

## APPLIED ANATOMY

**PLACEMENT:** I SEMESTER

**THEORY:** 3 Credits (60 hours)

**DESCRIPTION:** The course is designed to assist student to recall and further acquire the knowledge of the normal structure of human body, identify alteration in anatomical structure with emphasis on clinical application to practice nursing.

**COMPETENCIES:** On completion of the course, the students will be able to

1. Describe anatomical terms.
2. Explain the general and microscopic structure of each system of the body.
3. Identify relative positions of the major body organs as well as their general anatomic locations.
4. Explore the effect of alterations in structure.
5. Apply knowledge of anatomic structures to analyze clinical situations and therapeutic applications.

### COURSE OUTLINE

#### T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	8 (T)	<p>Define the terms relative to the anatomical position</p> <p>Describe the anatomical planes</p> <p>Define and describe the terms used to describe movements</p>	<p><b>Introduction to anatomical terms and organization of the human body</b></p> <ul style="list-style-type: none"> <li>• Introduction to anatomical terms relative to position – anterior, ventral, posterior dorsal, superior, inferior, median, lateral, proximal, distal, superficial, deep, prone, supine, palmar and plantar</li> <li>• Anatomical planes (axial/ transverse/ horizontal, sagittal/vertical plane and coronal/frontal/oblique plane)</li> <li>• Movements (flexion, extension, abduction, adduction, medial rotation, lateral rotation, inversion, eversion, supination, pronation, plantar flexion, dorsal flexion and circumduction)</li> <li>• Cell structure, Cell division</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Use of models</li> <li>• Video demonstration</li> <li>• Use of microscopic slides</li> <li>• Lecture cum Discussion</li> <li>• Video/Slides</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz</li> <li>• MCQ</li> <li>• Short answer</li> </ul>

		<p>Organization of human body and structure of cell, tissues membranes and glands</p> <p>Describe the types of cartilage</p> <p>Compare and contrast the features of skeletal, smooth and cardiac muscle</p>	<ul style="list-style-type: none"> <li>• Tissue – definition, types, characteristics, classification, location</li> <li>• Membrane, glands – classification and structure</li> <li>• Identify major surface and bony landmarks in each body region, Organization of human body</li> <li>• Hyaline, fibro cartilage, elastic cartilage</li> <li>• Features of skeletal, smooth and cardiac muscle</li> <li>• Application and implication in nursing</li> </ul>	<ul style="list-style-type: none"> <li>• Anatomical Torso</li> </ul>	
<b>II</b>	6 (T)	<p>Describe the structure of respiratory system</p> <p>Identify the muscles of respiration and examine their contribution to the mechanism of breathing</p>	<p><b>The Respiratory system</b></p> <ul style="list-style-type: none"> <li>• Structure of the organs of respiration</li> <li>• Muscles of respiration</li> <li>• Application and implication in nursing</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Models</li> <li>• Video/Slides</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
III	6 (T)	Describe the structure of digestive system	<b>The Digestive system</b> <ul style="list-style-type: none"> <li>• Structure of alimentary canal and accessory organs of digestion</li> <li>• Application and implications in nursing</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Video/Slides</li> <li>• Anatomical Torso</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
IV	6 (T)	Describe the structure of circulatory and lymphatic system.	<b>The Circulatory and Lymphatic system</b> <ul style="list-style-type: none"> <li>• Structure of blood components, blood vessels – Arterial and Venous system</li> <li>• Position of heart relative to the associated structures</li> <li>• Chambers of heart, layers of heart</li> <li>• Heart valves, coronary arteries</li> <li>• Nerve and blood supply to heart</li> <li>• Lymphatic tissue</li> <li>• Veins used for IV injections</li> <li>• Application and implication in nursing</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Models</li> <li>• Video/Slides</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• MCQ</li> </ul>
V	4 (T)	Identify the major endocrine glands and describe the structure of endocrine Glands	<b>The Endocrine system</b> <ul style="list-style-type: none"> <li>• Structure of Hypothalamus, Pineal Gland, Pituitary gland, Thyroid, Parathyroid, Thymus, Pancreas and Adrenal glands</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Models/charts</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
VI	4 (	Describe the structure of various sensory organs	<b>The Sensory organs</b> <ul style="list-style-type: none"> <li>• Structure of skin, eye, ear, nose and tongue</li> <li>• Application and implications in nursing</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Explain with Video/ models/charts</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• MCQ</li> </ul>

<b>VII</b>	10 (T)	<p>Describe anatomical position and structure of bones and joints</p> <p>Identify major bones that make up the axial and appendicular skeleton</p> <p>Classify the joints</p> <p>Identify the application and implications in nursing</p> <p>Describe the structure of muscle</p>	<p><b>The Musculoskeletal system:</b></p> <p><b>The Skeletal system</b></p> <ul style="list-style-type: none"> <li>Anatomical positions</li> <li>Bones – types, structure, growth and ossification</li> <li>Axial and appendicular skeleton</li> <li>Joints – classification, major joints and structure</li> <li>Application and implications in nursing</li> </ul>	<ul style="list-style-type: none"> <li>Review – discussion</li> <li>Lecture</li> <li>Discussions</li> <li>Explain using charts, skeleton and loose bones and torso</li> <li>Identifying muscles involved in nursing procedures in lab</li> </ul>	<ul style="list-style-type: none"> <li>Short answer</li> <li>Objective type</li> </ul>
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Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
		Apply the knowledge in performing nursing procedures/skills	<p><b>The Muscular system</b></p> <ul style="list-style-type: none"> <li>Types and structure of muscles</li> <li>Muscle groups – muscles of the head, neck, thorax, abdomen, pelvis, upper limb and lower limbs</li> <li>Principal muscles – deltoid, biceps, triceps, respiratory, abdominal, pelvic floor, pelvic floor muscles, gluteal muscles and vastus lateralis</li> <li>Major muscles involved in nursing procedures</li> </ul>		
<b>VIII</b>	5 (T)	Describe the structure of renal system	<p><b>The Renal system</b></p> <ul style="list-style-type: none"> <li>Structure of kidney, ureters, bladder, urethra</li> <li>Application and implication in nursing</li> </ul>	<ul style="list-style-type: none"> <li>Lecture</li> <li>Models/charts</li> </ul>	<ul style="list-style-type: none"> <li>MCQ</li> <li>Short answer</li> </ul>

<b>IX</b>	5 (T)	Describe the structure of reproductive system	<b>The Reproductive system</b> <ul style="list-style-type: none"> <li>• Structure of male reproductive organs</li> <li>• Structure of female reproductive organs</li> <li>• Structure of breast</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Models/charts</li> </ul>	<ul style="list-style-type: none"> <li>• MCQ</li> <li>• Short answer</li> </ul>
<b>X</b>	6 (T)	Describe the structure of nervous system including the distribution of the nerves, nerve plexuses  Describe the ventricular system	<b>The Nervous system</b> <ul style="list-style-type: none"> <li>• Review Structure of neurons</li> <li>• CNS, ANS and PNS (Central, autonomic and peripheral)</li> <li>• Structure of brain, spinal cord, cranial nerves, spinal nerves, peripheral nerves, functional areas of cerebral cortex</li> <li>• Ventricular system – formation, circulation, and drainage</li> <li>• Application and implication in nursing</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Explain with models</li> <li>• Video slides</li> </ul>	<ul style="list-style-type: none"> <li>• MCQ</li> <li>• Short answer</li> </ul>

**Note:** Few lab hours can be planned for visits, observation and handling (less than 1 credit lab hours are not specified separately)

## BIBLIOGRAPHY

1. Waugh, Anne (2003), “ Ross & Wilson’s Anatomy & Physiology in health & illness” 10th ed., Churchill Livingstone.
2. Anthony & Thibodcon (2000), “Anatomy & Physiology for nurses” 11th ed., C.V. Mosby Co., London.
3. Greig, Rhind, “ Riddle’s Anatomy & Physiology”, 7th ed., Churchill Livingstone.
4. Singh, I. B. (2005), “Anatomy & Physiology for nurses”, 1st ed., Jaypee.
5. Tortora, (2003), “Principles of Anatomy & Physiology,” 10th ed., Wiley inter.
6. Chaurasia, B.D. (2004), “Human Anatomy”, 4th ed., CBS publishers.
7. Sembulingam, “Essentials of Medical Physiology,” 3rd Edition 2004 J.P. Publications.
8. Ganong. F. William, “Review of Medical Physiology”, 15th Edition, Prentice Hall International Inc., Appleton and Lange.
9. Guyton and Hall, “Textbook of Medical Physiology,” 9 th Edition, A Prism2. Indian Edn. Pvt. Ltd
10. T. Clenister and Jean Rosy (1974). “Anatomy and Physiology for Nurses” 2 nd Edition, William Hernmarni Medical BK. Ltd.

### Suggested Assessment/ Evaluation Methods

Scheme of Internal Assessment of theory out of 25 marks					
Sr. No	Theory	Quantity	Marks	Round off	Final Round off IA
1.	Class Test I		50 marks	30	Out of 15
2.	Class Test II		75 Marks	30	
3.	Written Assignment	2	50	10	Out of 10
4.	Seminar/Microteaching/individual presentation	2	50	12	
5.	Group project/Work/Report	1	50	6	
6	Attendance	(95-100%: 2 marks, 90-94: 1.5 marks, 85-89: 1 mark, 80-84: 0.5 mark, <80: 0)		2	
(Marks of each component to be rounded of the respective columns marks and the final IA need to be calculated out of 25 (15+10).					

## EVALUATION PERFORMA FOR WRITTEN ASSIGNMENT

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**Name of student: -**

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**Name of evaluator: -**

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**Mark: 10**

SR.NO	CRITERIA	MARK ALLOTTED	MARK OBTAINED
1	Format	03	
2	Objective	02	
3	Setting	02	
4	Bibliography	01	
5	Summary and Evaluation	02	
	<b>Total</b>	<b>10</b>	

**Remarks:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SIGN OF STUDENT**

**SIGN OF EVALUATOR**

## EVALUATION PERFORMA FOR SEMINAR/ MICROTEACHING/ INDIVIDUAL PRESENTATION

Name of topic: \_\_\_\_\_

Date: \_\_\_\_\_

Name of evaluator: \_\_\_\_\_

Name of student: \_\_\_\_\_

Group: \_\_\_\_\_

Sr no.	Criteria	Marks Allotted	Marks Obtained
1	Introduction	01	
2	Organization of Content	01	
3	Presentation of topic	01	
4	Relevant examples	01	
5	Relevant statistical data	01	
6	Group participation	01	
7	AV Aids	01	
8	Use of Modern technology	01	
9	Physical facilities	01	
10	Personal Appearance and Mannerisms	01	
11	Voice & Clarity	01	
12	References	01	
	<b>TOTAL</b>	<b>12</b>	

**General Remarks of the Teacher:**

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**Remarks for Improvement:**

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**SIGNATURE OF STUDENT**

**SIGNATURE OF EVALUATOR**

**EVALUATION PERFORMA FOR GROUP PROJECT/WORK/REPORT**

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**Name of Student: -**

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**Name of Evaluator: -**

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**Mark: 06**

SR.NO	CRITERIA	MARK ALLOTTED	MARK OBTAINED
1	Organization	01	
2	Adequacy of content	01	
3	Neatness	01	
4	Presentation	02	
5	Summary and Evaluation	01	
	<b>Total</b>	<b>06</b>	

**Remarks:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SIGN OF STUDENT**

**SIGN OF EVALUATOR**

## EVALUATION PERFORMA FOR CLINICAL PRESENTATION

Name of student :-

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Name of evaluator :-

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**Mark: 10**

SR.NO	CRITERIA	MARK ALLOTTED	MARK OBTAINED
1	Format	02	
2	Objective	01	
3	Setting	01	
4	A.V Aids	01	
5	Communication skills	02	
6	Bibliography	01	
7	Summary and Evaluation	02	
	<b>Total</b>	<b>10</b>	

Remarks: \_\_\_\_\_

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**SIGN OF STUDENT**

**SIGN OF EVALUATOR**

## **EVALUATION PERFORMA FOR DRUG PRESENTATION AND REPORT**

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**Name of Student: -**

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**Name of Evaluator: -**

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**Mark: 10**

SR.NO	CRITERIA	MARK ALLOTTED	MARK OBTAINED
1	Content	02	
2	Organization	02	
3	Nursing responsibility	02	
4	Resource used	01	
5	Completeness	01	
6	Neatness	01	
7	Bibliography	01	
	<b>Total</b>	<b>10</b>	

**Remarks:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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**SIGN OF STUDENT**

**SIGN OF EVALUATOR**

## EVALUATION PERFORMA FOR CASE STUDY REPORT

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Name of student: -

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Name of evaluator: -

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**Mark: 10**

SR.NO	CRITERIA	MARK ALLOTTED	MARK OBTAINED
1	Assessment/Introduction	01	
2	Knowledge and Understanding of Disease	02	
3	Nursing Care Plan	02	
4	Discharge plan	01	
5	Prognosis	01	
6	Summary and Evaluation	02	
7	Bibliography	01	
	<b>Total</b>	<b>10</b>	

Remarks: \_\_\_\_\_

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**SIGN OF STUDENT**

**SIGN OF EVALUATOR**

## CLINICAL EVALUATION PERFORMA

**Name of the student:** - \_\_\_\_\_

**Year:** - \_\_\_\_\_

**Subject:** - \_\_\_\_\_

**Area of clinical experience:** - \_\_\_\_\_

**Duration of posting in weeks:** - \_\_\_\_\_

**Name of the supervisor:** - \_\_\_\_\_

**Total Marks: - 10**

**Scores:- 5 = Excellent, 4 = Very good, 3 = Good, 2 = Satisfactory / fair, 1 = Poor**

Sr.No.	EVALUATION CRITERIA	MARKS ALLOTTED	MARKS OBTAINED
I.	<b>Personal &amp; Professional behavior</b> <ol style="list-style-type: none"> <li>1. Wears clean &amp; neat uniform and well groomed.</li> <li>2. Arrives and leaves punctually.</li> <li>3. Demonstrates understanding of the need for quietness in speech &amp; manner &amp; protects the patient from undue notice.</li> <li>4. Influential &amp; displaced persuasive assertive leadership behavior</li> </ol>	02	
II.	<b>Attitude to Co-workers and patients</b> <ol style="list-style-type: none"> <li>1. Works well as member of nursing team.</li> <li>2. Gives assistance to other in clinical situations.</li> <li>3. Understands the patient as an individual.</li> <li>4. Shows skills in gaining the confidence &amp; cooperation of patients and relatives, tactful and considerate.</li> </ol>	02	
III.	<b>Application of knowledge</b> <ol style="list-style-type: none"> <li>1. Possess sound knowledge of medical surgical conditions.</li> <li>2. Has sound knowledge of scientific principles.</li> <li>3. Able to correlate theory with practice.</li> </ol>	02	

	4. Has knowledge of current treatment modalities inclusive of medicine, surgery, pharmacology and dietetics. 5. Takes interest in new learning from current literature & seeks help from resourceful people.		
	Nursing Process 1. Assessment and Nursing Diagnosis 2. Planning 3. Implementation 4. Evaluation 5. Documentation	02	
IV.	<b>Quality of clinical skill</b> 1. Identifies problems & sets priorities and grasps essentials while performing duties. 2. Applies principles in carrying out procedures & carries out duties promptly. 3. Has technical competence in performing nursing procedures. 4. Resourceful and practices economy of time material and energy. 5. Observes carefully, reports & records signs & symptoms & other relevant information. 6. Uses opportunities to give health education to patients & relatives	02	
<b>Grant Total</b>		<b>10</b>	

**Remarks for improvement:**

**Student's Remark:**

**Signature of the student**

**Signature of the teacher**

## EVALUATION PERFORMA FOR OSCE

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**Name of Student: -**

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**Name of Evaluator: -**

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**Mark: 05**

SR.NO	CRITERIA	MARK ALLOTTED	MARK OBTAINED
1	Identifies problems & sets priorities	01	
2	Applies Scientific principles	01	
3	Competence in performing Nursing procedures.	01	
4	Resourceful and practices economy of time material and energy.	01	
5	Recording and Reporting	01	
6	Uses opportunities to give health education to patients & relatives		
	<b>Total</b>	<b>05</b>	

**Remarks:** \_\_\_\_\_

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**SIGN OF STUDENT**

**SIGN OF EVALUATOR**

## **COMPLETION OF PROCEDURE AND CLINICAL REQUIREMENT**

**Name of the student: -** \_\_\_\_\_

**Year: -** \_\_\_\_\_

**Subject: -** \_\_\_\_\_

**Area of clinical experience: -** \_\_\_\_\_

**Duration of posting in weeks: -** \_\_\_\_\_

**Name of the supervisor: -** \_\_\_\_\_

**Total Marks: - 03**

<b>Sr. No.</b>	<b>EVALUATION CRITERIA</b>	<b>MARKS ALLOTTED</b>	<b>MARKS OBTAINED</b>
<b>I.</b>	<b>Personal &amp; Professional behavior</b>	<b>0.5</b>	
<b>II.</b>	<b>Attitude to Co-workers and patients</b>	<b>0.5</b>	
<b>III.</b>	<b>Application of knowledge</b>	<b>0.5</b>	
<b>IV.</b>	<b>Quality of clinical skill</b>	<b>1.5</b>	
<b>Total</b>			

**Remarks for Improvement:**

**Student's Remark:**

**Signature of the Student**

**Signature of the Teacher**



