulla	2	
	5. Spinal cord	1	
	6. Lateral Ventricle	1	
	7. Cerebrum Sulci & gyri	2	
	8. Areas of cerebrum	2	
	9. Corpus callosum	1	
	10. White matter of cerebrum	1	
	11. Internal capsule	1	
	12. Basal ganglia	1	
	13. Midbrain	1	
	14. Blood supply of brain	1	
	15. Meninges	1	

	16. CSF	1	
	17. Thalamus	1	
	18. Cerebellum	2	
	19. Cranial nerves including special senses.	12	
	20. Revision	4	
	Total Hours	**40 hrs**	

Total – 325 hrs

PRACTICAL

Sr. No.	**Topics**	**Hrs**	**Term**
1.	**EMBRYOLOGY & GENETICS**		I
	Stages of Development	12	
	Spermatogenesis, Oogenesis and Germ layers.		
	Development of Embryogenic Disc, Placenta		
	Embryology of organs		
	Total Hours	**12 hrs**	

2	**HISTOLOGY**		I
	Histology lectures of specific organs	18	
	Total Hours	**18 hrs**	
3	**UPPER LIMB**		I
	Practicals		
	Clavicle	6	
	Scapula	6	
	Humerus	6	
	Radius	6	
	Ulna	6	
	Hand	6	
	Surface Marking of Upper limb	6	
	Dissection		
	Axilla & Arm	6	
	Forearm & Hand	6	
	Muscles of Back	6	
	Muscles of Pectoral Region	6	
	Radiology		

	Joints of Upper limb	6	
		72 hrs	
4	**LOWER LIMB**		II
	Practicals		
	Hip Bone	6	
	Femur	6	
	Tibia	6	
	Fibula	6	
	Foot	6	
	Surface Marking of Lower limb	6	
	Dissection		
	Femoral Region	6	
	Gluteal Region	6	
	Thigh	6	
	Leg	6	
	Foot	6	
	Radiology		
	Joints of Lower limb	6	

		72 hrs	
5	**THORAX**		III
	Practicals		
	Ribs – Typical & Atypical	6	
	Thoracic Vertebrae	6	
	Sternum	6	
	Dissection		
	Heart	6	
	Mediastinum	6	
	Lungs	6	
	Surface Marking of thorax	6	
	Radiology	6	
	Total Hours	**48 hrs**	
6	**ABDOMEN**		II
	Practical		
	Lumbar Vertebrae	6	
	Dissection		
	Abdominal cavity, Abdominal vessels	6	

	Stomach, Pancreas, Spleen	6	
	Relation of viscera	6	
	Liver, Gall bladder	6	
	Kidney, Ureter, Urinary bladder	6	
	Peritoneum & Intestine	6	
	Uterus, fallopian tubes, Ovaries	6	
	Ant. Abdominal wall & Post. Abdominal wall	6	
	Surface Marking of Abdomen	6	
	Radiology	6	
		66 hrs	
7	**Head, Neck and Face**		III
	Practical		
	Skull & Mandible	12	
	Dissection		
	Face & Neck	6	
	Radiology	6	
		24 hrs	
8	**CNS**		III

	Cerebrum	6	
	Cerebellum	6	
	Midbrain, Pons & Medulla	6	
		18 Hrs	

Total – 330 Hrs

6. TEACHING LEARNING METHODS

General Instructions

(a) Instructions in anatomy should be so planned as to present a general working knowledge of the structure of the human body both at micro and macro level and should correlate with function. Topics-syllabus should be planned out in parallel with other subjects for better understanding & to achieve integration.

(b) The amount of detail which a student is required to memorise should be reduced to the minimum but should connect to syllabus of other subjects and applied anatomy

(c) Major emphasis should be laid on functional anatomy of the living subject rather than on the static structures of the cadaver and on general anatomical positions and broad relations of the viscera, muscles, blood vessels, nerves and lymphatics and study of the cadaver is the only means to achieve this

(d) Students should know the basic applied anatomy & should not be burdened with minute anatomical details which have no clinical significance.

(e) Only such details which have professional or general educational value for the Homoeopathic medical students need to be focused.

(f) Normal radiological anatomy may also form part of practical or clinical training and the structure of the body should be presented linking functional aspects.

(g) A good part of theoretical lectures on anatomy can be transferred to tutorial classes with the demonstrations / Prosection / Dissection.

(h) Lectures or demonstration on the clinical and applied anatomy should be arranged in the later part of the course and it should aim at demonstrating the anatomical basis of physical signs and the value of anatomical knowledge to the students. For better exposure of applied & Clinical aspects of all the subjects, student should be allotted clinical posting at various OPDs/Clinical Pathology lab/Radiology/Dispensing/ Community OPDs/Causality etc

(i) Seminars and group discussion to be arranged periodically with view of presenting these subjects in an integrated manner.

(j) More stress on demonstrations and tutorials should be given. Emphasis should be laid on the general anatomical positions and broad relations of the viscera, muscles, blood vessels, nerves and lymphatics.

(k) There should be joint seminars with the departments of Physiology and Bio-Chemistry, Repertory, HMM, Philosophy and Pharmacy which should be organized once a month considering that syllabus of all the subjects is arranged in an integrated form.-Teaching tool can be a CASE (Clinical Posting) which students have attended.

(l) There should be a close correlation in the teaching of gross Anatomy, Histology, Embryology and Genetics and the teaching of Anatomy, Physiology including Bio Chemistry along with Homoeopathic subjects shall be integrated.

Though dissection of the entire body is essential for the preparation of the student for his clinical studies, the burden of dissection can be reduced and much saving of time can be effected with considerable reduction of the amount of topographical details while following the above points-

The purpose of dissection is to give the student an understanding of the body-Structure from Macro to Micro correlate to its function- Functional anatomy to integrate with Physiology and the dissection should be designed to achieve this goal.

(v) Dissection should be preceded by a course of lectures on the general structure of the organ or the system under discussion and then its function. In this way anatomical and physiological knowledge can be presented to students in an integrated form and the instruction of the whole course of anatomy and physiology made interesting, lively practical or clinical. Syllabus of all the subjects of First BHMS should be structured to run parallelly, horizontally & vertically as far as possible to achieve maximum integration.

Students should be able to identify anatomical specimens and structures displayed in the dissection. Teaching and Demonstration methods should be supported with latest software/Practical/Charts/OHP/slides/Working or 3D Diagrams, Audio-Visual/ Multimedia presentation/Simulation to train clinical application

The Teaching Learning activities in Anatomy requires change in structure & process in order to be more skill based & providing hands on experience. The Teaching Learning methods with respect to Anatomy may be covered in the following manner –

a) **Class Room Lectures** – Oral Presentation, Board Work, Power point Presentation.

b) **Tutorials** on the topics covered.

c) **Assignments –** For Slow Learners

d) **Practical Class** – Demonstration, Dissection, Surface Marking, Histology, Radiology

e) **Student Activities –** Working out the Assignments, Projects, PowerPoint presentations as assigned

f)**Case based Learning &Problem Based Learning (CBL & PBL)-** for students to understand the application of knowledge of Anatomy with Clinical subjects.

g)**DOAP (Demonstration – Observation – Assistance – Performance)-** For Clinical Anatomy

7. CONTENT MAPPING (COMPETENCY TABLE)

Content (Topic) List:

1 Theory:-

The curriculum includes the following from an introductory stage which would include

1. Anatomy Act
2. Body donation procedure and its legal aspects.
3. Develop respect to the human cadaver, empathy towards diseased
4. sense of gratification for the voluntary body donors and their families
5. Anatomy and Ethics

The rest of the contents have been detailed below:

1. General Anatomy: -

1.1 Modern concepts of cell and its components; cell division, types with their significance.

1.2 Tissues- Theory & demonstration of each basic Tissue (Structure, Location & Function)-Organ formation- Histology.

1.3 Genetics

1.4 Basics of General Anatomy-

xxi. Definition & Subdivision of Anatomy
xxii. History of Anatomy
xxiii. Anatomical Terms, Position & Movements
xxiv. Superficial and Deep fasciae
xxv. Muscles
xxvi. Bones
xxvii. Joints
xxviii. Blood vessels
xxix. Lymphatic system
xxx. Nerves

2. Developmental anatomy (Embryology): -
   - 2.1 Male & Female reproductive organs (Superficial)
   - 2.2 Spermatogenesis
   - 2.3 Oogenesis
   - 2.4 Fertilization
   - 2.5 Formation of Germ Layers-Tissue formation & its classification
   - 2.6 Notochord
   - 2.7 Yolk Sac
   - 2.8 Amniotic Sac
   - 2.9 Developmental embryogenic disk
   - 2.10 Placenta
   - 2.11 Development of abdominal organ
   - 2.12 Development of cardio vascular system
   - 2.13 Development of nervous system
   - 2.14 Development of respiratory system
   - 2.15 Development of body cavities
   - 2.16 Development of uro-genital system

3. Regional or systemic anatomy:

   Each of the areas below will cover: -

   (l) Osteology
   (m) Syndesmology (Joints)
   (n) Myology
   (o) Angiology
   (p) Neurology
   (q) Splanchnology (Viscera and Organ)

(r) Histology
(s) Surface anatomy
(t) Applied anatomy
(u) Radiographic anatomy
(v) Correlation with homoeopathic subjects

This will be taught under the following regions: -

3.1 Upper and Lower extremities- Muscle Physiology
3.2 Blood
3.3 Head, Neck and Face-
3.4 Endocrine & Exocrine system
3.5 Brain- CNS system
3.6 Thorax- Respiratory & Cardio vascular system
3.7 Abdomen- GIT, Metabolism, Excretory, RE system, Lymphatics & Reproductive

Semester I

1. **Topic: General Anatomy**

Learning Outcomes (LO): At the end of general anatomy, I-BHMS student must:

1. Describe the structure of a cell, its components and their function.
2. Classify the different types of cells in order to identify and differentiate different cell types.
3. Illustrate the different types of tissues and organs with respect to their cell structure, location and function.
4. Differentiate different types of tissues and organs based on their histological characteristics
5. Mention the drugs indicated for particular tissue/organ involvement.

6. Classify bones, muscles, joints
7. Recall the terminologies used in Anatomy.
8. Practice Ethics related to the learning of Anatomy.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/ Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
Hom UG-AN-1.1	Problem formulation Integration of Knowledge Information	eneral natomy	Knows	1.Describe structural organization of the cell, tissue, organ, organ system. 2.Differentiate and Identify	Define the terms cell, tissue, organ, organ system	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions.	MCQ, SAQ.	MCQ, SAQ. Viva Voce	Anatomy – Physiology Seminar
Hom UG-AN-1.2			Knows how		Explain the structure of a cell with respect to its components with their functions.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	MCQ, SAQ.	MCQ, SAQ. Viva Voce	Anatomy – Physiology Seminar

	gathering Practical Skills			cell, tissue, organ, and organ system								
Hom UG-AN-1.3			Knows		Enumerate the different types of cells.	Cognitive	Level 1 (Remember/ recall)	Desirable to Know	Lecture, Small Group Discussions	MCQ, SAQ.	MCQ, SAQ. Viva Voce	Anatomy – Physiology Seminar
Hom UG-AN-1.4	Information management synthesis		Knows how		Explain the characteristic features of different normal cell lines.	Cognitive	Level2 Understanding and Interpretation	Desirable to Know	Lecture, Small Group Discussions	SAQ	MCQ, SAQ. Viva Voce	Anatomy – Physiology Seminar

Hom UG-AN-1.5			Knows how		Differentiate the given normal cell lines	Cognitive	Level2 Understanding and Interpretation	Desirable to Know	Histology Practical	Practical	MCQ, SAQ. Viva Voce	
Hom UG-AN-1.6			Knows		Enumerate the different types of tissues and organs	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	MCQ, SAQ	MCQ, SAQ. Viva Voce	Anatomy – Physiology Seminar
Hom UG-AN-1.7			Knows how		Explain the structure of each tissue with respect to its cell structure, location and function.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	SAQ	MCQ, SAQ. Viva Voce	Anatomy – Physiology Seminar

Hom UG-AN-1.8			Knows how		Differentiate the given types of tissues.	Cognitive	Level2 Understanding and Interpretation	Must Know	Histology Practical	Spotting-Histology Practical, OSPE	MCQ, SAQ. Observation checklist, Viva Voce	
Hom UG-AN-1.9			Knows	Correlate the Knowledge of same with Homoeopathy.	Enumerate the drugs indicated for a particular type of tissue, organ, organ system	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Integrated teaching with Materia Medica	MCQ, SAQ,	MCQ, SAQ Viva Voce	Integrated teaching with Materia Medica
Hom UG-AN-1.10			Knows how	Explain and classify bones, muscles, joints.	Explain the Types and Classification of bones, muscles, joints	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments,	MCQ, SAQ Viva Voce	Integrated lecture with Surgery.

Hom UG-AN-1.11			Shows how	Demonstrate the terminologies of Anatomy	Demonstratenormalanatomicalposition,variousplanes,relation,comparison,laterality&movementinourbody	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture ,DOAP session	MCQ, SAQ, Assignments,	MCQ, SAQ Viva Voce	
Hom UG-AN-1.12			Knows how	Explain the Ethics of Anatomy	Explain the Anatomy Act	Cognitive and Affective	Level 1 (Remember/ recall)	Nice to Know	Lecture , Small Group Discussions	Assignments	MCQ, SAQ Viva Voce	

2. Topic: Developmental Anatomy (Embryology)

Learning Outcomes (LO): At the end of embryology, I-BHMS student should be able to:

1. Describe evolution of life on earth and the developmental anatomy and genetics.
2. Explain the structural organization of man from micro to macro and its evolution from embryo
3. Explain the evolution of different organs and systems from the embryo.
4. Enumerate the homoeopathic drugs indicated for particular genetic or developmental defect.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/Does	Specific Competen	Special learning objectives	Blooms Domain	Guilberts level	Must know / Desire to know / Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical / Spiral
Hom UG-AN-2.1	Integration of Knowledge Information gathering Information manage	Developmental Anatomy (Embryology)	Knows	Describe in detail the developmental Anatomy of the male and female reproductive organs	Define Darwin's Theory of evolution.	Cognitive	Level 1 (Remember/ recall)	Nice to know	Lecture, Small Group Discussions	MCQ, Assignments.	MCQ, SAQ Viva Voce	

	ment synthesis											
Hom UG-AN-2.2			Knows how		Explain the normal human reproductive cycle in males and females and the genetics involve	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, Assignments	MCQ, SAQ Viva Voce	Anatomy – Physiology Seminar
Hom UG-AN-2.3			Knows how		Explain the developmental anatomy of the	Cognitive	Level2 Understanding and Interpretation	Desirable to know	Lecture, Small Group Discussions	MCQ, Assignments	MCQ, SAQ Viva Voce	Anatomy – Physiology Seminar

					male and female reproductive organs and their functions.							
Hom UG-AN-2.4			Knows		Enumerate the different germ layers	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions, Histological identification, Models/Specimens of embryonic development	MCQ, Assignments,	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar, Integrated teaching with Gynaecology and Obstetrics

Hom UG-AN-2.5			Knows how		Explain the development of the organ and organ system.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, Assignments	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar,
Hom UG-AN-2.6			Knows how		Explain the developmental anatomy of embryo.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments	MCQ SAQ Viva Voce	Integrated teaching with Gynaecology and Obstetrics
Hom UG-AN-2.7			Knows	Correlate knowledge developme anatomy with homoeopa	Enumerate the drugs indicated for a particular type of genetic or	Cognitive	Level 1 (Remember/ recall)	Nice to know.	Integrated teaching with Materia Medica	MCQ, Assignments, Viva Voce	MCQ SAQ Viva Voce	Integrated teaching with Materia Medica

					develop mental defect							

3. Topic: Upper Extremities

Learning Outcomes (LO): At the end of Upper Extremities, I-BHMS student should be able to:

1. Describe the anatomy of the bones of the upper extremities, their blood supply and applied anatomy.

2. Describe anatomy of the joints of the upper extremities, their blood supply, action and applied anatomy.

3. Describe the muscles of the upper extremities, their origin, insertion, nerve supply, action and applied anatomy.

4. Explain anatomy of the vessels and nerves of the upper extremities, their course, muscles they supply, relations and applied anatomy.

5. Describe the anatomy of mammary gland with its applied anatomy.

6. Describe the anatomy of axilla.

6. Enumerate homoeopathic drugs indicated for particular involvement of bones, muscles, joints, nerves, blood vessels.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/ Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know / Desire to know / Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
Hom UG-AN-3.1	Problem formulation Integration of Knowledge Information	Upper Extremities	Knows	Describe the anatomy of upper extremities in detail.	Enumerate the bones in the upper extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Integrated teaching with Department of Surgery and Medicine (Orthopeadics)

	gathering Practical Skills Information management synthesis											
Hom UG-AN-3.2			Knows how		Explain the anatomy of the bones of the upper limb with their muscle attachments, relations, blood supply and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments,	MCQ SAQ Viva Voce	Integrated teaching with Department of Surgery and Medicine (Orthopeadics)
Hom UG-			Knows		Enumerate the joints in the upper extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture,	SAQ, Assignmen	MCQ SAQ	Integrated teaching with

AN-3.3									Small Group Discussions	ts, Viva voce	Viva Voce	Department of Surgery and Medicine (Orthopeadics)
Hom UG-AN-3.4			Knows how		Explain the anatomy of the joints of the upper limbs, their blood supply, action and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments,	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar Integrated teaching with Department of Medicine (Orthopeadics)

Hom UG-AN-3.5			Knows		Enumerate the muscles in the upper extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ	Anatomy – Physiology Seminar
Hom UG-AN-3.6			Knows how		Explain the anatomy of the muscles of the upper extremities, their origin, insertion, nerve supply, action and applied anatomy.	Cognitive	Level2 Understanding , Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ, SAQ, Assignments , Viva voce	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar
Hom UG-AN-3.7			Knows		Enumerate the vessels and nerves in the upper extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar

Hom UG-AN-3.8			Knows how		Explain the anatomy of the vessels and nerves of the upper extremities, their course, muscles they supply, relations and applied anatomy.	Cognitive	Level2 Understanding , Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ, SAQ, LAQ, Assignments ,Viva voce	MCQ SAQ, LAQ Viva Voce	Anatomy – Physiology Seminar
Hom UG-AN-3.9			Knows		Explain thelocation,extent,deep relations, structure,age changes,blood supply,lymphatic drainage,microanatomyand applied anatomy of mammary gland.	Cognitive	Level2 Understanding , Interpretation	Must Know	Lecture, Small group discussion, DOAP session	MCQ, SAQ, LAQ, Assignment, Viva voce	MCQ SAQ, LAQ Viva Voce	Spiral Integration with Homoeopathic subjects
Hom UG-AN-3.10			Knows how		Explain boundariesandcontents ofaxilla.	Cognitive	Level2 Understanding , Interpretation	Must Know	Lecture,Smallgroupdiscussion,DOAPsession	MCQ, SAQ, LAQ, Assignment Viva voce	MCQ SAQ, LAQ Viva Voce	Anatomy – Physiology Seminar

Hom UG-AN-3.11			Knows	Correlate the knowledge of anatomy of upper extremity with homoeopathy.	Enumerate the drugs indicated for particular involvement of bones, muscles, joints, nerves, blood vessels of upper extremities.	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Integrated teaching with Materia Medica	MCQ, Assignments, Viva Voce	MCQ SAQ, LAQ Viva Voce	Integrated lectures with Homoeopathic Materia Medica

Semester II

4. Topic: Head Neck Face &Special Senses

Learning Outcomes (LO): At the end of Head Neck & Face, I-BHMS student should be able to:

1. Describe the anatomy of the bones of the Head Neck &Face, their blood supply, and applied anatomy.

2. Describe the anatomy of the joints of the Head Neck & Face, their blood supply, action and applied anatomy.

3. Explain the anatomy of the muscles of the Head Neck & Face, their origin, insertion, nerve supply, action and applied anatomy.

4. Describe the atomy of the vessels and nerves of the Head Neck & Face, their course, muscles they supply, relations and applied anatomy.

5. Describe the triangles of the Neck with its applied anatomy.

6. Identify a particular bone of Head Neck & Face on X-Ray.

7. Describe the structure of the special senses organs with its applied anatomy.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/ Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/ Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical / Spiral
HomUG-AN-4.1	Problem formulation Integration of Knowledge	Head Neck Face	Knows how	Describe in detail the anatomy of Head, Neck and Face	Explain the anatomy of the bones of the Head Neck & Face with their muscle attachments, blood supply.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Assignments, Tutorials	MCQ SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar

	Information gathering											
HomUG-AN-4.2	Practical Skills Information management synthesis		Knows how		Explain the applied anatomy of the bones of the Head Neck & Face.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	SAQ, LAQ Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar
HomUG-AN-4.3			Knows how		Explain the anatomy of the joints of the Head Neck & Face, their blood supply, action	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions Assignments, Tutorials, Case based	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Integrated teaching with Department of Surgery and Medicine (Orthopeadics)

									learning, PBL			
HomUG-AN-4.4			Knows how		Explain the applied anatomy of the joints of the Head Neck & Face	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	SAQ, LAQ Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Spiral Integration with Homoeopathic subjects
HomUG-AN-4.5			Knows		Enumerate the muscles in the Head Neck & Face.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar

HomUG-AN-4.6			Knows how		Explain the anatomy of the muscles of the Head Neck & Face, their origin, insertion, nerve supply, action.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions.	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar
HomUG-AN-4.7			Knows how		Explain the applied anatomy of the muscles of the Head Neck & Face	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	SAQ, LAQ Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Spiral Integration with Homoeopathic subjects

HomUG-AN-4.8			Knows		Enumerate the vessels and nerves in the Head Neck & Face.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ,	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar
HomUG-AN-4.9			Knows how		Explain the anatomy of the vessels and nerves of the Head Neck & Face, their course, muscles they supply, relationsand its applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Assignments, Tutorials	MCQ, SAQ, LAQ, Assignments, , Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar, Integrated teaching with Department of Medicine (ENT, Opthalmology)

HomUG-AN-4.10			Knows how		Explain the boundaries and contents of triangles of the Neck with its applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	SAQ, LAQ, Assignments, , Viva voce	MCQ SAQ LAQ Viva Voce	Spiral Integration with Homoeopathic subjects
HomUG-AN-4.11			Does		Identify a particular bone of Head Neck & Face on X-Ray	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Radiology - Practicals	Spotting OSPE Mini CEX	MCQ Viva Voce	Integrated teaching with Surgery
HomUG-AN-4.12		Special Senses Organs	Knows	Describe the anatomy of organs of Special Senses	Enumerate the special sense organs.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ	Anatomy – Physiology Seminar

HomUG-AN-4.13			Knows how		Explain the anatomy of the special sense organs with their applied anatomy	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar, Spiral Integration with Homoeopathic subjects
HomUG-AN-4.14			Knows		Enumerate the drugs indicated for involvement of particular special sense organ	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Integrated teaching with Materia Medica, Organon and Repertory.

5. Topic- Brain- CNS System

Learning Outcomes (LO): At the end of CNS, I-BHMS student should be able to:

1. Describe the structure of Brain and CNS with their applied anatomy.
2. Classify nervous system and identify the parts of the brain and their features and internal structure.
3. Describe the origin and course of cranial nerves

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/ Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know / Desire to know / Nice to know	TL Method /Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
HomUG-AN-5.1	Problem formulation	Brain - CNS	Knows	Describe in de the Anatomy Brain and CN	Enumerate the vessels and nerves of the CNS.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments,	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar

	Integration of Knowledge Information gathering Practical Skills Information management synthesis									,Viva voce		
HomUG-AN-5.2			Knows how		Explain the anatomy of parts of Brain and CNS	Cognitive	Level2 Understanding, Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar

HomUG-AN-5.3			Knows how		Explain the applied anatomy of the Brain and CNS	Cognitive	Level2 Understanding, Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Spiral Integration with Homoeopathic subjects
HomUG-AN-5.4			Knows		Enumerate the drugs indicated for involvement of CNS.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Integrated teaching with Materia Medica, Organon and Repertory.
HomUG-AN-5.5			Knows how		Explain the origin and course of cranial nerves	Cognitive	Level2 Understanding, Interpretation	Desirable to Know	Lecture, Small Group Discussions, Case	SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar

									based learning			

6. Topic: Thorax- Respiratory and Cardiovascular system

Learning Outcomes (LO): At the end of Thorax, I-BHMS student should be able to:

1. Describe the parts of Respiratory and Cardiovascular system with their applied anatomy.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/ Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/ Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral

HomUG-AN-6.1	Problem formulation Integration of Knowledge Information gathering	Thorax	Knows how	Describe the anatomy of th Thorax in deta	Explain the anatomy of organs of the Respiratory system.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar
HomUG-AN-6.2	Practical Skills Information management		Knows how		Explain the applied anatomy of organs of the Respiratory system.	Cognitive	Level2 Understanding, Interpretation	Must Know	Lecture, Small Group Discussions, Case based	MCQ, SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar, Spiral Integration with Homoeop

	synthesis								learning, PBL			athic subjects
HomUG-AN-6.3			Knows how		Explain the anatomy of organs of Cardiovascular system.	Cognitive	Level2 Understanding, Interpretation	Must Know	Lecture, Small Group Discussions	MCQ, SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar

HomUG-AN-6.4			Knows how		Explain the applied anatomy of organs of the Cardiovascular system.	Cognitive	Level2 Understanding, Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ, SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Spiral Integration with Homoeopathic subjects
HomUG-AN-6.5			Knows		Enumerate the drugs indicated for involvement of thoracic organs.	Cognitive	Level2 Understanding, Interpretation	Nice to know	Lecture, Small Group Discussions	MCQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Integrated teaching with Materia Medica, Organon and Repertory.

Semester III

7. Topic: Lower Extremity

Learning Outcomes (LO): At the end of Lower Extremities, I-BHMS student should be able to:

1. Describe the anatomy of the bones of the lower extremities, their blood supply, and applied anatomy.
2. Describe the anatomy of the joints of the lower extremities, their blood supply, action and applied anatomy.
3. Describe the anatomy of the muscles of the lower extremities, their origin, insertion, nerve supply, action and applied anatomy.
4. Describe the anatomy of the vessels and nerves of the lower extremities, their course, muscles they supply, relations and applied anatomy.
5. Enumerate the homoeopathic drugs indicated for particular involvement of bones, muscles, joints, nerves, blood vessels.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/ Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/ Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
HomUG-AN-7.1	Problem formulation	Lower Extremities	Knows	Describe the anatomy of lower extremitie in detail.	Enumerate the bones in the lower extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments,	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar

	Integration of Knowledge Information gathering Practical Skills Information management synthesis									Viva voce		
HomUG-AN-7.2			Knows how		Explain the anatomy of the bones of the lower limb with their muscle attachments, relations, blood supply and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions.	MCQ, SAQ, Assignments,	MCQ SAQ LAQ Viva Voce	Integrated teaching with Department of Surgery Medicine (Orthopeadics)

HomUG-AN-7.3			Knows		Enumerate the joints in the lower extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar Integrated teaching with Department of Surgery Medicine (Orthopeadics)
HomUG-AN-7.4			Knows how		Explain the anatomy of the joints of the lower limbs, their blood supply, action and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based	MCQ, SAQ, Assignments,	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar Integrated teaching

									learning, PBL			with Department ofSurgery Medicine (Orthopeadics)
HomUG-AN-7.5			Knows		Enumerate the muscles in the lower extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar
HomUG-AN-7.6			Knows how		Explain the anatomy of the muscles of the lower extremities, their origin, insertion, nerve supply, action and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ, SAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar

HomUG-AN-7.7			Knows		Enumerate the vessels and nerves in the lower extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Anatomy – Physiology Seminar
HomUG-AN-7.8			Knows how		Explain the anatomy of the vessels and nerves of the lower extremities, their course, muscles they supply, relations and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy – Physiology Seminar, Spiral Integration with Homoeopathic subjects
HomUG-AN-7.9			Knows	Correlate knowledge of anatomy of lower extremity with homoeopathy.	Enumerate the drugs indicated for particular involvement of bones, muscles, joints, nerves, blood vessels of lower extremities.	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Integrated teaching with Materia Medica	MCQ, Assignments, Viva Voce	MCQ SAQ Viva Voce	Integrated lectures with Homoeopathic Materia Medica, Organon,

												Repertory .

8. Topic: Abdomen

Learning Outcomes (LO): At the end of Abdomen, I-BHMS student should be able to:

1. Describe the anatomy of the abdomen and pelvic organs with their applied anatomy.

2. Enumerate the homoeopathic drugs indicated for involvement of the abdominal and pelvic organs

Sr.No.	**Generic Competency**	**Subject Area**	**Millers Knows/Knows how/ Shows how/ Does**	**Specific Competency**	**Special learning objectives**	**Blooms Domain**	**Guilberts level**	**Must know/ Desire to know/ Nice to know**	**TL Method/Media**	**Formative Assessment**	**Summative Assessment**	**Integration Horizontal / Vertical/ Spiral**
Hom UG-AN-8.1	Problem formulation	Abdomen	Knows	Describe in detail Anatomy of Abdomen	Enumerate the organs of the Abdomen	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group	SAQ, Assignments, ,	MCQ SAQ	Anatomy-Physiology Seminar

	Integration of Knowledge Information gathering Practical Skills Information management synthesis								Discussions	Viva voce	Viva Voce	

Hom UG-AN-8.2			Knows how		Explain the anatomy of the abdominal organs with their applied anatomy	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy-Physiology Seminar Integrated teaching with Department of Surgery, Spiral Integration with Homoeopathic subjects
Hom UG-AN-8.3			Knows how		Explain the anatomy of the pelvic organs with their applied anatomy	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, Case based	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ LAQ Viva Voce	Anatomy-Physiology Seminar Integrated teaching with Department of

									learning, PBL			Surgery, Spiral Integration with Homoeopathic subjects
Hom UG-AN-8.4			Knows		Enumerate the drugs indicated for involvement of Abdominal organs	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Lecture, Small Group Discussions	MCQ, SAQ, LAQ, Assignments, Viva voce	MCQ SAQ Viva Voce	Integrated lectures with Homoeopathic Materia Medica, Repertory, Organon

PRACTICAL

Semester I

9. Topic: Upper Extremities

Learning Outcomes (LO): At the end of Upper Extremity, I-BHMS student should be able to:

1. Describe the anatomy of the bones of the upper extremity, their blood supply, and applied anatomy.
2. Describe the anatomy of the joints of the upper extremity, their blood supply, action and applied anatomy.
3. Describe the anatomy of the muscles of the upper extremity, their origin, insertion, nerve supply, action and applied anatomy.
4. Describe the anatomy of the vessels and nerves of the upper extremity, their course, muscles they supply, relation and applied anatomy.
5. Identify a particular bone and joint of upper extremity on X-Ray.
6. Trace the course of the vessels and nerves of the upper extremity on the cadaver.

Sr.No.	Generic Competency	Subject Area	Millers Knows/ Knows how/ Shows how/Does	Specific Competenc	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire toknow / Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
HomUG-AN-9.1	Problem formulation	Upper	Knows how	Describe the	Explain the anatomy of the bones of the upper limb with their muscle	Cognitive	Level 2 Understanding and	Must Know	Practical, Group	Practicals and	MCQ SAQ LAQ	-

	Integration of Knowledge Information gathering Practical Skills Information management synthesis	Extremity		anatomy of upper extremity in detail.	attachments, relations, blood supply		Interpretation		Discussions and DOAP session, Workshop	Viva voce	Viva Voce	

HomUG-AN-9.2			Shows how		Demonstrate important muscle attachment on the bones of upper limb.	Psychomotor	Level 2 Understanding and Interpretation	Must Know	Practical DOAPsession, Smallgroupteaching	Practicals	MCQ SAQ LAQ Checklist Viva Voce	-
HomUG-AN-9.3			Knows how		Explain the applied anatomy of the bones of the upper limb	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	Viva voce	MCQ SAQ Viva Voce	-
HomUG-AN-9.4			Knows how		Explain the anatomy of the joints of the upper limb, their blood supply, action.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical and DOAPsession	Practicals and Viva voce	MCQ SAQ LAQ Viva Voce	-

HomUG-AN-9.5			Shows how		Demonstrate the action of joint.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical Demonstration, PBL	Practicals	MCQ SAQ LAQ Viva Voce	-
HomUG-AN-9.6			Knows how		Explain the applied anatomy of the joints of the upper limb.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	Practicals and Viva voce	MCQ SAQ LAQ Viva Voce	-
HomUG-AN-9.7			Knows how		Explain the anatomy of the muscles of the upper extremity, their origin, insertion, nerve supply, action and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical and DOAPs session	Practicals and Viva voce	MCQ SAQ LAQ Viva Voce	-
HomUG-AN-9.8			Shows how		Dissect the given muscle of the upper extremity and demonstrate the	Psychomotor	Level2 Understanding and	Must Know	DOAPs session	Practicals	MCQ SAQ LAQ	-

					anatomical relations and actions		Interpretation				Viva Voce	
HomUG-AN-9.9			Does		Illustrate the actions of muscles of upper limb.	Psychomotor	Level2 Understanding and Interpretation	Must Know	Practicals	Practicals	Checklist	-
HomUG-AN-9.10			Knows how		Explain the applied anatomy of the muscles of upper limb.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	Practicals and Viva voce	MCQ SAQ LAQ Checklist Viva Voce	-
HomUG-AN-9.11			Knows how		Explain the anatomy of the vessel and nerves of the upper extremity, their course, muscles they supply and relation.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical and Dissection	Practicals and Viva voce	MCQ SAQ LAQ Viva Voce	-

HomUG-AN-9.12			Shows How		Dissect the given vessel and nerve of the upper extremity	Psychomotor	Level2 Understanding and Interpretation	Must Know	DOAPsession	Practicals	Checklist Viva Voce	-
HomUG-AN-9.13			Knows how		Explain the Applied Anatomy of the vessels and nerves of the upper limb	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions, PBL	Practicals and Viva voce	MCQ SAQ LAQ Viva Voce	-
HomUG-AN-9.14			Does		Identify a particular bone of upper extremity on X-Ray	Cognitive	Level2 Understanding and Interpretation	Must Know	DOAPsession	Spotting OSPE Mini CEX	Checklist Viva Voce	-

HomUG-AN-9.15			Shows How		Trace the course of the vessels and nerves of the upper extremity on the cadaver.	Psychomotor	Level2 Understanding and Interpretation	Must Know	DOAPsession	Surface Marking, OSPE	Practical / checklist	-

10. Topic – Histology

Learning Outcome- At the end of Histology, I-BHMS student should be able to:

1. Describe a particular organ and tissue through its histological features.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know / Desire to know / Nice	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical / Spiral

			how/ Does					**to know**				
HomUG-AN-10.1	Problem formulation Integration of Knowledge Information gathering Practical Skills	Histology	Does	Describe the organ/ tissue with its histological features in detail	Identify the organ/tissue with its histological features.	Cognitive	Level 1 (Remember/ recall)	Must Know	Demonstration	Spotting, OSPE / Practical performance	Practical / check list	-

	Information management synthesis											
HomUG-AN-10.2			Knows how		Explain the organ/tissue with its histological features.	Cognitive	Level2 Understanding and Interpretation.	Must Know	Demonstration	Spotting, OSPE / Practical performance	Practical / check list	-

Semester II

10. Topic: Head Neck Face

Learning Outcomes (LO): At the end of Head Neck & Face, I-BHMS student should be able to:

1. Describe the anatomy of the bones of the Head Neck & Face, their blood supply and applied anatomy.

2. Describe the anatomy of the joints of the Head Neck & Face, their blood supply, action and applied anatomy.

3. Describe the anatomy of the muscles of the Head Neck & Face, their origin, insertion, nerve supply, action and applied anatomy.

4. Describe the anatomy of the vessels and nerves of the Head Neck & Face, their course, muscles they supply, relation and applied anatomy.

5. Identify individual bones of Head Neck & Face on X-Ray.

6. Demonstrate the projection of structures of Head, Neck & Face on the cadaver.

Sr.No.	**Generic Competency**	**Subject Area**	**Millers Knows/Knows how/ Shows how/Does**	**Specific Competer**	**Special learning objectives**	**Blooms Domain**	**Guilberts level**	**Must know/ Desire to know/ Nice to know**	**TL Method/Media**	**Formative Assessment**	**Summative Assessment**	**Integration Horizontal/ Vertical/ Spiral**
HomUG-AN-11.1	Problem formulation		Knows how	Describe ir	Explain thefeaturesofnormafrontalis,verticalis,o	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussi	Practicals and	Practical / checkl	

	Integration of Knowledge Information gathering Practical Skills Information management synthesis			detail anatomy c Head, nec face	ccipitalis,lateralisandbasalis				on, Practical, DOAPsession, Workshop	Viva voce	ist and Viva voce	
HomUG-AN-11.2			Knows how		Explain cranialcavity,itssubdivisions,foraminaandstructurespassingthroughthem	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practic	Practicals and Viva voce	Practical / checklist and	

									al, DOAP session		Viva voce	
HomUG-AN-11.3			Knows how		Explain features of typical and atypical cervical vertebrae	Cognitive	Level 2 (Understand)	Must Know	Small group discussion, Practical, DOAP session	Practicals and Viva voce	MCQ SAQ and Viva voce	
HomUG-AN-11.4			Knows how		Explain the anatomy of the bones of the Head Neck & Face with their muscle attachments, relations, blood supply and applied anatomy	Cognitive	Level2 Understanding, and Interpretation.	Must Know	Practical and DOAP session	Practicals and Viva voce	MCQ SAQ and Viva voce	

HomUG-AN-11.5			Does		Identify the given bone of the Head Neck & Face and demonstrate the anatomical relations.	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practical	Practicals and Viva voce	Practicals MCQ SAQ and Viva voce	
HomUG-AN-11.6			Knows		Enumerate the joints in the Head Neck & Face.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture, Small Group Discussion	Practicals and Viva voce	MCQ	
HomUG-AN-11.7			Knows how		Explain the anatomy of the joints of the Head Neck & Face, their blood supply, action and applied anatomy.	Cognitive	Level2 Understandingand Interpretation.	Must Know	Small group discussion, Practical and DOAPsession	Practicals and Viva voce	MCQ SAQ and Viva voce	

HomUG-AN-11.8			Knows		Enumerate the muscles in the Head Neck & Face.	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practical and DOAPs session	Practicals and Viva voce	MCQ	
HomUG-AN-11.9			Knows how		Explain the anatomy of the muscles of the Head Neck & Face, their origin, insertion, nerve supply, action and applied anatomy	Cognitive	Level2 Understanding, and Interpretation	Must Know	Small group discussion, Practical, PBL and DOAPs session	Practicals and Viva voce	MCQ SAQ and Viva voce	
HomUG-AN-11.10			Shows how		Dissect the given muscle of the Head Neck & Face	Psychomotor	Level2 Understandingand	Must Know	DOAPs session	Practicals and	Practicals / Checklist and	

							Interpretation.			Viva voce	Viva voce	
HomUG-AN-11.11			Shows How		Demonstrate the actions of muscle of Head Neck & Face	Psychomotor	Level2 Understanding and Interpretation	Must Know	Small group discussion, Practical and DOAPs ession	Practicals and Viva voce	Practicals / checklist and Viva voce	
HomUG-AN-11.12			Knows		Enumerate the vessels andnerves in the Head Neck & Face.	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practical and DOAPs ession	Practicals and Viva voce Practicals and Viva voce	MCQ and Viva voce	

HomUG-AN-11.13			Knows how		Explain the anatomy of the vessels andnerves of the Head Neck & Face, their course, muscles they supply, relation and applied anatomy	Cognitive	Level2 Understanding, and Interpretation	Must Know	Small group discussion, Practical and DOAPsession	Practicals and Viva voce	SAQ LAQ and Viva voce	
HomUG-AN-11.14			Shows how		Dissect the given vessels andnerve of the Head Neck & Face	Psychomotor	Level2 Understanding, and Interpretation	Must Know	DOAPsession	Practicals and Viva voce	Practicals / checklist and Viva voce	
HomUG-AN-11.15			Shows How		Demonstrate the anatomical relations and applied anatomy of given vessels andnerve of the Head Neck & Face.	Psychomotor	Level2 Understanding and Interpretation	Must Know	Small group discussion, Practical and	Practicals and Viva voce	Practicals / checklist and Viva voce	

									DOAPs ession			
HomUG -AN- 11.16			Does		Identify a particular bone of Head Neck & Face on X-Ray	Cognitive	Level 2 (Understan d)	Nice to Know	DOAPs ession	Radiol ogy, OSPE	SAQ Check list Viva voce	
HomUG -AN- 11.17			Shows How		Demonstrate the projection of structures ofHead, Neck & Face on the cadaver.	Psychomotor	Level2 Understan ding and Interpretat ion	Must Know	DOAPs ession	Surfa ce Marki ng, OSPE	Practi cal / checkl ist	-

12. Topic- Brain- CNS System

Learning Outcomes (LO): At the end of CNS, I-BHMS student should be able to:

1. Describe the anatomy of the Brain and its applied anatomy.
2. Classify CNS and describe the parts of brain

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knowshow/Shows how/Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know / Desire to know / Nice to know	TL Method/ Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
HomUG-AN-12.1	Problem formulation Integration of Knowledge Information gathering		Knows	Describe in detail the anatomy of Brain And CNS	Enumerate the parts of the CNS.	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practical and DOAPsession, Workshop	Practicals and Viva voce	MCQ SAQ Viva voce	

	Practical Skills Information management synthesis											
HomUG-AN-12.2			Knows how		Explain the anatomy of the Brain and CNS with their applied anatomy	Cognitive	Level2 Understandingand Interpretation.	Must Know	Small group discussion, Practical, PBL and DOAPsession	Practicals and Viva voce	SAQ LAQ Viva voce	
HomUG-AN-12.3			Shows how		Illustrate the parts of the Brain.	Psychomotor	Level2 Understandingand Interpretation.	Must Know	DOAPsession	Practicals and Viva voce	Practical / checklist	

13. Topic: Thorax- Respiratory and Cardiovascular system

Learning Outcomes (LO): At the end of Thorax, I-BHMS student should be able to:

1. Describe the anatomy of the Respiratory and Cardiovascular system with their applied anatomy.
2. Identify the organs of the Respiratory and Cardiovascular system
3. Explain features of X-ray thorax.
4. Demonstrate surface projection of thoracic organs.

Sr.No	Generic Competency	Subject Area	Millers Knows/ Knows how/ Shows how/Does	Specific Competer	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/ Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
HomUG-AN-13.1	Problem formulation	Thorax	Knows	Describe the anatomy of	Enumerate the organs of the Respiratory and Cardiovascular system	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practical and	Practicals and Viva voce	SAQ LAQ Viva voce	

	Integration of Knowledge Information gathering Practical Skills Information management synthesis			Thorax					DOAPsession, Workshop			
HomUG-AN-13.2			Knows how		Explain the organs of Respiratory and Cardiovascular system with their applied anatomy	Cognitive	Level2 Understanding, and Interpretation	Must Know	Small group discussion, PBL, Practical and	Practicals and Viva voce	LAQ SAQ	

									DOAP session			
HomUG-AN-13.3			Shows how		Dissect the organs of the Thorax	Psychomotor	Level2 Understanding, and Interpretation.	Must Know	DOAP session	Practicals and Viva voce	Practical / checklist	
HomUG-AN-13.4			Knows how		Explain featuresoftypicalandatypicalthoracic vertebrae and ribs.	Cognitive	Level2 Understanding, and Interpretation	Must Know	Lecture, DOAP session	Practicals and Viva voce	SAQ Practicals / checklist Viva voce	
HomUG-AN-13.5			Knows how		Explain featuresofX-raythorax.	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Lecture, DOAP session	Radiology, OSPE	SAQ Practicals and Viva voce	

HomUG-AN-13.6			Shows How		Demonstratesurfaceprojectionof Thoracic organs.	Psychomotor	Level2 Understanding and Interpretation	Must Know	Practical, Smallgroupdiscussion,DOAPsession	Surface Marking, OSPE	Practical / checklist	

Semester III

14. Topic: Lower Extremities

Learning Outcomes (LO): At the end of Lower Extremity, I-BHMS student should be able to:

1. Describe the anatomy of the bones of the Lower extremity, their blood supply and applied anatomy.
2. Describe the anatomy of the joints of the Lower extremity, their blood supply, action and applied anatomy.
3. Describe the anatomy of the muscles of the Lower extremity, their origin, insertion, nerve supply, action and applied anatomy.
4. Describe the anatomy of the vessels and nerves of the Lower extremity, their course, muscles they supply, relations and applied anatomy.
5. Identify a particular bone and joint of Lower extremity on X-Ray.
6. Trace the course of the vessels and nerves of the Lower extremity on the cadaver.

Sr.No.	Generic Competency	Subject Area	Millers Knows/Knows how/ Shows how/Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
HomUG-AN-14.1	Problem formulation Integration of Knowledge Information gathering Practical Skills	Lower Extremity	Knows how	Describe the anatomy of Lower extremity	Explain the anatomy of the bones of the Lower limb with their muscle attachments, relations, blood supply	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical, Workshop and DOAP session	Practicals and Viva voce	SAQ LAQ, Practical & Viva Voce	-

	Information management synthesis											
HomUG-AN-14.2			Knows how		Explain the anatomy of the joints of the Lower limb, their blood supply, action.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical and DOAP session	Practicals and Viva voce	SAQ LAQ, Viva Voc	-
HomUG-AN-14.3			Shows how		Demonstrate the action of joint.	Psychomotor	Level2 Control	Must Know	Practical and DOAP session	Practicals	Practical / checklist	-
HomUG-AN-14.4			Knows how		Explain the applied anatomy of the joints of the Lower limb.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discus	Practicals and Viva voce	SAQ, Viva Voc	-

									sions,PBL			
HomUG-AN-14.5			Knows how		Explain the anatomy of the muscles of the Lower extremity, their origin, insertion, nerve supply, action and applied anatomy.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical, PBL and DOAP session	Practicals and Viva voce	SAQ LAQ Viva Voce	-
HomUG-AN-14.6			Shows how		Dissect the given muscle of the Lower extremity	Psychomotor	Level2 Control	Must Know	DOAP session	Practicals	Practical / checklist	-
HomUG-AN-14.7			Shows how		Demonstrate the actions of muscles of Lower limb and its applied anatomy.	Psychomotor	Level2 Control	Must Know	DOAP session	Practicals	Practical / checklist	-

HomUG-AN-14.8			Knows how		Explain the applied anatomy of the muscles of Lower limb.	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discussions	Practicals and Viva voce	SAQ, Viva Voce	-
HomUG-AN-14.9			Knows how		Explain the anatomy of the vessel and nerves of the Lower extremity, their course, muscles they supply and their relation.	Cognitive	Level2 Understanding and Interpretation	Must Know	Practical, PBL and DOAP session	Practicals and Viva voce	Theory, Practical & Viva Voce	-
HomUG-AN-14.10			Shows how		Dissect the given vessel and nerve of the Lower extremity	Psychomotor	Level2 Control	Must Know	DOAP session	Practicals	Practical & Viva Voce	-
HomUG-AN-14.11			Knows how		Explain the Applied Anatomy of the vessels and nerves of the Lower limb	Cognitive	Level2 Understanding and Interpretation	Must Know	Lecture, Small Group Discus	Practicals and Viva voce	SAQ, Practical & Viva Voce	-

									sions,PBL			
HomUG-AN-14.12			Does		Identify a particular bone and joint of Lower extremity on X-Ray	Cogniti ve	Level2 Understanding and Interpretation	Must Know	DOAP session	Spotting OSPE Mini CEX	SAQ, Practical & Viva Voce	-
HomUG-AN-14.13			Shows How		Trace the course of the vessels and nerves of the Lower extremity on the cadaver.	Psycho motor	Level2 Control	Must Know	DOAP session	Surface Marking, OSPE	Practical / checklist	-

15. Topic: Abdomen

Learning Outcomes (LO): At the end of Abdomen, I-BHMS student should be able to:

1. Describe the anatomy of the Abdominal and pelvic organs with their applied anatomy.
2. Identify the abdominal and pelvic organs in dissection.
3. Explain features of plain X-ray abdomen and pelvis.
4. Demonstrate surface projection of Abdominal and pelvic organs.

Sr.No	Generic Competency	Subject Area	Millers Knows/ Knows how/ Shows how/Does	Specific Competency	Special learning objectives	Blooms Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/ Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
Hom UG-AN-15.1	Problem formulation Integration of Knowledge Information gathering Practical Skills Information management synthesis	Abdomen	Knows	Describe in d the anatomy Abdomen	Enumerate the organs of the Abdomen and pelvis	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion, Practical and Dissection	Practicals and Viva voce	SAQ and Viva voce	

Hom UG-AN-15.2			Knows How		Explain the anatomy of the abdominal and pelvic organs with their applied anatomy	Cognitive	Level2 Understanding, and Interpretation	Must Know	Small group discussion, Practical, PBL and Dissection	Practicals and Viva voce	SAQ LAQ Viva voce	
Hom UG-AN-15.3			Shows how		Dissect the abdominal and pelvic organs with their relations	Psychomotor	Level2 Control	Must know	Dissection ,DOAPsession	Practicals and Viva voce	Practical / checklist	
Hom UG-AN-15.4			Knows how		Explain features of plainX-rayabdomen and pelvis	Cognitive	Level 1 (Remember/ recall)	Must know	Lecture,DOAPsession	Radiology, OSPE	Practicals and Viva voce	
Hom UG-			Shows How		Demonstrat esurfaceproj ectionofAbd ominaland pelvic	Psychomotor	Level2 Control	Must Know	Practical, Smallgroupdiscussio	Surface Marking, OSPE	Practical / checklist	-

AN-15.5					organs.				n,DOAPsession			

8. PRACTICAL TOPICS

Sr. No.	Topics	Hrs	Term
1.	**EMBRYOLOGY & GENETICS**		I
	Stages of Development	12	
	Spermatogenesis, Oogenesis and Germ layers.		
	Development of Embryogenic Disc, Placenta		
	Embryology of organs		
	Total Hours	**12 hrs**	
2	**HISTOLOGY**		I
	Histology lectures of specific organs	18	
	Total Hours	**18 hrs**	
3	**UPPER LIMB**		I
	Practicals		
	Clavicle	6	
	Scapula	6	
	Humerus	6	
	Radius	6	
	Ulna	6	

	Hand	6	
	Surface Marking of Upper limb	6	
	Dissection		
	Axilla & Arm	6	
	Forearm & Hand	6	
	Muscles of Back	6	
	Muscles of Pectoral Region	6	
	Radiology		
	Joints of Upper limb	6	
		72 hrs	
4	**LOWER LIMB**		II
	Practicals		
	Hip Bone	6	
	Femur	6	
	Tibia	6	
	Fibula	6	
	Foot	6	

	Surface Marking of Lower limb	6	
	Dissection		
	Femoral Region	6	
	Gluteal Region	6	
	Thigh	6	
	Leg	6	
	Foot	6	
	Radiology		
	Joints of Lower limb	6	
		72 hrs	
5	**THORAX**		III
	Practicals		
	Ribs – Typical & Atypical	6	
	Thoracic Vertebrae	6	
	Sternum	6	
	Dissection		
	Heart	6	

	Mediastinum	6	
	Lungs	6	
	Surface Marking of thorax	6	
	Radiology	6	
	Total Hours	**48 hrs**	
6	**ABDOMEN**		II
	Practical		
	Lumbar Vertebrae	6	
	Dissection		
	Abdominal cavity, Abdominal vessels	6	
	Stomach, Pancreas, Spleen	6	
	Relation of viscera	6	
	Liver, Gall bladder	6	
	Kidney, Ureter, Urinary bladder	6	
	Peritoneum & Intestine	6	
	Uterus, fallopian tubes, Ovaries	6	
	Ant. Abdominal wall & Post. Abdominal wall	6	

	Surface Marking of Abdomen	6	
	Radiology	6	
		66 hrs	
7	**Head, Neck and Face**		III
	Practical		
	Skull & Mandible	12	
	Dissection		
	Face & Neck	6	
	Radiology	6	
		24 hrs	
8	**CNS**		III
	Cerebrum	6	
	Cerebellum	6	
	Midbrain, Pons & Medulla	6	
		18 Hrs	

Non-Lecture Activities

Sr. No	Non Lecture Teaching Learning methods	Time Allotted per Activity (Hours)
1	Seminars/ Workshops	10
2	Group Discussions	10
3	Problem based learning	10
4	Integrated Teaching	15
5	Case Based Learning	10
6	Self-Directed Learning	15
7	Tutorials, Assignments, projects	10
Sub total		80
8	Practical	250
Total		**330**

9. ASSESSMENT

Table- Assessment Summary

Number of papers and Mark Distribution

Sr. No.	Course Code	Papers	Theory	Practical	Viva Voce	Internal Assessment-Practical	Electives Grade Obtained		Grand Total
1	HomUG-AN	2	200	100	80	20			400

Scheme of Assessment (formative and Summative)

Sr. No	**Professional Course**	**1st term (1-6 Months)**	**2nd Term (7-12 Months)**	**3rd Term (13-18 Months)**	
1	First Professional BHMS	First PA + 1ST TT	2nd PA+2ND TT	3rd PA	UE

PA: Periodical Assessment; TT: Term Test; UE: University Examinations

Evaluation Methods for Assessment

Sr. No	**Evaluation Criteria**
1	Practical Performance

2	Viva Voce, MCQs, MEQ (Modified Essay Questions/Structured Questions)

Paper Layout

Paper-1 (100 marks) General Anatomy, Head, face and neck, Central nervous System, upper extremities and Embryology			
1	**MCQ**	**10 marks**	
2	**SAQ**	**50 marks**	
3	**LAQ**	**40 marks**	
Paper-2 (100 marks) Thorax, Abdomen, Pelvis, Lower extremities and Histology (micro anatomy).			
1	**MCQ**	**10 marks**	
2	**SAQ**	**50 marks**	
3	**LAQ**	**40 marks**	

I - Distribution of Theory exam

Sr. No	Paper-I			D Type of Questions "Yes" can be asked. "No" should not be asked.		
	A List of Topics	B Term	C Marks	MCQ (1 Mark)	SAQ (5 Marks)	LAQ (10 Marks)
1	General Anatomy	I	Refer Next Table	Yes	Yes	No
2	Head, Neck & Face	II		Yes	Yes	Yes
3	Central Nervous System	II		Yes	Yes	Yes
4	Upper Extremities	I		Yes	Yes	Yes
5	Embryology	I		Yes	Yes	No

Sr. No	Paper-II			D Type of Questions

				"Yes" can be asked. "No" should not be asked.		
	A **List of Topics**	**B** **Term**	**C** **Marks**	**MCQ** **(1 Mark)**	**SAQ** **(5 Marks)**	**LAQ** **(10 Marks)**
1	Thorax	II	Refer Next Table	Yes	Yes	Yes
2	Abdomen & Pelvis	III		Yes	Yes	Yes
3	Lower Extremities	III		Yes	Yes	Yes
4	Histology	I		Yes	Yes	No

II - Theme table

Paper-I

Theme*	**Topics**	**Term**	**Marks**	**MCQ's**	**SAQ's**	**LAQ's**
A	General Anatomy	I	10	Yes	Yes	No
B	Upper Extremities	I	30	Yes	Yes	Yes
C	Embryology	I	15	Yes	Yes	No
D	Head, neck and Face	II	25	Yes	Yes	Yes
E	Central nervous System	II	20	Yes	Yes	Yes

Paper-II

Theme*	Topics	Term	Marks	MCQ's	SAQ's	LAQ's
A	Lower Extremities	III	30	Yes	Yes	Yes
B	Thorax	II	30	Yes	Yes	Yes
C	Abdomen and Pelvis	III	30	Yes	Yes	Yes
D	Histology	I	10	Yes	Yes	No

Question paper Blue print

Paper-I

A Question Serial Number	B Type of Question	Question Paper Format (Refer table 4 F II Theme table for themes)
Q1	Multiple choice Questions (MCQ) 10 Questions 1 mark each All compulsory	1. Theme A 2. Theme A 3. Theme B 4. Theme B 5. Theme C 6. Theme C 7. Theme D 8. Theme D

	Must know part: 7 MCQ Desirable to know: 2 MCQ. Nice to know: 1 MCQ	9. Theme E 10. Theme E
Q2	Short answer Questions (SAQ) ten Questions 5 Marks Each All compulsory Must know part: 10 SAQ Desirable to know: Nil Nice to know: Nil	1. Theme A 2. Theme B 3. Theme B 4. Theme B 5. Theme C 6. Theme C 7. Theme D 8. Theme D 9. Theme E 10. Theme E
Q3	Long answer Questions (LAQ) four Questions 10 marks each All compulsory All questions on must know	1. Theme B 2. Theme D 3. Theme E

	No Questions on Nice to know and Desirable to know	

Paper-II

A **Question Serial Number**	**B** **Type of Question**	**Question Paper Format** **(Refer table II Theme table for themes)**
Q1	Multiple choice Questions (MCQ) 10 Questions 1 mark each All compulsory Must know part:7 MCQ Desirable to know: 2 MCQ. Nice to know: 1 MCQ	1. Theme A 2. Theme A 3. Theme A 4. Theme B 5. Theme B 6. Theme C 7. Theme C 8. Theme C 9. Theme D 10. Theme D
Q2	Short answer Questions (SAQ) ten Questions 5 Marks Each All compulsory Must know part: 7 SAQ	1. Theme A 2. Theme A 3. Theme A 4. Theme B 5. Theme B 6. Theme C 7. Theme C 8. Theme C 9. Theme D

	Desirable to know: 3SAQ Nice to know: 1 SAQ	10. Theme D
Q3	Long answer Questions (LAQ) four Questions 10 marks each All compulsory All questions on must know No Questions on Nice to know and Desirable to know	1. Theme A 2. Theme B 3. Theme C

Distribution of Practical Exam

Osteology	60 marks
Soft part	60 marks
Extremities	40 marks
Histology	10 marks
Journal	10 marks
Internal Assessment	20 Marks

Total	200 Marks

Practical- 100 Marks (Spotting- 30 Marks, Surface Anatomy-10 Marks, Extremities, Bones, Viscera-50 Marks, Journal-10 marks)

Viva Voce- 80 Marks

10. List of recommended books –

Standard Books

- Garg K, *B.D.Chaurasia's Human Anatomy Regional & Applied, Dissection & Clinical. Upper limb & Thorax*. CBS Publishers & Distributors Pvt Ltd, New Delhi.
- Garg K, *B.D. Chaurasia's Human Anatomy Regional & Applied, Dissection & Clinical. Lower limb &Abdomen*.CBS Publishers & Distributors Pvt Ltd, New Delhi
- Garg K, *B.D. Chaurasia's Human Anatomy Regional & Applied, Dissection & Clinical. Head, Neck &Brain.*CBS Publishers & Distributors Pvt Ltd, New Delhi
- Singh V. *General Anatomy*. Elsevier; New Delhi
- Garg K, Indira Bahl, Mohini Kaul. *Textbook of Histology*. Ed. 5. CBS Publishers & Distributors Pvt Ltd, New Delhi
- Halim A. *Surface and Radiological Anatomy*. CBS Publishers & Distributors Pvt Ltd, New Delhi
- Khurana A, Khurana I, Garg K *B.D. Chaurasia's Dream Human Embryology*, CBS Publishers & Distributors Pvt Ltd, New Delhi
- Loukas M, Benninger B, Tubbs R S. *Gray's Clinical Photographic Dissector of Human Body.* Elsevier; Philadelphia
- Romanes G J. *Cunningham's Manual of Practical Anatomy. Upper & Lower limb*. Oxford Medical Publisher; Oxford
- Romanes G J. *Cunningham's Manual of Practical Anatomy. Abdomen & Pelvis*. Oxford Medical Publisher; Oxford
- Romanes G J. *Cunningham's Manual of Practical Anatomy. Head & Neck*. Oxford Medical Publisher; Oxford

Reference books

- Eroschenko VP. *Di'fiore's Atlas of Histology with functional correlation*. Lippincot, William, Wilkins; London
- Gunasegaran JP. *Text book of Histology & Practical Guide*. Elsevier; New Delhi.
- Hansen JT. *Netter's Atlas of Human Anatomy*. South Asian Ed. Elsevier; New Delhi
- Mescher AL. *Junqueria's Basic Histology Text & Atlas*. Lange; New York
- Mortan DA, Peterson KD, Albretine K. H. *Gray's Dissection Guide for Human Anatomy.*Elsevier; London
- RomanesGJ.*Cunningham's Textbook of Anatomy*. Oxford Medical Publisher; Oxford
- Ross &Wilson.*Anatomy and Physiology in Health and Illness*. Elsevier; London
- Singh, Inderbir. *Human Embryology*. Jaypee; New Delhi
- Singh V. *Anatomy of Head, Neck & Brain*. Elsevier; New Delhi.
- Singh V. *Anatomy of Upper limb & Thorax*. Elsevier; New Delhi
- Singh V. *Anatomy of Abdomen & Lower limb*. Elsevier; New Delhi
- Sinnathamby CS. *Snell's Clinical Anatomy for Medical Students*. Lippincot, William, Wilkins; London
- Standring Susan. *Gray's Anatomy The Anatomical Basis of Clinical Practice*. Elsevier; London
- Tortora GJ &Derrickson B. *Anatomy & Physiology*. New Delhi: Wiley; New Delhi.

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