INTEGRAL UNIVERSITY, LUCKNOW

INTEGRAL INSTITUTE OF ALLIED HEALTH SCIENCES & RESEARCH

DEPARTMENT OF ALLIED AND HEALTHCARE SCIENCES

B.Sc. Medical Anatomy

(B.Sc. MA)

SYLLABUS

YEAR/ SEMESTER: II/III

Programme Structure
(With effect from AY 2025-26)

Integral University, Lucknow
Department of Basic Medical Sciences
Study and Evaluation Scheme

Program: B.Sc. Medical Anatomy — Semester-III

S. N.	Course code	Course Title	Type of Paper	Period Per hr/week/sem			Evaluation Scheme				Sub. Total	Credit	Total Credits
				L	T	P	CT	TA	Total	ESE			
THEORIES													
1	MA201	Anatomy of Upper limb	Core	2	1	0	40	20	60	40	100	2:1:0	3
2	MA202	Anatomy of Lower limb	Core	2	1	0	40	20	60	40	100	2:1:0	3
3	MA203	General Embryology and Developmental Anatomy	Core	2	1	0	40	20	60	40	100	2:1:0	3
4	MA204	General Histology and Cell Biology	Core	2	1	0	40	20	60	40	100	2:1:0	3
5	ES101	Environmental Sciences	Core	2	1	0	40	20	60	40	100	2:1:0	3
PRACTICAL													
1	MA205	Anatomy of Upper Limb Lab	Core	0	0	4	40	20	60	40	100	0:0:2	2
2	MA206	Anatomy of Lower Limb Lab	Core	0	0	4	40	20	60	40	100	0:0:2	2
3	MA207	General Histology and Cell Biology Lab	Core	0	0	2	40	20	60	40	100	0:0:1	1
4	MA208	Seminar	Core	0	0	4	40	20	60	40	100	0:0:4	4
Total				**12**	**05**	**06**	**320**	**160**	**480**	**320**	**800**	**23**	**24**

S. N.	Course code	Course Title	Type of Paper	Attributes							United Nation Sustainable Development Goal (SDGs)
				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment& Sustainability	Human Value	Professional Ethics	
THEORIES											
1	MA201	Anatomy of Upper limb	Core	√	√	√			√	√	3,4
2	MA202	Anatomy of Lower limb	Core	√	√	√			√	√	3,4
3	MA203	General Embryology and Developmental Anatomy	Core	√	√	√			√	√	3,4
4	MA204	General Histology and Cell Biology	Core	√	√	√			√	√	3,4
5	ES101	Environmental Sciences	Core	√	√	√			√	√	3,4
PRACTICAL					**PRACTICAL**						
1	MA205	Anatomy of Upper Limb Lab	Core	√	√	√			√	√	3,4
2	MA206	Anatomy of Lower Limb Lab	Core	√	√	√			√	√	3,4
3	MA207	General Histology and Cell Biology Lab	Core	√	√	√			√	√	3,4
4	MA208	Seminar	Core	√	√	√			√	√	3,4

L: Lecture **T:** Tutorials **P:** Practical **CT:** Class Test **TA:** Teacher Assessment **ESE:** End Semester Examination,
AE= Ability Enhancement, DSE- Discipline Specific Elective, **Sessional Total:** Class Test + Teacher Assessment **Subject Total:** Sessional Total + End Semester Examination (ESE)

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA201**	**Title of the Course**	**ANATOMY OF UPPER LIMB**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	This course provides a **comprehensive understanding of the upper limb anatomy**, including **bones, muscles, neurovascular structures, joints, and clinical applications**, helping students integrate anatomical knowledge into clinical practice and medical imaging.						

Course Outcomes	
CO1	Students will be able to Identify and describe the bones and joints of the upper limb, including anatomical landmarks and structural organization.
CO2	Students will be able to Explain the muscles, their functions, and innervation, focusing on their role in movement and coordination.
CO3	Students will be able to Illustrate the neuroanatomy of the upper limb, including major nerves, dermatomes, and clinical implications.
CO4	Students will be able to Describe vascular supply and lymphatic drainage, emphasizing their role in circulation and common clinical disorders.
CO5	Students will be able to Apply anatomical knowledge to clinical and radiological imaging (X-ray, CT, MRI) for diagnosis.

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1.	**Introduction and Bones of the Upper Limb**	• Introduction of the upper limb • Bones of the upper limb – Clavicle, Scapula, Humerus, Radius, Ulna, and Hand bones • Joints of the upper limb – Shoulder, Elbow, Wrist, and Hand	6	CO1
2.	**Muscles of the Upper Limb**	• Pectoral region and Axilla – Pectoralis major, Pectoralis minor, Subclavius, Axillary contents • Back and Scapular region – Trapezius, Rotator cuff muscles • Cubital fossa- Boundaries, Contents and clinical correlation • Muscles of the arm, forearm, and hand – Origin, insertion, nerve supply, and actions	6	CO2
3.	**Joints and Movements of the Upper Limb**	• Shoulder joint complex – Sternoclavicular, Acromioclavicular, Glenohumeral joints • Elbow and Radio-ulnar joints – Structure, ligaments, and movements • Joints of the wrist and hand – Radiocarpal, Metacarpophalangeal, and Interphalangeal joints • Movements of the upper limb and muscle actions	6	CO3
4.	**Nervous System of the Upper Limb**	• Formation and branches of the Brachial Plexus – Roots, trunks, divisions, cords, and branches • Major nerves of the upper limb – Median, Ulnar, Radial, Axillary, and Musculocutaneous nerves	6	CO4
5.	**Vascular and Lymphatic System of the Upper Limb**	• Arterial supply – Subclavian, Axillary, Brachial, Radial, and Ulnar arteries • Venous drainage – Superficial and deep veins (Cephalic, Basilic, and Brachial veins) • Lymphatic drainage – Superficial and deep lymph nodes of the upper limb	6	CO5

Reference Books:

1. B.D. Chaurasia's Human Anatomy: Upper Limb & Thorax – B.D. Chaurasia
2. Textbook of Anatomy: Upper Limb and Thorax – Vishram Singh
3. Gray's Anatomy – Susan Standring

e-Learning Source:

https://www.youtube.com/watch?v=C3uwofaCVTk
https://www.youtube.com/watch?v=crC-0WAWrdc
https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MA201	**ANATOMY OF UPPER LIMB**	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA202**	**Title of the Course**	**ANATOMY OF LOWER LIMB**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	This course provides a **comprehensive understanding of the pelvic girdle and lower limb anatomy**, including **bones, muscles, neurovascular structures, joints, and clinical applications**, helping students apply anatomical knowledge in medical practice, surgery, and imaging.						

Course Outcomes	
CO1	Students will be able to Identify and describe the **bones and joints of the lower limb**, anatomical landmarks and functional significance.
CO2	Students will be able to Explain the **muscles, their functions, and innervation**, with a focus on their role in movement, posture, and locomotion.
CO3	Students will be able to Illustrate the **neuroanatomy of the lower limb**, including major nerves, dermatomes, and common nerve injuries.
CO4	Students will be able to Describe the **vascular supply and lymphatic drainage**, their role in circulation and common clinical disorders.
CO5	Students will be able to Apply anatomical knowledge to **clinical cases and radiological imaging (X-ray, CT, MRI) for diagnosis**

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1.	Introduction and Bones of the Lower Limb	• Introduction to the lower limb –movements, and weight-bearing adaptations • Bones of the lower limb – Hip bone, Femur, Patella, Tibia, Fibula, and Foot bones • Joints of the lower limb – Hip, Knee, Ankle, and Foot joints	6	CO1
2.	Muscles of the Lower Limb	• Pelvic girdle and Gluteal region – Muscles, their functions, Femoral triangle and its importance. • Muscles of the thigh, leg, and foot – Origin, insertion, nerve supply, and actions • Popliteal fossa and its importance.	6	CO2
3.	Joints and Movements of the Lower Limb	• Hip joint – Structure, ligaments, blood supply, and movements • Knee joint – Structure, menisci, ligaments, stability, and functions • Ankle joint and Foot joints – Tarsal, Metatarsophalangeal, and Interphalangeal joints • Movements of the lower limb and muscle actions	6	CO3
4.	Nervous System of the Lower Limb	• Lumbosacral Plexus – Formation, branches, and distribution • Major nerves of the lower limb – Femoral, Sciatic, Obturator, Tibial, and Common Peroneal nerves • Dermatomes and Myotomes of the lower limb – Sensory and motor distribution	6	CO4
5.	Vascular and Lymphatic System of the Lower Limb	• Arterial supply – External iliac, Femoral, Popliteal, Posterior and Anterior Tibial arteries • Venous drainage – Superficial and deep veins (Great Saphenous, Small Saphenous, and Femoral veins) • Lymphatic drainage – Superficial and deep lymph nodes of the lower limb	6	CO5

Reference Books:

1. B.D. Chaurasia's Human Anatomy: Upper Limb & Thorax – B.D. Chaurasia
2. Textbook of Anatomy: Upper Limb and Thorax – Vishram Singh
3. Gray's Anatomy – Susan Standring

e-Learning Source:

https://www.youtube.com/watch?v=C3uwofaCVTk
https://www.youtube.com/watch?v=crC-0WAWrdc
https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MA202	**ANATOMY OF LOWER LIMB**	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA203**	**Title of the Course**	**GENERAL EMBRYOLOGY AND DEVELOPMENTAL ANATOMY**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	This course provides a comprehensive understanding of human embryology and developmental anatomy, covering fertilization, early embryonic development, organogenesis, congenital anomalies, and clinical correlations.						

Course Outcomes	
CO1	Students will be able to Explain the **process of gametogenesis, fertilization, and early embryonic development**.
CO2	Students will be able to Describe the **formation of embryonic and fetal membranes**, placenta, and their functions.
CO3	Students will be able to Illustrate the **week-wise development of the embryo and fetal organogenesis**.
CO4	Students will be able to Describe the Weeks 9–Birth Fetal Development and Placental Function
CO5	Students will be able to Apply embryological knowledge to **clinical cases, including congenital anomalies and diagnostic techniques**.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1.	**Fertilization and First Two Weeks of Development**	• Introduction to embryology – Historical background and significance • Fertilization – Capacitation, Acrosomal reaction, and Zygote formation • Week 1: Cleavage, Morula, Blastocyst Formation • Week 2: Bilaminar Germ Disc Formation, Implantation, Early Placental Development	6	CO1
2.	**Week 3 – Gastrulation and Neurulation**	• Formation of the Trilaminar Germ Disc • Gastrulation and Primitive Streak Development • Neurulation and Neural Tube Formation • Embryonic Folding and Development of the Body Cavities	6	CO2
3.	**Weeks 4 to 8 Organogenesis Period**	• Differentiation of the Three Germ Layers into Organ Systems • Ectodermal Derivatives – Skin, Nervous System, Sensory Organs • Mesodermal Derivatives – Skeletal System, Muscles, Cardiovascular System • Endodermal Derivatives – Gastrointestinal Tract, Respiratory System	6	CO3
4.	**Weeks 9 to Birth**	• Growth and Maturation of Fetal Organs • Development and Functions of the Placenta • Placental Circulation and Hormonal Functions • Amniotic Fluid and Its Role in Fetal Protection	6	CO4
5.	**Congenital Anomalies, Teratology, and Diagnostic Techniques**	• Causes of Congenital Malformations • Teratology and Environmental FactorsPrenatal Screening and Diagnostic Techniques	6	CO5

Reference Books:

1. **Langman's Medical Embryology – T.W. Sadler**
2. **Inderbir Singh's Human Embryology – V. Gopalakrishnan**
3. **Textbook of Human Embryology – Vishram Singh**

e-Learning Source:

https://www.youtube.com/watch?v=C3uwofaCVTk
https://www.youtube.com/watch?v=crC-0WAWrdc
https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	rofessional Ethics	
MA203	General Embryology and Developmental Anatomy	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA204**	**Title of the Course**	**GENERAL HISTOLOGY AND CELL BIOLOGY**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	This course provides a **fundamental understanding of histology and cell biology**, covering **cell structure, tissue organization, and their functional significance**, with a focus on microscopic anatomy and clinical applications.						

Course Outcomes	
CO1	Students will be able to Explain the **ultrastructure and function of the cell**, including cell membrane, organelles, and nucleus.
CO2	Students will be able to Identify and differentiate **epithelial tissues and glands**, explaining their classification and structural adaptations.
CO3	Students will be able to Describe the **components of connective tissue**, including fibers, ground substance, cartilage, and bone histology.
CO4	Students will be able to Understand the **histology of muscular and nervous tissue**, their structural features, and functional significance.
CO5	Students will be able to Correlate **histological structures of the cardiovascular and lymphatic systems** with clinical conditions.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1.	**Introduction to Histology, Cell Structure, and Function**	● Introduction to Histology – Importance, Principles, Tissue Processing, Staining Techniques ● Cell Structure and Membrane Composition ● Cell Organelles – Mitochondria, Ribosomes, ER, Golgi Apparatus, Lysosomes, Cell Surface Modifications ● Nucleus and Chromosomes – Structure, Chromatin Organization, Sex Chromatin	6	CO1
2.	**Epithelial Tissues and Glands**	● Classification of Epithelia – Simple, Stratified, Transitional, and Specialized Epithelia ● Glandular Epithelium – Exocrine and Endocrine Glands, Secretory Mechanisms ● Cell Junctions and Barrier Functions	6	CO2
3.	**Connective Tissue, Cartilage, and Bone**	● Types of Connective Tissue – Loose, Dense, Adipose, Reticular ● Cartilage Histology – Hyaline, Elastic, Fibrocartilage ● Bone Histology – Structure, Periosteum, Bone Growth, Blood Supply	6	CO3
4.	**Muscle and Nervous Tissue**	● Types of Muscle Tissue – Skeletal, Cardiac, Smooth Muscle ● Neuromuscular Junction and Mechanism of Contraction ● Neuron Structure and Classification	6	CO4
5.	**Cardiovascular and Lymphatic Systems**	● Histology of Blood Vessels – Arteries, Veins, Capillaries, Sinusoids ● Lymphatic System – Lymphatic Vessels, Lymph Nodes, Spleen, Thymus	6	CO5

Reference Books:

1. Inderbir Singh's Textbook of Histology – Neelam Vasudeva & Inderbir Singh
2. Basic Histology: Text & Atlas – Luiz Carlos Junqueira & José Carneiro
3. Wheater's Functional Histology: A Text and Colour Atlas – Barbara Young

e-Learning Source:

https://www.youtube.com/watch?v=C3uwofaCVTk
https://www.youtube.com/watch?v=crC-0WAWrdc
https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	-	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	-	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	-	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	-	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	-	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	**Course Title**	**Attributes**						**SDGs No.**
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MA204	General Histology and Cell Biology	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**ES101**	**Title of the Course**	**ENVIRONMENTAL STUDIES**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**2**	**1**	**0**	**3**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The student will be made aware of our environment in general, natural resources, ecosystems, environmental pollution						

Course Outcomes	
CO1	Students will be able to study about the Environment and the ECO system.
CO2	Students will be able to study about the Natural Resources.
CO3	Students will be able to study about Biodiversity and Conservation
CO4	Students will be able to study Environmental pollution, its policies and practices
CO5	Students will be able to study Human Population and Environmental Ethics.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1.	**Introduction to Environment and Ecosystems**	Environment, its components and segments, Multidisciplinary nature of Environmental studies, Concept of Sustainability and sustainable development, Environmental movements, Ecosystem, Structure & Function, Energy flow in the Ecosystem, Ecological Pyramids and Ecological Succession.	6	CO1
2.	**Natural Resources**	Energy Resources: Renewable and nonrenewable, Soil erosion and desertification, Deforestation, Water: Use and over exploitation, Impacts of large Dams, Case studies.	6	CO2
3.	**Biodiversity and Conservation**	Levels of biological diversity, Hot spots of biodiversity, India as a Mega Diversity Nation, Endangered and endemic species of India, Threats to Biodiversity, Conservation of Biodiversity, Ecosystem and biodiversity services.	6	CO3
4.	**Environmental Pollution, Policies and Practices**	Environmental pollution, Solid waste management, Ill effects of fireworks, Climate change, Ozone layer depletion, acid rain and impacts on human communities and Environment. Environmental Laws: Environment Protection Act, Wildlife protection Act, Forest conservation Act, Convention on Biological Diversity (CBD), Tribal rights, Human wildlife conflicts.	6	CO4
5.	**Human Population and the Environment**	Human population growth: Impacts on environment, human health and welfare, Resettlement and rehabilitation of project affected persons, Environmental ethics, Environmental communication and public awareness, case studies.	6	CO5

Reference Books:

1. Agarwal, K.C. 2001 Environmental; Biology, Nidi Pub. Ltd .Bikaner.
2. Glick, H.P.1993 water in crisis, Pacific Institute for studies in dev, Environment &security, Stockholm Env, Institute, Oxford Univ, Press 473p.
3. Cunningham W.P.2001.Cooper, T.H. Gorhani, E & Hepworth, Environmental encyclopedia, Jaicob Publication House, Mumbai

e-Learning Source:

1. https://www.sathyabama.ac.in/sites/default/files/course-material/2020-10/UNIT-I_15.pdf
2. https://juniperpublishers.com/rapsci/pdf/RAPSCI.MS.ID.555586.pdf
3. Population Growth - Our World in Data

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	rofessional Ethics	
ES101	ENVIRONMENTAL STUDIES	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA205**	**Title of the Course**	**ANATOMY OF UPPER LIMB LAB**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**0**	**0**	**4**	**2**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	This course aims to enable students to understand and identify bones, joints, muscles, nerves, and vessels of the upper limb. Correlate theoretical anatomy with cadaveric and model-based observations. Develop practical skills and familiarity with surface landmarks and clinical relevance.						

Course Outcomes	
CO1	Students will be able to Identify and demonstrate all bones of the pectoral girdle and upper limb with anatomical features.
CO2	Students will be able to Locate and explain major muscles of the upper limb and their actions.
CO3	Students will be able to Describe major nerves, arteries, and veins of the upper limb.
CO4	Students will be able to Perform surface marking of anatomical structures and apply clinical correlations.
CO5	Students will be able to Develop hands-on experience in anatomical model handling.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1.	**Osteology of the Upper Limb**	● Identification and anatomical features of: ● Clavicle, Scapula ● Humerus ● Radius and Ulna ● Bones of the Hand (Carpals, Metacarpals, Phalanges)	6	CO1
2.	**Study of the Pectoral Region and Axilla**	● Muscles of the pectoral region ● Boundaries and contents of the axilla ● Brachial plexus overview in axilla	6	CO2
3.	**Arm and Forearm**	● Muscles of the anterior and posterior compartments ● Brachial artery and branches ● Median, ulnar, musculocutaneous, and radial nerves ● Cubital fossa – boundaries and contents	6	CO3
4.	**Hand and Joints**	● Muscles of the Hand ● Palmar arches, digital nerves and vessels ● Movements and demonstration of joints	6	CO4
5.	**Radiological Anatomy**	● Identification of radiographs: AP and lateral views of shoulder, elbow, and wrist joints ● Clinical applications of imaging anatomy	6	CO5

Reference Books:

1. B.D. Chaurasia's Human Anatomy: Upper Limb & Thorax – B.D. Chaurasia
2. Textbook of Anatomy: Upper Limb and Thorax – Vishram Singh
3. Gray's Anatomy – Susan Standring

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https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	Course Title	Attributes							SDGs
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	rofessional Ethics	**No.**
MA205	ANATOMY OF UPPER LIMB LAB	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA206**	**Title of the Course**	**ANATOMY OF LOWER LIMB LAB**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**0**	**0**	**4**	**2**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	This course aims to enable students to understand and identify bones, joints, muscles, nerves, and vessels of the lower limb. Correlate theoretical anatomy with model-based observations. Develop practical skills and familiarity with surface landmarks and clinical relevance.						

Course Outcomes	
CO1	Students will be able to Identify and demonstrate all bones of the pelvic girdle and lower limb with anatomical features.
CO2	Students will be able to Locate and explain major muscles of the lower limb and their actions.
CO3	Students will be able to Describe major nerves, arteries, and veins of the lower limb.
CO4	Students will be able to Perform surface marking of anatomical structures and apply clinical correlations.
CO5	Students will be able to Develop hands-on experience in anatomical model handling.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1.	**Osteology of Pelvic Girdle and Lower Limb**	● Identification and features of: ● Hip bone, Sacrum, Coccyx ● Femur, Tibia, Fibula ● Bones of the foot (Tarsals, Metatarsals, Phalanges)	6	CO1
2.	**Gluteal Region and Hip Joint**	● Muscles: Gluteus maximus, medius, minimus, Piriformis, etc. ● Sciatic nerve and other neurovascular structures ● Hip joint structure and ligaments	6	CO2
3.	**Thigh Region**	● Anterior, medial, and posterior compartments: muscles, nerves, vessels ● Femoral triangle and adductor canal ● Femoral artery and vein ● Obturator and femoral nerves	6	CO3
4.	**Leg and Foot**	● Anterior, posterior, and lateral compartments of the leg ● Muscles and tendons of the foot ● Popliteal fossa – boundaries and contents ● Arches of the foot and their supports	6	CO4
5.	**Radiological Anatomy**	● Radiographs: AP and lateral views of hip, knee, and ankle joints ● Clinical correlation with conditions like sciatica, varicose veins, fractures	6	CO5

Reference Books:

1. B.D. Chaurasia's Human Anatomy: Abdomen, pelvis and lower limb – B.D. Chaurasia
2. Textbook of Anatomy: Abdomen, pelvis and lower limb – Vishram Singh
3. Gray's Anatomy – Susan Standring

e-Learning Source:

https://www.youtube.com/watch?v=C3uwofaCVTk
https://www.youtube.com/watch?v=crC-0WAWrdc
https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	ofessional Ethics	
MA206	ANATOMY OF LOWER LIMB LAB	√	√	√			√	√	**3,4**

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA207**	**Title of the Course**	**GENERAL HISTOLOGY AND CELL BIOLOGY LAB**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**0**	**2**	**0**	**2**
Pre-Requisite	**Nil**	**Co-requisite**	**Nil**				
Course Objectives	The course is designed to provide hands-on training in identifying cells and tissues using microscopes and prepared slides. Understanding of cellular and tissue structures and their functions. Develop practical skills in correlating microscopic features with physiological and clinical relevance.						

Course Outcomes	
CO1	Students will be able to present seminar about Anatomy of Upper Limb
CO2	Students will be able to present seminar about Anatomy of Lower Limb
CO3	Students will be able to present seminar about General Histology and Cell Biology
CO4	Students will be able to present seminar about General embryology and Developmental anatomy
CO5	Students will be able to present seminar about Clinical correlation of Anatomy, Histology and Embryology

Unit No.	**Title of the Unit**	**Content of Unit**	**Contact Hrs.**	**Mapped CO**
1.	**Anatomy of Upper Limb**	• Seminar Topic will be given based on courses and will be decided by course teacher.	6	CO1
2.	**Anatomy of Lower Limb**	• Seminar Topic will be given based on courses and will be decided by course teacher.	6	CO2
3.	**General Histology and Cell Biology**	• Seminar Topic will be given based on courses and will be decided by course teacher.	6	CO3
4.	**General embryology and Developmental anatomy**	• Seminar Topic will be given based on courses and will be decided by course teacher.	6	CO4
5.	**Clinical correlation of Anatomy, Histology and Embryology**	• Seminar Topic will be given based on courses and will be decided by course teacher.	6	CO5

Reference Books:

1. Inderbir Singh's Textbook of Histology – Neelam Vasudeva & Inderbir Singh
2. Basic Histology: Text & Atlas – Luiz Carlos Junqueira & José Carneiro
3. Wheater's Functional Histology: A Text and Colour Atlas – Barbara Young

e-Learning Source:

https://www.youtube.com/watch?v=C3uwofaCVTk
https://www.youtube.com/watch?v=crC-0WAWrdc
https://www.youtube.com/watch?v=y0DNfuNUE7o

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	-	1	-	1	-	-	1	1	-	1	2	-	1	1	-
CO2	2	3	-	2	-	2	-	-	-	1	-	2	3	-	2	2	-
CO3	3	3	-	1	-	1	-	-	1	1	-	1	2	-	1	1	-
CO4	2	3	-	1	-	2	-	-	-	1	-	2	2	-	1	1	-
CO5	2	3	-	1	-	2	-	-	-	1	-	2	3	-	1	1	-

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation Attributes & SDGs

Course Code	**Course Title**	**Attributes**							**SDGs No.**
MA208	**GENERAL HISTOLOGY AND CELL BIOLOGY LAB**	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	**3,4**
		√	√	√			√	√	

Integral University, Lucknow

Effective from Session: 2025-26							
Course Code	**MA208**	**Title of the Course**	**SEMINAR**	**L**	**T**	**P**	**C**
Year	**II**	**Semester**	**III**	**0**	**4**	**0**	**4**
Pre-Requisite	Nil	**Co-requisite**	Nil				
Course Objectives	This course will serve as a platform for students to integrate various components of patient management and debate contentious issues in the efficacy of students as well as enhance presentation skills.						

Course Outcomes	
CO1	The students will understand and interpret latest advancements through different technical papers, reports, Journals, Data sheets, books etc
CO2	The students will inculcate the skills for literature survey and will learn to manage resources effectively.
CO3	The students will be able to summarize the recent research and technologies in the form of review and will be able to deliver power point presentations on an assigned topic.
CO4	The students will be able to communicate his/her ideas with his peers as audience, which will enhance both oral and written communication skills.
CO5	The students will be able to create interest to pursue lifelong learning.

SEMINAR PRESENTATION ASSESSMENTN FORM

Name of Student:		**Session:**	
Enrolment Number:		**Date:**	
Name of Subject:		**Subject code:**	
Topics:			

Criteria	Sub-Criteria	Max. Marks	Marks Obtained
Introduction (Max marks-05)	Use appropriate background information	**02**	
	Has clear statement of purpose	**02**	
	Shows a logical sequence	**01**	
Factual Content (Max marks- 10)	Includes accurate information	**02**	
	Shows up-to-date content	**02**	
	Presents relevant content	**02**	
	Shows in-depth and sufficient details	**01**	
	Addresses all important issues	**01**	
	Is selective	**01**	
	Use of proper English Grammar in the text	**01**	
Presentation Quality (Max marks-03)	Has a good design of presentation (appropriate font, type, size, color, matter per slide etc.)	**02**	
	Has a clear verbal expression and eye contact with audience	**01**	
Response to questions (Max marks-05)	Answers question(s) correctly	**02**	
	Has the ability to think on the spot	**02**	
	Shows an ability to defend content of presentation	**01**	
Time Management (Max. mark-02)	Completes the presentation within allocated time	**02**	
	Total Marks	**25**	

Note: In case of Oral Presentation, each student will be assessed in a 20 minutes time (15 min for presentation & 5 min for discussion) out of 50 marks.

Comments/Suggestions:

(Name and signature of Incharge) **(Head, BHS)**

EVALUATION OF SEMINAR ON CLINICAL ISSUES

B.Sc. Medical Anatomy- Students has to prepare minimum 2 long case and 2 short cases during their seminar presentation during due course of time. The evaluation for internal clinical examination of 50 marks will be distributed:

Seminar Presentation=**25marks**.

Viva voce =**20 marks**

Attendance=**5 marks**

	Course Articulation Matrix: (Mapping of COs with POs and PSOs)															
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	3	2	3	1	2	1	-	3	2	3	3	2
CO2	3	3	3	3	2	2	3	2	1	3	-	2	2	3	2	3
CO3	3	3	3	3	2	2	3	2	1	3	-	3	2	2	2	3
CO4	3	3	3	3	2	2	3	2	1	3	-	2	3	2	2	3
CO5	3	3	3	3	2	2	3	2	1	3	-	3	2	3	3	2

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
MA208	**SEMINAR**	√	√	√			√	√	**3,4,9, 17**