

Teaching & Evaluation Scheme:	Human Anatomy
Semester/Year:	First Year B.H.M.S.
Program Name:	Bachelor of Homoeopathic Medicine and Surgery
Effective from Academic Year:	2022-23
Subject Code:	HomUG-AN

HUMAN ANATOMY

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 humanbeing. 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 centered 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 emergencies
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 TeachingHours
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 TeachingHours
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:

- 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.
- The complete course of Human Anatomy should be subdivided in number of modules-according to topics/region/system.
- Syllabus of other subjects of same year should plan out where the maximum integration (Vertical & Horizontal) of topics is possible.
- Theory/Practical/Tutorial/Clinical posting should be arranged in parallel.
- 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.
- Each module should be planned according to the need of system-Co-relation with Homoeopathy & time dimension. (No. of hours)
- 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
- 3.5. Abdomen- 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- 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 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		
	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 1.12. Development of cardiovascular 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	2 1 1 1 3 1 1 1 2 1 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 specificorgans	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 spacesaround 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 Upperlimb	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. Obturator nerve	1	
	17. Femoral Triangle	2	

	18. Front of thigh& Tensor FasciaLata	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 Lowerlimb	1	
	28. Tutorial	1	
	Total Hours	50 hrs	
6	THORAX		II
	1. Introduction to thorax	2	
	2. Development of Heart andlung	2	
	3. Pericardium and Heart	1	
	4. Coronary circulation	3	
	5. Lungs and pleura	1	
	6. Trachea	1	
	7. Oesophagus	1	
	8. Thoracic duct	1	
	9. Diaphragm	2	
	10. Aorta	2	
	11. Mediastinum	1	
	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	
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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	
	Total Hours	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	
	Total Hours	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	
	Total Hours	66 hrs	
7	Head, Neck and Face		III
	Practical		
	Skull & Mandible	12	
	Dissection		
	Face & Neck	6	
	Radiology	6	
	Total Hours	24 hrs	
8	CNS		III
	Cerebrum	6	
	Cerebellum	6	
	Midbrain, Pons & Medulla	6	
	Total Hours	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.

- (i) 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	Milestones 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	General anatomy	Knows	1. Describe structural organization of the cell, tissue, organ, organ system.	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	Integration of Knowledge Information		Knows how	2. Differentiate and Identify	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			cell, tissue, organ, and organ system								
Hom UG-AN-1.3	Practical Skills Information management synthesis		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			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			Know s how		Differentiate the given normal cell lines	Cognitive	Level2 Unders tanding and Interpr etation	Desirable to Know	Histolo gy Practic al	Practic al	MCQ , SAQ. Viva Voce	
Hom UG- AN- 1.6			Know s		Enumerate the different types of tissues and organs	Cognitive	Level 1 (Reme mber/ recall)	Must Know	Lecture , Small Group Discuss ions	MCQ ,SAQ	MCQ , SAQ. Viva Voce	Anatomy – Physiolog y Seminar
Hom UG- AN- 1.7			Know s how		Explain the structure of each tissue with respect to its cell structure, location and function.	Cognitive	Level2 Unders tanding and Interpr etation	Must Know	Lecture , Small Group Discuss ions	SAQ	MCQ , SAQ. Viva Voce	Anatomy – Physiolog y Seminar

Hom UG- AN- 1.8			Know s how		Differentiate the given types of tissues.	Cognitive	Level2 Unders tanding and Interpr etation	Must Know	Histolo gy Practic al	Spottin g- Histolo gy Practic al, OSPE	MCQ , SAQ. Observ ation checkli st, Viva Voce	
Hom UG- AN- 1.9			Know s	Correlate the Knowledge of same with Homoeopat hy.	Enumerate the drugs indicated for a particular type of tissue, organ, organ system	Cognitive	Level 1 (Reme mber/ recall)	Nice to Know	Integra ted teachin g with Materia Medica	MCQ , SAQ,	MCQ ,SAQ Viva Voce	Integrated teaching with Materia Medica
Hom UG- AN - 1.10			Know s how	Explain and classify bones, muscles, joints.	Explain the Types and Classification of bones, muscles, joints	Cognitive	Level2 Unders tanding and Interpr etation	Must Know	Lecture , Small Group Discuss ions	MCQ , SAQ, Assign ments,	MCQ ,SAQ Viva Voce	Integrated lecture with Surgery.

Hom UG- AN - 1.11			Show s how	Demonstr ate the terminolo gies of Anatomy	Demonstratenorm alanatomicalpositi on,variousplanes,r elation,compariso n,laterality&move mentinourbody	Cognitive	Level 1 (Reme mber/ recall)	Must Know	Lecture ,DOAP session	MCQ , SAQ, Assign ments,	MCQ ,SAQ Viva Voce	
Hom UG- AN - 1.12			Know s how	Explain the Ethics of Anatomy	Explain the Anatomy Act	Cognitive and Affective	Level 1 (Reme mber/ recall)	Nice to Know	Lecture , Small Group Discuss ions	Assign ments	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	Guilbert slevel	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 reproduc tive cycle in males and females and the genetics involve	Cogni tive	Level2 Understa nding and Interpret ation	Must Know	Lecture, Small Group Discussions	MCQ, Assignm ents	MCQ ,SAQ Viva Voce	Anatom y – Physiol ogy Seminar
Hom UG- AN- 2.3			Knows how		Explain the develop mental anatomy of the	Cogni tive	Level2 Understa nding and Interpret ation	Desir able to know	Lecture, Small Group Discussions	MCQ, Assignm ents	MCQ ,SAQ Viva Voce	Anatom y – Physiol ogy 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

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Hom UG- AN- 2.5			Knows how		Explain the develop ment of the organ and organ system.	Cogni tive	Level2 Understa nding and Interpret ation	Must Know	Lecture, Small Group Discussions	MCQ, Assignm ents	MC Q SAQ Viva Voce	Anatom y – Physiol ogy Seminar ,
Hom UG- AN- 2.6			Knows how		Explain the develop mental anatomy of embryo.	Cogni tive	Level2 Understa nding and Interpret ation	Must Know	Lecture, Small Group Discussions	MCQ , SAQ, Assignm ents	MC Q SAQ Viva Voce	Integrat ed teachin g with Gynaec ology and Obstetri cs
Hom UG- AN- 2.7			Knows	Correlate knowledge developme anatomy with homoeopa	Enumera te the drugs indicated for a particular type of genetic or	Cogni tive	Level 1 (Remem ber/ recall)	Nice to know .	Integrated teaching with Materia Medica	MCQ, Assignm ents, Viva Voce	MC Q SAQ Viva Voce	Integrat ed teachin g with Materia Medica

					develop mental defect							
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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 objectives learning	Blooms Domain	Guilbert slevel	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 (Orthopaedics)

	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 (Orthopaedics)
Hom UG-			Knows		Enumerate the joints in the upper extremities.	Cognitive	Level 1 (Remember/ recall)	Must Know	Lecture,	SAQ, Assignments	MCQ SAQ	Integrated teaching with

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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)

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Hom UG- AN- 3.5			Know s		Enumerate the muscles in the upper extremities.	Cognitiv e	Level 1 (Remembe r/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assign ments, Viva voce	MC Q SAQ	Anatomy – Physiology Seminar
Hom UG- AN- 3.6			Know s how		Explain the anatomy of the muscles of the upper extremities, their origin, insertion, nerve supply, action and applied anatomy.	Cognitiv e	Level2 Understan ding , Interpretati on	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ , SAQ, Assign ments , Viva voce	MC Q SAQ Viva Voce	Anatomy – Physiology Seminar
Hom UG- AN- 3.7			Know s		Enumerate the vessels and nerves in the upper extremities.	Cognitiv e	Level 1 (Remembe r/ recall)	Must Know	Lecture, Small Group Discussions	SAQ, Assign ments, Viva voce	MC Q SAQ Viva Voce	Anatomy – Physiology Seminar

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Hom UG- AN- 3.8			Know s how		Explain the anatomy of the vessels and nerves of the upper extremities, their course, muscles they supply, relations and applied anatomy.	Cognitiv e	Level2 Understan ding , Interpretati on	Must Know	Lecture, Small Group Discussions, Case based learning, PBL	MCQ , SAQ, LAQ, Assign ments ,Viv a voce	MC Q SAQ , LAQ Viva Voce	Anatomy – Physiology Seminar
Hom UG- AN- 3.9			Know s		Explain the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied anatomy of mammary gland.	Cognitiv e	Level2 Understan ding , Interpretati on	Must Know	Lecture, Small group discussion, DOAP session	MCQ , SAQ, LAQ, Assign ment, Viva voce	MC Q SAQ , LAQ Viva Voce	Spiral Integration with Homoeopat hic subjects
Hom UG- AN - 3.10			Know s how		Explain boundaries and contents of axilla.	Cognitiv e	Level2 Understan ding , Interpretati on	Must Know	Lecture, Sm all group disc ussion, DOA P session	MCQ , SAQ, LAQ, Assign ment Viva voce	MC Q SAQ , LAQ Viva Voce	Anatomy – Physiology Seminar

Hom UG- AN - 3.11			Know s	Correlate the knowledge of anatomy of upper extremity with homoeopat hy.	Enumerate the drugs indicated for particular involvement of bones, muscles, joints, nerves, blood vessels of upper extremities.	Cognitiv e	Level 1 (Remembe r/ recall)	Nice to Know	Integrated teaching with Materia Medica	MCQ , Assig nmen ts, Viva Voce	MC Q SAQ , LAQ Viva Voce	Integrated lectures with Homoeopat hic Materia Medica
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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 objectives learning	Blooms Domain	Guilberts level	Must know/Desire to know/Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical / Spiral
Hom U G-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											
Hom U G-AN-4.2	Practical Skills		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
Hom U G-AN-4.3	Information management synthesis		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 (Orthopaedics)

									learning, PBL			
Hom U G- AN- 4.4			Know s how		Explain the applied anatomy of the joints of the Head Neck & Face	Cognitive	Level2 Unders tandin g and Interpr etation	Mus t Kno w	Lecture, Small Group Discussio ns, Case based learning, PBL	SAQ, LAQ Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Spiral Integrat ion with Homoe opathic subjects
Hom U G- AN- 4.5			Know s		Enumerate the muscles in the Head Neck & Face.	Cognitive	Level 1 (Reme mber/ recall)	Mus t Kno w	Lecture, Small Group Discussio ns	SAQ	MC Q SAQ Viva Voce	Anatom y – Physiol ogy Semina r

Hom U G- AN- 4.6			Know s how		Explain the anatomy of the muscles of the Head Neck & Face, their origin, insertion, nerve supply, action.	Cognitive	Level2 Unders tandin g and Interpr etation	Mus t Kno w	Lecture, Small Group Discussio ns.	MCQ , SAQ, LAQ , Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatom y – Physiol ogy Semina r
Hom U G- AN- 4.7			Know s how		Explain the applied anatomy of the muscles of the Head Neck & Face	Cognitive	Level2 Unders tandin g and Interpr etation	Mus t Kno w	Lecture, Small Group Discussio ns, Case based learning, PBL	SAQ, LAQ Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Spiral Integrat ion with Homoe opathic subjects

Hom U G- AN- 4.8			Know s		Enumerate the vessels and nerves in the Head Neck & Face.	Cognitive	Level 1 (Remember/recall)	Mus t Kno w	Lecture, Small Group Discussions	SAQ,	MC Q SAQ Viva Voce	Anatom y – Physiol ogy Semina r
Hom U G- AN- 4.9			Know s how		Explain the anatomy of the vessels and nerves of the Head Neck & Face, their course, muscles they supply, relations and its applied anatomy.	Cognitive	Level2 Understandin g and Interpr etation	Mus t Kno w	Lecture, Small Group Discussions, Assignm ents, Tutorials	MCQ , SAQ, LAQ , Assignm ents, Viva voce	MC Q SAQ LAQ Viva Voce	Anatom y – Physiol ogy Semina r, Integrat ed teachin g with Depart ment of Medicin e (ENT, Ophth almolog y)

Hom U G- AN- 4.10			Know s how		Explain the boundaries and contents of triangles of the Neck with its applied anatomy.	Cognitive	Level2 Unders tandin g and Interpr etation	Mus t Kno w	Lecture, Small Group Discussio ns, Case based learning, PBL	SAQ, LAQ , Assig nmen ts, , Viva voce	MC Q SAQ LAQ Viva Voce	Spiral Integrat ion with Homoe opathic subjects
Hom U G- AN- 4.11			Does		Identify a particular bone of Head Neck & Face on X- Ray	Cognitive	Level 1 (Reme mber/ recall)	Nice to Kno w	Radiolog y - Practicals	Spott ing OSPE Min i CE X	MCQ Viva Voce	Integrat ed teachin g with Surgery
Hom U G- AN- 4.12		Speci al Sense s Orga ns	Know s	Describe the anatomy of Special Senses	Enumerate the special sense organs.	Cognitive	Level 1 (Reme mber/ recall)	Mus t Kno w	Lecture, Small Group Discussio ns	SAQ, Assig nmen ts, Viva voce	MC Q SAQ	Anatom y – Physiol ogy Semina r

Hom U G- AN- 4.13			Know s how		Explain the anatomy of the special sense organs with their applied anatomy	Cognitive	Level2 Unders tandin g and Interpr etation	Mus t Kno w	Lecture, Small Group Discussio ns	MCQ , SAQ, LAQ , Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatom y – Physiol ogy Semina r, Spiral Integrat ion with Homoe opathic subjects
Hom U G- AN- 4.14			Know s		Enumerate the drugs indicated for involvement of particular special sense organ	Cognitive	Level 1 (Reme mber/ recall)	Mus t Kno w	Lecture, Small Group Discussio ns	SAQ, Assig nmen ts, Viva voce	MC Q SAQ Viva Voce	Integrate d teaching with Materia Medica, Organon and Repertor y.

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	Milestones Knows/Knows how/Shows how/Does	Specific Competency	Special objectives learning	Blooms Domain	Guilberts level	Must know / Desire to know / Nice to know	TL Method /Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical /Spiral
Hom U G-AN-5.1	Problem formulation	Brain - CNS	Knows	Describe in detail the Anatomy of Brain and CNS	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

	Integratio n of Knowled ge									,Viv a voce		
	Informati on gathering											
	Practical Skills											
	Informati on manage ment synthesis											
Hom U G- AN- 5.2			Know s how		Explain the anatomy of parts of Brain and CNS	Cognitive	Level2 Unders tandin g, Interpr etation	Must Know	Lecture, Small Group Discuss ions	MCQ , SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatom y – Physiolo gy Seminar

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Hom U G- AN- 5.3			Know s how		Explain the applied anatomy of the Brain and CNS	Cognitive	Level2 Unders tandin g, Interpr etation	Must Know	Lecture, Small Group Discussi ons, Case based learning , PBL	SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Spiral Integrati on with Homoeo pathic subjects
Hom U G- AN- 5.4			Know s		Enumerate the drugs indicated for involvement of CNS.	Cognitive	Level 1 (Reme mber/ recall)	Must Know	Lecture, Small Group Discuss ions	SAQ, Assig nmen ts, Viva voce	MC Q SAQ Viva Voce	Integrat ed teaching with Materia Medica, Organo n and Reperto ry.

Hom U G- AN- 5.5			Know s how		Explain the origin and course of cranial nerves	Cognitive	Level2 Unders tandin g, Interpr etation	Desir able to Know	Lecture, Small Group Discuss ions, Case	SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatom y – Physiolo gy 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.

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Sr.No.	Generi c Compe tency	Subje ct Area	Millers Know s/Kno ws how/ Shows how/ Does	Specific Competen cy	Special objectives	learning	Bloo ms Dom ain	Guil berts level	Mustkno w/ Desire tokno w/ Nice to kno w	TL Method/ Media	For m ative Asse ssme nt	Sum mati ve Asse ssme nt	Integratio n Horizonta l/ Vertical/ Spiral
Hom U G- AN- 6.1	Proble m formul ation Integra tion of Knowl edge Inform ation gatheri ng Practic al Skills	Thora x	Knows how	Describe the anatomy of thThorax in deta	Explain the anatomy of organs of the Respiratory system.		Cognitive	Level 1 (Reme mber/ recall)	MustKno w	Lecture, Small Group Discuss ions	MCQ , SAQ, Assig nmen ts, Viva voce	MC Q SAQ Viva Voce	Anatomy – Physiolog y Seminar

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Hom U G- AN- 6.2	Inform ation manag ement synthe sis		Knows how	Explain the applied anatomy of organs of the Respiratory system.	Cognitive	Level 2 Unde rs tandi ng, Interp r etatio n	MustKno w	Lecture, Small Group Discuss ions, Case based learning ,PBL	MCQ , SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar, Spiral Integratio n with Homoeop athic subjects
Hom U G- AN- 6.3			Knows how	Explain the anatomy of organs of Cardiovascular system.	Cognitive	Level 2 Unde rs tandi ng, Interp r etatio n	MustKno w	Lecture, Small Group Discuss ions	MCQ , SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar

Hom U G- AN- 6.4			Know s how		Explain the applied anatomy of organs of the Cardiovascular system.	Cognitive	Level2 Unders tandin g, Interpr etation	Must Kno w	Lecture, Small Group Discussi ons, Case based learning, PBL	MCQ , SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Spiral Integratio n with Homoeop athic subjects
Hom U G- AN- 6.5			Know s		Enumerate the drugs indicated for involvement of thoracic organs.	Cognitive	Level2 Unders tandin g, Interpr etation	Nice to kno w	Lecture, Small Group Discuss ions	MCQ , Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Integrated teaching with Materia Medica, Organon and Repertory.

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Hom U G- AN- 7.1	Problem formulation	Lower Extre mities	Know s	Describe the anatomy of lower extremitie in detail.	Enumerate the bones in the lower extremities.	Cogniti ve	Level 1 (Remembe r/ recall)	Must Know	Lecture, Small Group Discussio ns	SAQ, Assig nmen ts, Viva Voce	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar
	Integration of Knowledge Information gathering Practical Skills Information manageme nt synthesis									Viva voce		

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Hom U G- AN- 7.2			Know s how		Explain the anatomy of the bones of the lower limb with their muscle attachments, relations, blood supply and applied anatomy.	Cogniti ve	Level2 Understan ding and Interpretati on	Must Know	Lecture, Small Group Discussio ns.	MCQ , SAQ, Assig nmen ts,	MC Q SAQ LAQ Viva Voce	Integrated teaching with Departme nt of Surgery Medicine (Orthopea dics)
Hom U G- AN- 7.3			Know s		Enumerate the joints in the lower extremities.	Cogniti ve	Level 1 (Remembe r/ recall)	Must Know	Lecture, Small Group Discussio ns	SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar Integrated teaching with Departme nt of Surgery Medicine (Orthopea dics)

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Hom U G- AN- 7.4			Know s how		Explain the anatomy of the joints of the lower limbs, their blood supply, action and applied anatomy.	Cogniti ve	Level2 Understan ding and Interpretati on	Must Know	Lecture, Small Group Discussio ns, Case based	MCQ , SAQ, Assig nmen ts,	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar Integrated teaching
									learning, PBL			with Departme nt of Surgery Medicine (Orthopea dics)
Hom U G- AN- 7.5			Know s		Enumerate the muscles in the lower extremities.	Cogniti ve	Level 1 (Remembe r/ recall)	Must Know	Lecture, Small Group Discussio ns	SAQ, Assig nmen ts, Viva voce	MC Q SAQ Viva Voce	Anatomy – Physiolog y Seminar

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Hom U G- AN- 7.6			Know s how		Explain the anatomy of the muscles of the lower extremities, their origin, insertion, nerve supply, action and applied anatomy.	Cogniti ve	Level2 Understan ding and Interpretati on	Must Know	Lecture, Small Group Discussio ns, Case based learning, PBL	MCQ , SAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar
Hom U G- AN- 7.7			Know s		Enumerate the vessels and nerves in the lower extremities.	Cogniti ve	Level 1 (Remembe r/ recall)	Must Know	Lecture, Small Group Discussio ns	SAQ, Assig nmen ts, Viva voce	MC Q SAQ Viva Voce	Anatomy – Physiolog y Seminar
Hom U G- AN- 7.8			Know s how		Explain the anatomy of the vessels and nerves of the lower extremities, their course, muscles they supply, relations and applied anatomy.	Cogniti ve	Level2 Understan ding and Interpretati on	Must Know	Lecture, Small Group Discussio ns, Case based learning, PBL	MCQ , SAQ, LAQ, Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy – Physiolog y Seminar, Spiral Integratio n with Homoeop athic subjects

Hom U G-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
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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	Miller's Knows/Knows how/Shows how/Does	Specific Competency	Special learning objectives	Bloom's Domain	Guilberts level	Must know/ Desire to know/ Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal / Vertical/ Spiral
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Hom UG- AN- 8.1	Problem formulation	Abdomen	Know s	Describe in detail Anatomy of Abdomen	Enumerate the organs of the Abdomen	Cognitive	Level (Remember/ recall)	1	Must Know	Lecture, Small Group	SAQ, Assignments,	MC Q SAQ	Anatomy- Physiology Seminar
	Integration of Knowledge Information gathering Practical Skills Information management synthesis									Discussions	Viva voce	Viva Voce	

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Hom UG- AN- 8.2			Know s how		Explain the anatomy of the abdominal organs with their applied anatomy	Cogniti ve	Level2 Understanding and Interpretation	Must Know	Lectur e, Small Group Discus sions, Case based learnin g, PBL	MCQ , SAQ, LAQ , Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy- Physiology Seminar Integrated teaching with Departme nt of Surgery, Spiral Integration with Homoeopa thic subjects
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Faculty of Homoeopathy

Hom UG- AN- 8.3			Know s how		Explain the anatomy of the pelvic organs with their applied anatomy	Cogniti ve	Level2 Understanding and Interpretation	Must Know	Lectur e, Small Group Discus sions, Case based	MCQ , SAQ, LAQ , Assig nmen ts, Viva voce	MC Q SAQ LAQ Viva Voce	Anatomy- Physiology Seminar Integrated teaching with Departme nt of
									learnin g, PBL			Surgery, Spiral Integration with Homoeopa thic subjects
Hom UG- AN- 8.4			Know s		Enumerate the drugs indicated for involvement of Abdominal organs	Cogniti ve	Level 1 (Remember/ recall)	Nice to Know	Lectur e, Small Group Discu ssions	MCQ , SAQ, LAQ , Assig nmen ts, Viva voce	MC Q SAQ Viva Voce	Integrated lectures with Homoeopa thic Materia Medica, Repertory, Organon

Faculty of Homoeopathy

Hom U G- 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	MC Q 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	

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Hom U G- AN- 9.2			Shows how		Demonstrate important muscle attachment on the bones of upper limb.	Psychomot or	Level 2 Understan ding and Interpretati on	Must Know	Practic al DOAP s ession, Smallg roup teaching	Practi cals	MC Q SAQ LAQ Checkl ist Viva Voce	-
Hom U G- AN- 9.3			Knows how		Explain the applied anatomy of the bones of the upper limb	Cognitive	Level2 Understan ding and Interpretati on	Must Know	Lectur e, Small Group Discu ssions	Viva voce	MC Q SAQ Viva Voce	-
Hom U G- AN- 9.4			Knows how		Explain the anatomy of the joints of the upper limb, their blood supply, action.	Cognitive	Level2 Understan ding and Interpretati on	Must Know	Practic al and DOAPs ession	Practi cals and Viva voce	MC Q SAQ LAQ Viva Voce	-

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Hom U G- AN- 9.5			Shows how		Demonstrate the action of joint.	Cognitive	Level2 Understan ding and Interpretati on	Must Know	Practic al Demo nstrati on, PBL	Practi cals	MC Q SAQ LAQ Viva Voce	-
Hom U G- AN- 9.6			Knows how		Explain the applied anatomy of the joints of the upper limb.	Cognitive	Level2 Understan ding and Interpretati on	Must Know	Lectur e, Small Group Discu ssions	Practi cals and Viva voce	MC Q SAQ LAQ Viva Voce	-
Hom U G- 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 Understan ding and Interpretati on	Must Know	Practic al and DOAPs ession	Practi cals and Viva voce	MC Q SAQ LAQ Viva Voce	-

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Hom U G- AN- 9.8			Shows how		Dissect the given muscle of the upper extremity and demonstrate the	Psychomot or	Level2 Understan ding and	Must Know	DOAPs ession	Practi cals	MC Q SAQ LAQ	-
					anatomical relations and actions		Interpretati on				Viva Voce	
Hom U G- AN- 9.9			Does		Illustrate the actions of muscles of upper limb.	Psychomot or	Level2 Understan ding and Interpretati on	Must Know	Practic als	Practi cals	Checkl ist	-
Hom U G- AN- 9.10			Knows how		Explain the applied anatomy of the muscles of upper limb.	Cognitive	Level2 Understan ding and Interpretati on	Must Know	Lectur e, Small Group Discu ssions	Practi cals and Viva voce	MC Q SAQ LAQ Checkl ist Viva Voce	-

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Hom U G- 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 Understan ding and Interpretati on	Must Know	Practic al and Dissect ion	Practi cals and Viva voce	MC Q SAQ LAQ Viva Voce	-
Hom U G- AN- 9.12			Shows How		Dissect the given vessel and nerve of the upper extremity	Psychomot or	Level2 Understan ding and Interpretati on	Must Know	DOAPs ession	Practi cals	Checkl ist Viva Voce	-
Hom U G- AN- 9.13			Knows how		Explain the Applied Anatomy of the vessels and nerves of the upper limb	Cognitive	Level2 Understan ding and Interpretati on	Must Know	Lectur e, Small Group Discus sions, PBL	Practi cals and Viva voce	MC Q SAQ LAQ Viva Voce	-

Hom U G- AN- 9.14			Does		Identify a particular bone of upper extremity on X-Ray	Cognitive	Level2 Understanding and Interpretation	Must Know	DOAPs session	Spotting OSPE Mini CE X	Checklist Viva Voce	-
Hom U G- 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	DOAPs session	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.

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Sr.No.	Generic Competency	Subject Area	Mile rs Know s/Kno ws how/ Shows	Specific Competency	Special learning objectives	Blooms Domain	Guilbert slevel	Must know / Desir e to know / Nice	TL Metho d/Media	Form ative Asses smen t	Sum mati ve Asses smen t	Integra tion Horizo ntal/ Vertica l / Spiral
			how/ Does					to know				
HomUG - AN-10.1	Problem formulati on Integratio n of Knowled ge Informati on gathering Practical Skills	Histolo gy	Does	Describe the organ/ tissue with its histological features in detail	Identify the organ/tissue with its histological features.	Cognitive	Level 1 (Remembe r/ recall)	Must Know	Demon stration	Spotti ng, OSPE / Practi cal perfor manc e	Practi cal / 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 Competency	Special learning objectives	Blooms Domain	Guilbert 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 i	Explain the features of normal frontal, vertical, o	Cognitive	Level 1 (Remember/ recall)	Must Know	Small group discussion	Practicals and	Practical / checkl	

	Integratio n of Knowledg e			detail anatomy o Head, nec face	ccipitalis,lateralisan dbasalis				on, Practic al, DOAP s ession, Worksh op	Viva voce	ist and Viva voce	
	Informati on gathering											
	Practical Skills											
	Informati on manage ment synthesis											
HomUG -AN- 11.2			Knows how		Explain cranialcavity,itssubd ivisions,foraminaan dstructurespassingt hroughthem	Cognitive	Level 1 (Remembe r/ recall)	Must Know	Small group discussi on, Practic	Practi cals and Viva voce	Practi cal / checkl ist and	

									al, DOA P session		Viva voce	
HomUG - AN- 11.3			Knows how		Explain features of typical and atypical cervical vertebrae	Cognitive	Level 2 (Understan d)	Must Know	Small group discussi on, Practic al, DOAP session	Practi cals 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 Understan ding, and Interpretat ion.	Must Know	Practic al and DOAP session	Practi cals and Viva voce	MCQ SAQ and Viva voce	

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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 Understanding and Interpretation.	Must Know	Small group discussion, Practical and DOAPs session	Practicals and Viva voce	MCQ SAQ and Viva voce	

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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	Level 2 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	Level 2 Understanding and	Must Know	DOAPs session	Practicals and	Practicals / Check list and	

							Interpretation.			Viva voce	Viva voce	
HomUG -AN- 11.1 1			Shows How		Demonstrate the actions of muscle of Head Neck & Face	Psychomotor	Level2 Understand ing and Interpretat ion	Must Know	Small group discussi on, Practic al and DOAPs ession	Practi cals and Viva voce	Practi cals / checkl ist and Viva voce	
HomUG -AN- 11.1 2			Knows		Enumerate the vessels andnerves in the Head Neck & Face.	Cognitive	Level 1 (Remembe r/ recall)	Must Know	Small group discussi on, Practic al and DOAPs ession	Practi cals and Viva voce Practi cals and Viva voce	MCQ and Viva voce	

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HomUG -AN- 11.1 3			Knows how		Explain the anatomy of the vessels and nerves of the Head Neck & Face, their course, muscles they supply, relation and applied anatomy	Cognitive	Level2 Understand- ing, and Interpretat- ion	Must Know	Small group discussi- on, Practic- al and DOAPs ession	Practi- cals and Viva voce	SAQ LA Q and Viva voce	
HomUG -AN- 11.1 4			Shows how		Dissect the given vessels and nerve of the Head Neck & Face	Psychomotor	Level2 Understand- ing, and Interpretat- ion	Must Know	DOAPs ession	Practi- cals and Viva voce	Practi- cals / checkl- ist and Viva voce	
HomUG -AN- 11.1 5			Shows How		Demonstrate the anatomical relations and applied anatomy of given vessels and nerve of the Head Neck & Face.	Psychomotor	Level2 Understand- ing and Interpretat- ion	Must Know	Small group discussi- on, Practic- al and	Practi- cals and Viva voce	Practi- cals / checkl- ist and Viva voce	

									DOAPs ession			
HomUG -AN- 11.1 6			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- 11.1 7			Shows How		Demonstrate the projection of structures of Head, 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/Knows how/Shows how/Does	Specific Competency	Special learning objectives	Blooms Domain	Guilbert 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 DOAP session, 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	Level 2 Understanding and Interpretation.	Must Know	Small group discussion, Practical, PBL and DOAP session	Practicals and Viva voce	SAQ LA Q Viva voce	
HomUG - AN-12.3			Show how		Illustrate the parts of the Brain.	Psychomotor	Level 2 Understanding and Interpretation.	Must Know	DOAP session	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 Competency	Special learning objectives	Blooms Domain	Guilbert 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 LA Q Viva voce	

	Integration of Knowledge			Thorax					DOAP session, Workshop			
	Information gathering											
	Practical Skills											
	Information management synthesis											
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 features of typical and atypical thoracic 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 features of X-ray thorax.	Cognitive	Level 1 (Remember/ recall)	Nice to Know	Lecture, DOAP session	Radiology, OSPE	SAQ Practicals and Viva voce	

HomUG - AN- 13.6			Shows How		Demonstrates surface projection of Thoracic organs.	Psychomotor	Level 2 Understand- ing and Interpretation	Must Know	Practical , Small group discussion, DO AP session	Surface Marking, OSPE	Practical / checklist	
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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.

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Sr.No.	Generic Competency	Subject Area	Millers Knows/ Knows how/ Shows how/Does	Specific Competency	Special objectives learning	Blooms Domain	Guilbert slevel	Must know/ Desire to know/ Nice to know	TL Method/Media	Formative Assessment	Summative Assessment	Integration Horizontal/ Vertical/ Spiral
Hom U G-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											
Hom U G-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	-
Hom U G-AN-14.3			Shows how		Demonstrate the action of joint.	Psychomotor	Level2 Control	Must Know	Practical and DOAP session	Practicals	Practical / checklist	-
Hom U G-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 Discussions	Practicals and Viva voce	SAQ, Viva Voc	-

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									sions,P BL			
Hom U G- AN- 14.5			Knows how		Explain the anatomy of the muscles of the Lower extremity, their origin, insertion, nerve supply, action and applied anatomy.	Cogniti ve	Level2 Understan ding and Interpretat ion	Must Know	Practic al, PBL and DOAP sessio n	Practi cals and Viva voce	SAQ LAQ Viva Voce	-
Hom U G- AN- 14.6			Shows how		Dissect the given muscle of the Lower extremity	Psycho motor	Level2 Control	Must Know	DOAP sessio n	Practi cals	Practic al / checkli st	-
Hom U G- AN- 14.7			Shows how		Demonstrate the actions of muscles of Lower limb and its applied anatomy.	Psycho motor	Level2 Control	Must Know	DOAP sessio n	Practi cals	Practic al / checkli st	-

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Hom U G- AN- 14.8			Knows how		Explain the applied anatomy of the muscles of Lower limb.	Cogniti ve	Level2 Understan ding and Interpretat ion	Must Know	Lectur e, Small Group Discu ssions	Practi cals and Viva voce	SAQ, Viva Voce	-
Hom U G- 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.	Cogniti ve	Level2 Understan ding and Interpretat ion	Must Know	Practic al, PBL and DOAP sessio n	Practi cals and Viva voce	Theory , Practic al & Viva Voce	-
Hom U G- AN- 14.10			Shows how		Dissect the given vessel and nerve of the Lower extremity	Psycho motor	Level2 Control	Must Know	DOAP sessio n	Practi cals	Practic al & Viva Voce	-
Hom U G- AN- 14.11			Knows how		Explain the Applied Anatomy of the vessels and nerves of the Lower limb	Cogniti ve	Level2 Understan ding and Interpretat ion	Must Know	Lectur e, Small Group Discus	Practi cals and Viva voce	SAQ, Practic al & Viva Voce	-

									sions,P BL			
Hom U G- AN- 14.12			Does		Identify a particular bone and joint of Lower extremity on X-Ray	Cogniti ve	Level2 Understan ding and Interpretat ion	Must Know	DOAP sessio n	Spottin g OSPE Min i CE X	SAQ, Practic al & Viva Voce	-
Hom U G- 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 sessio n	Surfa ce Marki ng, OSPE	Practic al / checkli st	-

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.

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Sr.No	Generic Competency	Subject Area	Millers Knows/ Knows how/ Shows how/Does	Specific Competency	Special learning objectives	Blooms Domain	Guilber ts 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 detail 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 LA Q Viva voce	
Hom UG-AN - 15.3			Shows how		Dissect the abdominal and pelvic organs with their relations	Psychomotor	Level2 Control	Must know	Dissection ,DOAPs session	Practicals and Viva voce	Practical / checklist	

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Hom UG- AN- 15.4			Knows how		Explain features of plainX- rayabdomen and pelvis	Cognitiv e	Level 1 (Remem ber/ recall)	Must know	Lecture,D OAPsessio n	Radiolog y, OSPE	Practical s and Viva voce	
Hom UG- AN- 15.5			Shows How		Demonstrat esurfaceproj ectionofAbd ominaland pelvic organs.	Psychom otor	Level2 Control	Must Know	Practical, Smallgrou pdiscussio n, DOAPse ssion	Surface Marking, OSPE	Practical / checklist	-

7. 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	
			248
	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	249	
	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	12 250	
	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

11. ASSESSMENT

Table- Assessment Summary

Number of papers and Mark Distribution

251

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	1 st term (1-6 Months)	2 nd Term (7-12 Months)	3 rd Term (13-18 Months)
1	First Professional BHMS	First PA + 1 ST TT	2 nd PA+2 ND TT	3 rd 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.	
				253		
	A List of Topics	B Term	C Marks	MCQ (1 Mark)	SAQ(5 Marks)	

1	Thorax	II	Refer Next Table	Yes	Yes
2	Abdomen & Pelvis	III		Yes	Yes
3	Lower Extremities	III		Yes	Yes
4	Histology	I		Yes	Yes

- 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 Must know part: 7 MCQ Desirable to know: 2 MCQ. Nice to know: 1 MCQ	1. Theme A 2. Theme A 3. Theme B 4. Theme B 5. Theme C 6. Theme C 7. Theme D 8. Theme D 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 No Questions on Nice to know and Desirable to know	1. Theme B 2. Theme D 3. Theme E

255

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 Desirable to know: 3SAQ Nice to know: 1 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 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 256
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

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. *Junquera's Basic Histology Text & Atlas.* Lange; New York
- Mortan DA, Peterson KD, Albretine K. H. *Gray's Dissection Guide for Human Anatomy.* Elsevier; London
- Romanes GJ. *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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Dr. Gautam Ash

Former HOD, Pratap Chandra Memorial HMC, Kolkata

I (a) Instructions in anatomy should be so planned as to present a general working knowledge of the structure of the human body;

(b) The amount of detail which a student is required to memories should be reduced to the minimum;

(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 lymphatic's and study of the cadaver is the only means to achieve this;

(d) Students should not be burdened with minute anatomical details which have no clinical significance.

II Though dissection of the entire body is essential for the preparation of the student of his clinical studies, the burden of dissection can be reduced and much saving of time can be effected, if considerable reduction of the amount of topographical details is made and the following points are kept in view:-

- (1) Only such details as have professional or general educational value for the medical students.
- (2) The purpose of dissection is to give the student an understanding of the body in relation to its function, and the dissection should be designed to achieve this goal.
- (3) Normal radiological anatomy may also form part of practical or clinical training and the structure of the body should be presented linking functional aspects.
- (4) 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

- (5) instruction of the whole course of anatomy and physiology and more interesting, lively and practical or clinical.
- (6) A good part of the theoretical lectures on anatomy can be transferred to tutorial classes with the demonstrations.
- (7) Students should be able to identify anatomical specimens and structures displayed in the dissections.
- (8) Lectures or demonstrations 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.
- (9) Seminars and group discussions to be arranged periodically with a view of presenting these subjects in an integrated manner.
- (10) More stress on demonstrations and tutorials should be given. Emphasis should be laid down on the general anatomical positions and broad relations of the viscera, muscles, blood vessels, nerves and lymphatics.
- (11) There should be joint seminars with the departments of Physiology and Bio-Chemistry which should be organised once a month.
- (12) 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 shall be integrated.

A. Theory:

(a) A complete course of human anatomy with general working knowledge of different anatomical parts of the body.

The curriculum includes the following, namely:-

1. General Anatomy:

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

2. Developmental anatomy (Embryology):

Spermatogenesis
Oogenesis
Formation of germ layers
Development of embryogenic disk
Placenta
Development of abdominal organs
Development of cardio vascular system
Development of nervous system

Development of respiratory system

Development of body cavities

Development of uro-genital system

3. Regional anatomy:

This will be taught under the following regions:-

Head, Neck and Face, Brain

Thorax

Abdomen

Upper and Lower Extremities

3.5 Special Senses

Each of the above areas will cover,-

- (a) osteology
- (b) syndesmology (joints)
- (c) myology
- (d) angiology
- (e) neurology
- (f) splanchnology (viscera and organs)
- (g) surface anatomy
- (h) applied anatomy
- (i) radiographic anatomy

4. Histology (Microanatomy):

B. Practical -

- 1. Dissection of the whole human body, demonstration of dissected parts.
- 2. Identification of histological slides related to tissues and organs.
- 3. Students shall maintain practical or clinical journals and dissection cards.

C. Examination:

1. Theory:

The written papers in anatomy shall be in two papers, namely:—

Paper-I

- a. General Anatomy,
- b. Head, face and neck, Central nervous System, upper extremities and Embryology.

Paper-II

- a. Thorax, abdomen, pelvis, lower extremities and Histology (micro-anatomy).

2. The Practical including viva voce or oral examination includes the following:-

Marks: 200

2.2. Distribution of marks-		<u>Marks</u>
2.2.1. Knowledge of dissected parts-	20	
2.2.2. Viscera	20	
2.2.3. Bones	20	
2.2.4. Surface Anatomy	10	
2.2.5. Spotting(including Radiology and Histology)	20	
2.2.6.Maintenance of Practical record or journaland dissection card	10	
2.2.7. Viva Voce (Oral)	100	
Total	<u>200</u>	