

**SECTION – I  
(Course Content)**

**GROSS ANATOMY  
UPPER LIMB**

**Schedule I  
PECTORAL REGION AND AXILLA**

**Lecture: 03 hrs  
Dissection/ Prosection: 10 hrs  
Tutorials: 01 hr**

**LECTURE TOPICS:**

- Mammary gland.
- Axillary vessels; axillary lymph nodes; lymphatic drainage of the breast.
- Brachial plexus.

**DISSECTION/ PROSECTION:**

**Identification of relevant skeletal features:-**

thoracic cage - sternum; costal cartilages; ribs and thoracic vertebrae.  
sternum - manubrium; body; xiphoid process; jugular (suprasternal notch; sternal angle (angle of Louis).  
first rib - surfaces; borders; ends.  
clavicle - medial end; shaft; lateral end.  
scapula - surfaces; borders; processes - spine, acromion, coracoid.  
humerus - head; greater and lesser tubercles; intertubercular groove; surgical neck.

**Subcutaneous structures:**

Mammary gland (should include skin also); supraclavicular nerves; anterior and lateral branches of intercostal nerves and accompanying arteries; veins.

**Deep fascia:** pectoral; clavipectoral and axillary.

**Muscles:** pectoralis major; obliquus externus abdominis; serratus anterior; pectoralis minor; subclavius; subscapularis; teres major; latissimus dorsi; coracobrachialis; short head of biceps; long head of triceps; deltoid.

**Boundaries of axilla:**

**Contents of axilla:**

Nerves roots; trunks; divisions; cords and branches of brachial plexus.  
Arteries: axillary artery and its branches.  
Veins: axillary veins and its tributaries  
Lymph nodes: axillary lymph nodes.  
Surface anatomy: axillary artery.  
Applied anatomy: injuries to the brachial plexus; lymphatic drainage of the breast.

**TUTORIAL TOPICS FOR THE WEEK**

- Relevant osteology.
- Relevant radiological anatomy.
- Relevant living anatomy.
- Relevant cross-sectional anatomy.

**Schedule 2  
FRONT OF ARM AND CUBITAL FOSSA.**

**Lecture: 01 hrs  
Dissection/ Prosection: 10 hrs  
Tutorials: 01 hr**

**LECTURE TOPICS:**

1. Brachial artery.

**DISSECTION/ PROSECTION:**

**Identification of relevant skeletal features:-**

humerus: deltoid tuberosity; supracondylar ridge; epi-condyles.  
radius: head; radial tuberosity.  
ulna: coronoid process.

**Subcutaneous structures:-**

medial cutaneous nerve of arm and forearm; upper and lower cutaneous nerves of the arm; lateral and posterior cutaneous nerves of the forearm; cephalic, basilic and median cubital veins; epitrochlear lymph nodes.

**Deep fascia: -**

medial and lateral intermuscular septa; (flexor and extensor compartments)

**Muscles:-** biceps brachii; brachialis; coracobrachialis; pronator teres; brachioradialis.

**Nerves:-** axillary, musculocutaneous; ulnar; median; radial.

**Veins:-** venae comitantes of brachial artery.

**Surface anatomy:-** brachial artery.

**Applied anatomy:-** suitability of antecubital veins for intravenous injections and taking blood for analysis and for transfusion; supracondylar fracture and complications.

**TUTORIAL TOPICS FOR THE WEEK**

- Relevant osteology.
- Relevant radiological anatomy.
- Relevant living anatomy.
- Relevant cross-sectional anatomy.

**Schedule 3.**

**SUPERFICIAL DISSECTION OF THE BACK OF THE TRUNK, SCAPULAR REGION AND BACK OF THE ARM.**

**Lecture: 01 hrs**

**Dissection/ Prosection: 10 hrs**

**Tutorials: 01 hr**

**LECTURE TOPICS:**

1. Radial nerve.

**DISSECTION/ PROSECTON:**

**Identification of relevant skeletal features:-**

skull	- mastoid process; superior nuchal line; external occipital protuberance and crest.
vertebral column	- spines of the vertebrae; vertebra prominens -C7 (or T1); sacrum; coccyx.
hip bone	- iliac crest; supracristal plane at the level of L4 spine; posterior iliac spine at the level of S2 spine.
scapula	- medial, superior and lateral (axillary) borders; scapular notch; spine of scapula; supra and infraspinous fossae; spinoglenoid notch; glenoid cavity; infraglenoid tubercle; superior angle at the level of T2 spine; spine of the scapula at the level of T3 spine; inferior angle at the level of T7 spine;
humerus	- greater and lesser tubercles; deltoid tuberosity; radial groove.
ulna	- olecranon process.

**.Subcutaneous structures:-**

Cutaneous branches of the dorsal rami; posterior cutaneous nerve of the arm.

**Deep fascia: -**

thoracolumbar fascia.

**Ligaments:-**

ligamentum nuchae; supraspinous ligaments; coraco-acromial ligament; superior transverse acromial ligament.

**Muscles:-** trapezius; latissimus dorsi; levator scapulae; rhomboid major and minor; deltoid; supraspinatus; infraspinatus; teres major and minor; inferior belly of omohyoid; subscapularis; serratus anterior; triceps

*Boundaries of quadrangular and triangular spaces; triangle of auscultation and lumbar triangles.*

**Nerves:-** accessory; suprascapular; axillary; other nerves supplying muscles.

**Surface anatomy:-** axillary nerve; radial nerve.

**Applied anatomy:-** fracture of the neck of the humerus; fracture of the middle of the shaft of the humerus.

**TUTORIAL TOPICS FOR THE WEEK**

- Relevant osteology.
- Relevant radiological anatomy.
- Relevant living anatomy.
- Relevant cross-sectional anatomy.

**Schedule-4.**

**JOINTS OF THE SHOULDER GIRDLE; BACK OF FOREARM AND HAND.**

**Lecture: 02 hrs**

**Dissection/ Prosection: 10 hrs**

**Tutorials: 01 hr**

**LECTURE TOPICS:**

- Shoulder girdle

- Elbow joint

**DISSECTION/ PROSECTION:**

***Sternoclavicular joint***

**Identification of relevant skeletal features:-**manubrium; medial end of the clavicle; first costal cartilage.

**Muscles in relation to the joint:-** pectoralis major; sternomastoid; subclavius.

**Capsule:-** attachments.

**Ligaments:-** anterior and posterior sternoclavicular; interclavicular; costoclavicular.

**Synovial membrane:-** reflection.

**Intra-articular structures:-** articular disc.

**Articular surface:-** size of sternal and clavicular articular surfaces.

**Movements:-** gliding; rotation.

**Nerve supply:-** medial supraclavicular; nerve to subclavius.

***Acromioclavicular joint***

**Identification of relevant skeletal features:-** lateral end of clavicle; acromion process of scapula.

**Muscles in relation to the capsule of joint:-** trapezius; deltoid.

**Capsule:-** attachments.

**Ligaments:-** coracoclavicular.

**Synovial membrane:-** reflection.

**Intra-articular structures:-** articular disc sometime present.

**Articular surfaces:-** shape.

**Movements:-** gliding; rotation.

**Nerve supply:-** suprascapular; lateral pectoral.

**Applied anatomy:-** dislocation.

***Shoulder joint***

**Identification of relevant skeletal features:-** glenoid cavity; head of humerus.

**Muscles in relation to the joint:-** deltoid; rotator cuff muscles; long head of biceps; long head of triceps.

**Capsule:-** attachments.

**Ligaments:-** coracoacromial; coracohumeral; glenohumeral

**Intracapsular structures:-** tendon of long head of biceps.

**Synovial membrane:-** reflection.

**Intra-articular structures:-** articular disc.

**Articular surface:-** humeral and glenoid articular surfaces; labrum glenoidale.

**Movements:-** flexion; extension; abduction; adduction; medial and lateral rotation; circumduction.

**Nerve supply:-** suprascapular; axillary and lateral pectoral.

**Applied anatomy:-** dislocation.

***Back of forearm and hand***

**Identification of relevant Skeletal features:-** radius- posterior surface; dorsal tubercle; styloid process; ulna- supinator crest; posterior surface; head; styloid process; metacarpals; phalanges.

**Subcutaneous structures:-** posterior cutaneous nerve of forearm; superficial branch of radial nerve; dorsal branch of ulnar nerve; dorsal venous arch; basilic and cephalic veins.

**Deep Fascia:-** extensor retinaculum; (osteofascial compartments).

**Muscles:-** brachioradialis; extensor carpi radialis longus and brevis; extensor digitorum; extensor digiti minimi; extensor carpi ulnaris; supinator; abductor pollicis longus; extensor pollicis longus; extensor indicis.

***Anatomical snuff box***

**Nerves:-** deep branch of radial- posterior interosseous.

**Arteries:-** posterior interosseous; dorsal carpal arch and branches.

**Applied anatomy:-** radial nerve palsy; fracture of lower end of radius (Colle's fracture).

**TUTORIAL TOPICS FOR THE WEEK**

- Relevant osteology.
- Relevant radiological anatomy.
- Relevant living anatomy.
- Relevant cross-sectional anatomy.

**Schedule-5.**

**FRONT OF FOREARM AND HAND**

**Lecture: 03 hrs**  
**Dissection/ Prosection: 10 hrs**  
**Tutorials: 01 hr**

**LECTURES:**

- Ulnar nerve, median nerve, radial nerve.
- Wrist joint.
- Palmar spaces

**DISSECTION/ PROSECTION:**

**Identification of relevant skeletal features:-**

humerus - medial epicondyle; medial supracondylar ridge.

radius - surfaces; borders; styloid process.

ulna - surfaces; borders; styloid process.

carpus - hook of the hamate; tubercle of the scaphoid; pisiform; tubercle and groove of trapezium; metacarpus; phalanges.

**Subcutaneous structures:-** medial cutaneous nerve of the forearm; lateral cutaneous nerve of forearm; palmar cutaneous branch of the ulnar nerve; palmar cutaneous branch of the median nerve; digital nerves and vessels; cephalic, basilic and median cubital veins.

**Deep fascia:-** flexor retinaculum; palmar aponeurosis; fascial septa of the hand.

**Ligaments:-** superficial and deep transverse metacarpal ligaments.

**Muscles:-** flexor carpi ulnaris; palmaris longus; flexor carpi radialis; pronator teres; flexor digitorum superficialis; flexor digitorum profundus; flexor pollicis longus; pronator quadratus; thenar and hypothenar muscles; lumbricals; adductor pollicis; interossei.

*Synovial sheaths of long flexor tendons.*

**Nerves:-** median, ulnar, superficial radial.

**Arteries:-** radial and ulnar arteries and their branches; superficial and deep palmar arches.

**Surface anatomy:-** radial and ulnar arteries; median nerve; superficial and deep palmar arches.

**Applied anatomy:-** Volkman's ischaemic contracture; Dupuytren's contracture; claw hand; fascial spaces of hand.

#### TUTORIAL TOPICS FOR THE WEEK

- Relevant osteology.
- Relevant radiological anatomy.
- Relevant living anatomy.
- Relevant cross-sectional anatomy.

#### Schedule-6.

#### ELBOW, RADIOULNAR, WRIST AND JOINTS OF THE HAND.

Lecture: 04 hrs

Dissection/ Prosection: 10 hrs

Tutorials: 01 hr

#### LECTURES:

- Radioulnar joints (supination and pronation); articulated hand.
- Venous drainage and lymphatic drainage of the upper limb.
- Movements of the thumb.
- Sectional anatomy of arm, forearm and hand.

#### PRACTICALS AND TUTORIALS:

##### *Elbow joint*

**Identification of relevant skeletal features:-** humerus- trochlea; capitulum; radial, coronoid and olecranon fossae; ulna- trochlear notch; coronoid and olecranon processes; radius- head; neck; tuberosity.

**Muscles in relation to the capsule of the joint:-** brachialis; biceps; triceps; anconeus.

**Capsule:-** attachment.

**Ligaments:-** ulnar collateral; radial collateral; quadrate.

**Synovial membrane:-** reflection.

**Articular surfaces:-** shape; carrying angle.

**Movements:-** flexion; extension.

**Nerve supply:-** musculocutaneous; radial.

**Blood supply:-** anastomosis around elbow joint.

**Applied anatomy:-** dislocations; fractures.

##### *Proximal and distal radio-ulnar joints*

**Identification of relevant skeletal features:-** radius- head; ulnar notch; ulna-radial notch; head.

**Capsule:-** attachments.

**Ligaments:-** annular (proximal joint).

**Intra-articular structures:-** articular disc (distal joint).

**Synovial membrane:-** reflection.

**Movements:-** pronation; supination.

##### *Middle radio-ulnar joint*

**Ligaments:-** oblique cord; interosseous membrane.

##### *Wrist joint*

**Identification of relevant skeletal features:-** distal end of radius; articular disc; scaphoid; lunate; triquetrum.

**Capsule:-** attachments.

**Ligaments:-** palmar radiocarpal; palmar ulnar carpal; dorsal radiocarpal; radial and ulnar collateral.

**Synovial membrane:-** reflection.

**Articular surfaces:-** shape

**Movements:-** flexion, extension; adduction; abduction; circumduction.

##### *Intercarpal, Midcarpal, Carpometacarpal, Metacarpo-phalangeal and Interphalangeal joints.*

**Identification of relevant skeletal features:-** carpus; metacarpus; phalanges.

**Capsule:-** attachments

**Ligaments:-** dorsal and palmar; collateral; interosseous.

**Synovial membrane:-** reflection.

**Movements:-** flexion, extension (all joints); adduction, abduction (midcarpal, metacarpophalangeal joints and carpometacarpal joint of the thumb); rotation and circumduction (carpometacarpal joint of the thumb).

**TUTORIAL TOPICS FOR THE WEEK**

- Relevant osteology.
- Relevant radiological anatomy.
- Relevant living anatomy.
- Relevant cross-sectional anatomy.

**SECTION – II**  
**(Course Content under Level – I, II, III)**  
**OUTLINE OF LECTURES**

S.No	TOPIC	MUST KNOW	SHOULD KNOW	COULD KNOW
1.	MAMMARY GLAND	1. Architecture of gland  3. Blood supply 4. Nerve supply 5. Lymphatics & Ca. Breast	2. Relations  6. Metastasis of Ca - Peau De Orange - Krukenberg's Tumour - Prognosis	7. Milk line & anomalies
2.	AXILLA	1. Boundaries  3. Contents with special emphasis to axillary lymph nodes	2. Clavipectoral fascia	4. Palpation of axillary lymph nodes
3.	AXILLARY ARTERY	1. Course 3. Relations 4. Branches	2. Axillary sheath 5. Anastomosis around scapula	
4.	BRACHIAL PLEXUS	1. Formation, components & extent  2. Branches 3. Relations of cords & branches  4. Applied: - Erb's paralysis - Klumpke's paralysis	5. Prefixation & Brachial plexus 6. Cervical rib syndrome 7. Level of injury from trunks to branches and associated clinical picture	
5.	SHOULDER JOINT	1. Classification 2. Interior of the joint 3. Capsules & Ligaments 4. Synovial membrane 5. Movements & group of muscles 6. Nerve supply 7. Overhead abduction 8. Rotator cuff 9. Secondary socket 10. a. Relations b. Bursae c. Surgical approaches-anatomical basis	11. Dislocations	12. Painful arc syndrome 13. Frozen shoulder
6.	RADIAL NERVE	1. Root value 2. Course 3. Relations 4. Motor distribution  6. Applied : - Crutch paralysis - Saturday night palsy - Wrist drop	5. Articular branches & dermatomal distribution	7. # shaft of Radius / Humerus 8. Compression of radial

				nerve in plaster cast.
7.	ARM & BRACHIAL ARTERY	1. Course 2. Major branches  5. Palpation of brachial artery	3. Compartments & relationship of vessels & nerve with r/o T.S 4. Anastomosis around elbow joint	6. Brachiofemoral delay 7. Supracondylar spur 8. Application of tourniquet in stopping bleeding.
8.	FRONT OF FOREARM & RADIAL ARTERY  CUBITAL FOSSA	1. Group of muscles in forearm  2. Boundaries & contents of cubital fossa 3. Radial artery - Course in forearm - snuff box - palm 4. Branches of Radial artery  5. Applied anatomy - IV injections - B.P measurement - Palpation of brachial & radial artery	6. Volkmann's Ischaemic contracture	7. Use of radial artery in coronary bypass surgery 8. Use of radial artery in skin flaps
9.	HAND	1. Cutaneous innervation 2. Intrinsic muscles & palmar spaces 3. Palmar arterial arches 4. Flexor retinaculum	5. Dorsal digital expansion 6. Movements of thumb joints  7. Evolution of thumb / functions of hand and Grip  9. Dupuytren's contracture	8. Clinical considerations of palmar spaces
10.	ULNAR & MEDIAN NERVES	1. Course & relations 2. Motor distribution in forearm & palm 3. Palpation of ulnar nerve 4. Flexor retinaculum	5. Carpal tunnel syndrome 6. Ape thumb deformity 7. Ulnar claw hand 8. True claw hand	
11.	ELBOW JOINT	1. Classification 2. Capsules & ligaments 3. Synovial membrane  5. Movements & group of muscles	4. Relations  5. Applied: - Tennis elbow - Students elbow	Subluxation of head of radius Tennis elbow Cubitus valgus Pulled elbow Carrying angle
12.	RADIO -ULNAR JOINTS	1. Classification 2. Capsules & ligaments 3. Synovial membrane 4. Movements & group of muscles 5. Interosseous membrane	6. Weight transmission 7. Colle's fracture	8. Axis of supnation and pronation 9. Changing axes during supination and pronation

**SECTION – II**  
**(Course Content under Level – I, II, III)**

## DISSECTION - INCISIONS

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### DISSECTION

#### Learning Objectives of Dissection

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S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
1.	PECTORAL REGION & MAMMARY GLAND	<ul style="list-style-type: none"> <li>• Incision nos. 1-4</li> <li>• Reflect the skin flaps laterally leaving the nipple &amp; the surrounding skin in position</li> <li>• Divide the deep fascia in the Deltopectoral groove</li> <li>• Remove the fascia from the ant. part of the Pect. Major &amp; Deltoid &amp; define their attachments</li> <li>• Detach the clavicular &amp; sternal heads of P. Major &amp; reflect</li> </ul>	<ul style="list-style-type: none"> <li>• Mammary gland</li> <li>• Pectoralis major</li>   <li>• Cephalic vein</li>   <li>• Pectoralis Minor</li> <li>• Subclavius</li> </ul>	<ul style="list-style-type: none"> <li>• Anterior cutaneous . branches. of Intercostal nerves.</li> </ul>	<ul style="list-style-type: none"> <li>• Supraclavicular Nerve.</li> <li>• Latl. Cutaneous . Branches of Intercostal Nerve</li> </ul>	<ul style="list-style-type: none"> <li>• Muscles of the pectoral region</li> <li>• Mammary gland</li> <li>• Cephalic vein</li> </ul>	<ul style="list-style-type: none"> <li>• Actions of pectoral ms.</li> <li>• Blood supply &amp; lymphatic drainage of mammary gland &amp; its applied anatomy</li> </ul>
<b>APPLIED ASPECT</b>							
						<ul style="list-style-type: none"> <li>• Developmental anomalies</li> <li>• Gynaecomastia</li> <li>• Cancer breast</li> </ul>	

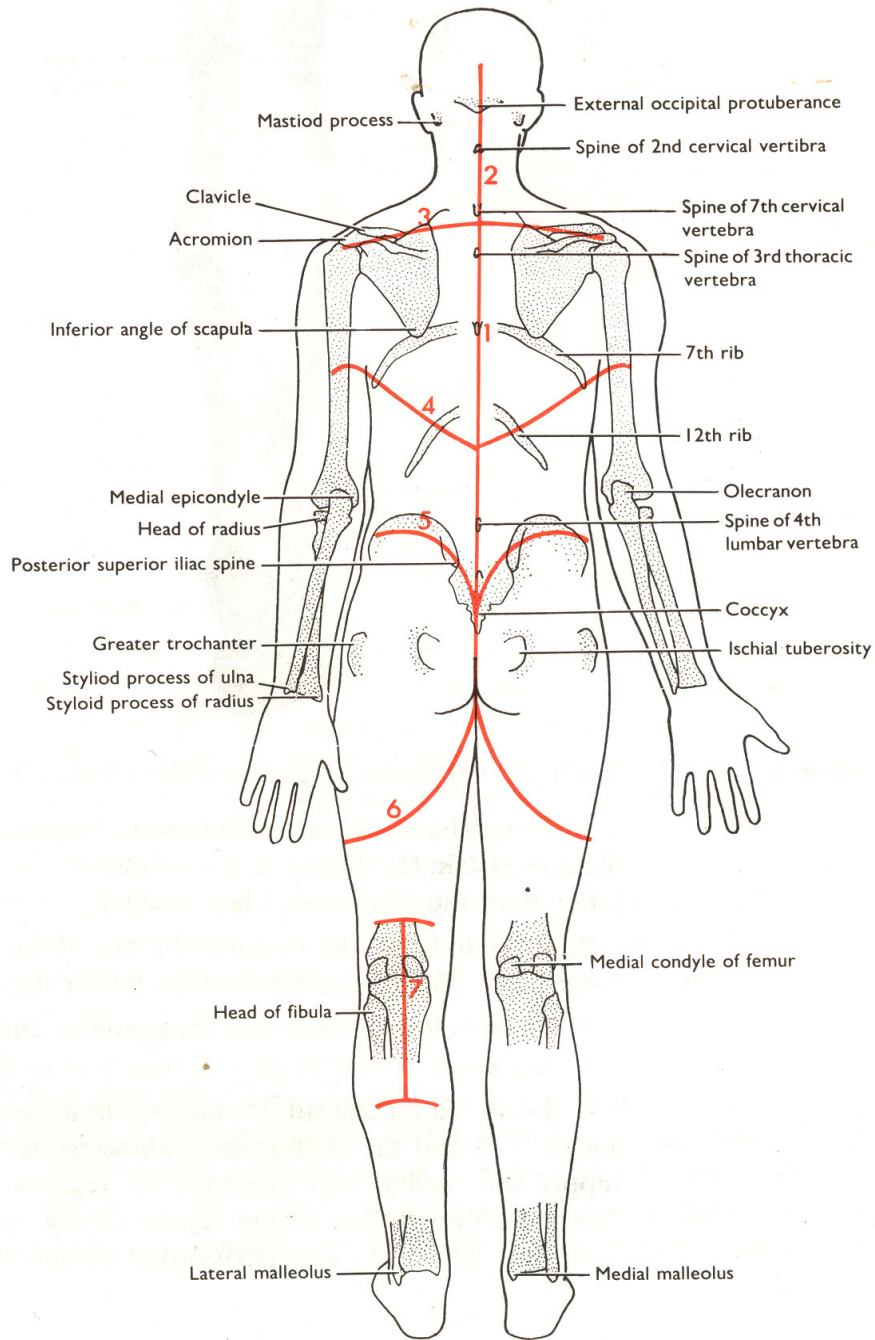
	<p>it towards its insertion &amp; identify:</p> <ul style="list-style-type: none"> <li>• While reflecting the Pectoralis Major, identify:</li> </ul>	<p>Medial pectoral N. (piercing the P. minor &amp; supplying the P. major)</p>	
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S.No	TOPIC	DISSECTION STEPS			SUMMARY		
		WHAT IS EXPECTED FROM THE STUDENTS	LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
2.	AXILLA	<ul style="list-style-type: none"> <li>• Clean &amp; define the boundaries of the Axilla</li> <li>• Remove the loose connective tissue &amp; lymph nodes from the axilla &amp; expose its contents</li> </ul>	<p><b>LEVEL 1</b></p> <ul style="list-style-type: none"> <li>• Antr. wall of axilla</li> <li>• Pectoralis major &amp; minor</li> <li>• Subclavius</li> <li>• Post. wall of axilla:</li> <li>-Subscapularis</li> <li>-Teres major</li> <li>-Latissimus</li> <li>• Axillary artery &amp; its three parts</li> <li>• Axillary vein</li> <li>• Cords of the brachial plexus &amp; their main branches</li> <li>• Nerve to serratus anterior</li> <li>• Thoracodorsal Nerve</li> </ul>	<p><b>LEVEL 2</b></p> <ul style="list-style-type: none"> <li>• Lat. Pect. Nerve</li> <li>• Branches from axillary art.</li> <li>• Axillary vein</li> <li>• Cut. Branches from the Medial Cord</li> <li>• Suprascapular Nerve</li> </ul>	<p><b>LEVEL 3</b></p> <ul style="list-style-type: none"> <li>• Thoracoacromial vessels.</li> <li>• Intercostobrachial N.</li> <li>• Nerve to subclavius</li> </ul>	<ul style="list-style-type: none"> <li>• Boundaries of axilla</li> <li>• Axillary vessels.</li> <li>• Brachial Plexus &amp; its major branches</li> </ul>	<ul style="list-style-type: none"> <li>• Axillary Lymph Nodes</li> <li>• Brachial . Pl. injuries :</li> <li>• Erb's palsy</li> <li>• Klumpke's palsy</li> <li>• Winging of scapula</li> <li>• Saturday night palsy</li> </ul>
<b>APPLIED ASPECT</b>							
<p>Brachial plexus :</p> <ul style="list-style-type: none"> <li>• Prefixed</li> <li>• Postfixed</li> <li>• Cervical rib syndrome</li> <li>• Winging of scapula</li> <li>• Erb's palsy</li> <li>• Klumpke's palsy</li> <li>• Saturday night palsy</li> </ul>							

### DISSECTION - INCISIONS



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### DISSECTION

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
3.	DISSECTION OF BACK	<ul style="list-style-type: none"> <li>Incision 1,3,4 &amp; 5</li> <li>Reflect skin flaps laterally</li> <li>Strip sup. Fascia from the deep fascia</li> <li>Remove the fascia from the surface of the Trapezius &amp;</li> </ul>	<ul style="list-style-type: none"> <li>Trapezius</li> <li>Deltoid</li> </ul>		<ul style="list-style-type: none"> <li>Cutaneous Nerves of the back (dorsal rami of spinal nerves)</li> </ul>	<ul style="list-style-type: none"> <li>Muscles of the back</li> <li>Triangle of auscultation</li> </ul>	<ul style="list-style-type: none"> <li>Arrangement of these muscles.</li> <li>Action of these muscles.</li> <li>Movements of scapula &amp; ms. causing them.</li> </ul>

	<ul style="list-style-type: none"> <li>define its extent</li> <li>Define &amp; uncover the lat. Dorsi</li> <li>Reflect the lower part of the trapezius by dividing it vertically, 5cm lat. to the median plane &amp; identify:</li> </ul>	<ul style="list-style-type: none"> <li>Infraspinatus</li> <li>Teres major &amp; minor</li> <li>Latissimus Dorsi</li> </ul>		<ul style="list-style-type: none"> <li>Accessory Nerve.</li> <li>Dorsal scapular Nerve.</li> </ul>	<ul style="list-style-type: none"> <li>Deep branch of Transverse Cervical Artery.</li> </ul>	<p style="text-align: center;"><b>APPLIED ASPECT</b></p> <ul style="list-style-type: none"> <li>Triangle of auscultation.</li> <li>Renal angle</li> </ul>
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S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY		
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND	
4.	SHOULDER REGION	<ul style="list-style-type: none"> <li>Remove fascia from the surface of deltoid &amp; define its attachments &amp; note its fibres</li> <li>Separate the deltoid from the spine of the scapula &amp; turn it down</li> <li>Remove fascia over infraspinatus muscle &amp; identify the two teres ms.</li> <li>Define the boundaries of the quadrangular space &amp; note its contents</li> <li>Expose &amp; define the long head of triceps</li> <li>Divide the remaining fibres of the deltoid, turn it downwards &amp; define subscapularis</li> <li>Clean &amp; define boundaries of the upper triangular space</li> <li>Clean &amp; define boundaries of the lower triangular space</li> </ul>	<ul style="list-style-type: none"> <li>Deltoid</li> <li>Axillary Nerve</li> <li>Post. circumflex Humeral Vessels.</li> </ul>	<ul style="list-style-type: none"> <li>Infraspinatus</li> <li>Teres Major &amp; Minor</li> <li>Axillary Nerve.</li> <li>Post. Circumflex Humeral Vessels.</li> <li>Long head of Triceps</li> <li>Subscapularis</li> <li>Radial Nerve</li> <li>Profunda Brachii Vessels.</li> </ul>	<ul style="list-style-type: none"> <li>Inferior division of Axillary Nerve</li> </ul>	<ul style="list-style-type: none"> <li>Upper Lateral . Cutaneous Nerve of the arm</li> <li>Circumflex Scapular vessels.</li> </ul>	<ul style="list-style-type: none"> <li>Quadrangular &amp; triangular spaces &amp; their contents</li> </ul>	<ul style="list-style-type: none"> <li>Movements at the shoulder jt. &amp; the ms. causing them (demo)</li> </ul>
						<b>APPLIED ASPECT</b>		
						<ul style="list-style-type: none"> <li>Intramuscular injections</li> <li>Fracture humerus</li> <li>Injuries to shoulder.</li> </ul>		

o	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
5.	SHOULDER JOINT	<ul style="list-style-type: none"> <li>Cut across the subscapularis at the</li> </ul>				<ul style="list-style-type: none"> <li>Ligaments of the shoulder</li> </ul>	<ul style="list-style-type: none"> <li>Classification</li> <li>Movts. &amp; ms.</li> </ul>

	neck of the scapula & reflect it down <ul style="list-style-type: none"> <li>Expose &amp; clean the coracoclavicular lig.</li> <li>Medial to coracoclavicular lig. identify:</li> <li>Give a vertical incision through the capsule of the joint</li> <li>Rotate the arm medially. Disarticulate the head of the humerus through the cut in the capsule &amp; identify</li> </ul>	<ul style="list-style-type: none"> <li>Coracoclavicular lig.</li> <li>Articular capsule of shoulder joint</li> <li>Intracapsular tendon of long head of biceps</li> <li>Glenoid labrum</li> </ul>	<ul style="list-style-type: none"> <li>Suprascapular vessels &amp; Nerve</li> </ul>	<ul style="list-style-type: none"> <li>Two parts of the coracoclavicular lig. Conoid part trapezoid</li> <li>Glenohumeral lig.</li> <li>Trans humeral ligament</li> <li>Coracohumeral ligament</li> </ul>	joint causing them <ul style="list-style-type: none"> <li>Overhead abduction</li> <li>Frozen shoulder</li> </ul>
<b>APPLIED ASPECT</b>					
<ul style="list-style-type: none"> <li>Injuries shoulder joint</li> <li>Weight /force transmission</li> </ul>					

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
6.	FRONT OF ARM	<ul style="list-style-type: none"> <li>Cut vertically through the deep fascia on the anterior surface of the arm upto the elbow &amp; cut transversely through it at this level</li> <li>Reflect the flaps &amp; uncover biceps brachii</li> <li>Lift the biceps brachii &amp; identify</li> <li>Trace the musculocut N.</li> <li>Remove the fascia from the brachialis &amp; identify</li> </ul>	<ul style="list-style-type: none"> <li>Biceps brachii (both heads)</li> <li>Coracobrachialis</li> <li>Brachialis</li> <li>Musculocut. N. betwn. Biceps &amp; brachialis</li> <li>Brachial artery</li> <li>Median Nerve</li> <li>Musculocut Nerve passing through coracobrachialis</li> <li>Brachioradialis</li> <li>Extensor Carpi.Radialis Longus (ECRL)</li> <li>Radial Nerve.</li> </ul>	<ul style="list-style-type: none"> <li>Medial cutaneous. Nerves of arm &amp; forearm</li> </ul>	<ul style="list-style-type: none"> <li>Branches from radial Nerve to : -Brachioradialis -E.C.R.L -Brachialis (Lateral third)</li> <li>Lower Lat. Cut. Nerve of forearm</li> <li>Postr. cutaneous. Nerve. of forearm</li> </ul>	<ul style="list-style-type: none"> <li>Muscles of Flexor compartment of the arm</li> <li>Muscles arising from the lateral supracondylar line</li> <li>Nerves: • Musculocutaneous</li> <li>• Median</li> <li>• Radial</li> <li>• Ulnar</li> </ul>	<ul style="list-style-type: none"> <li>Actions of the ms. in this region</li> <li>Palpation of ssUlnar N.</li> </ul>
<b>APPLIED ASPECT</b>							
<ul style="list-style-type: none"> <li>Nerve injuries</li> <li>Volkman's ischaemic contracture</li> </ul>							

S.No	TOPIC	DISSECTION	WHAT IS EXPECTED FROM THE	SUMMARY
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		STEPS	STUDENTS			IDENTIFY	UNDERSTAND
			LEVEL 1	LEVEL 2	LEVEL 3		
7.	BACK OF ARM	<ul style="list-style-type: none"> <li>Remove the deep fascia from the back of the arm &amp; expose &amp; define the three heads of the triceps</li> <li>Find the Radial N. in the axilla post. to axillary art.</li> <li>Trace the Radial N. in the triceps &amp; separate the triceps along the line of the nerve in the muscle</li> <li>Divide &amp; reflect parts of the lateral head to expose:</li> <li>Follow the ulnar N. post. compt. &amp; trace it to the back of the medial epicondyle</li> </ul>	<ul style="list-style-type: none"> <li>Triceps</li> <li>Radial N</li> <li>Ulnar N</li> </ul>	<ul style="list-style-type: none"> <li>Profunda Brachi Vessels.</li> </ul>	<ul style="list-style-type: none"> <li>Branches of the radial Nerve in the radial groove: -Postr. cut. Nerve of forearm -Nerve to anconeus</li> </ul>	<ul style="list-style-type: none"> <li>Boundaries &amp; contents of the lower triangular space</li> <li>Muscles of the posterior compartment</li> </ul>	<ul style="list-style-type: none"> <li>Actions of the muscles of the post. compt.</li> <li>Injury to the radial N.</li> <li>Saturday night palsy</li> <li>Crutch paralysis</li> <li>Wrist drop</li> </ul>
<b>APPLIED ASPECT</b>							
<ul style="list-style-type: none"> <li>Nerve injuries</li> <li>Intramuscular injections</li> </ul>							

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
8.	CUBITAL FOSSA	<ul style="list-style-type: none"> <li>Clean &amp; define the boundaries of the cubital fossa</li> <li>Clean &amp; define the structures in the roof</li> <li>Clean &amp; define the contents of the fossa</li> <li>Clean the muscular floor of the fossa</li> </ul>	Boundaries : Base- Imaginary line joining the Epicondyles of the Humerus  Medial- Pronator teres Latl Brachioradialis Apex -meeting of the above two. From Medl. To Latl. Median nerve, Passing between 2 Heads of P.Teres Brachial art & its 2 Terminal branches: 1. Radial artery 2. Ulnar	<ul style="list-style-type: none"> <li>Median cubital vein</li> </ul>	<ul style="list-style-type: none"> <li>Lat. Cut. N. of forearm</li> <li>Med. Cut. N. of forearm</li> </ul>	<ul style="list-style-type: none"> <li>Boundaries including floor and contents of the cubital fossa</li> </ul>	<ul style="list-style-type: none"> <li>Applied imp. Of: Brachial art. Median cubital vein</li> </ul>
<b>APPLIED ASPECT</b>							
<ul style="list-style-type: none"> <li>Brachial artery</li> <li>Median cubital vein</li> </ul>							

			artery Tendon of biceps Radial N. (passing between the two heads of supinator) Brachialis (medl.) Supinator (latl)			
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S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
9.	FRONT OF FOREARM (Flexor compartment)	<ul style="list-style-type: none"> <li>Give a vertical midline incision at the elbow extending up to the wrist &amp; extend it transversely across the wrist (continuation of incision 5)</li> <li>Divide the deep fascia of the forearm &amp; expose the sup. Ms</li> <li>Clean &amp; define the Ulnar Vessels &amp; N. between the F.C.U &amp; F.D.S</li> <li>Pull the brachioradialis laterally to expose E.C.R.L</li> <li>Between the B.R. &amp; E.C.R.L. identify:</li> <li>Cut tendon of F.C.B. &amp; P.L, about 5 cm above the wrist. Expose &amp; define</li> <li>Push aside the F.D.S &amp; identify the deep flexors &amp; median N.</li> <li>Clean &amp; define the flexor retinaculum</li> </ul>	<ul style="list-style-type: none"> <li>Supfl. Group (medl. To latl): F.C.U;P.L;F.C; P.T</li> <li>Middle group: <ul style="list-style-type: none"> <li>F.D.S.</li> <li>Ulnar vs.</li> <li>Ulnar N.</li> </ul> </li> <li>Radial art flexor digitorum superficialis</li> <li>Deep group: <ul style="list-style-type: none"> <li>F.P.L;F.D.P;P.Q.</li> <li>Median N.</li> </ul> </li> <li>Flexor Retinaculum</li> <li>Structures passing deep to it</li> </ul>	<ul style="list-style-type: none"> <li>Sup. Br. of radial N</li> <li>Anterior. Interosseous Nerve.</li> </ul>	<ul style="list-style-type: none"> <li>Lat. Cut. N. of forearm</li> <li>Med. Cut. N. of forearm</li> <li>Anterior Interosseous artery.</li> </ul>	<ul style="list-style-type: none"> <li>Muscles of the fl. compartment of the forearm &amp; their grouping</li> <li>Median N.</li> <li>Ulnar Vessels.</li> <li>Actions of these muscles.</li> <li>Flexor retinaculum</li> </ul>	<ul style="list-style-type: none"> <li>Attachment</li> <li>Function</li> <li>Structures passing deep to it</li> </ul>
						<b>APPLIED ASPECTS</b>	
						<ul style="list-style-type: none"> <li>Carpal tunnel syndrome</li> <li>Effect of nerve injuries</li> </ul>	

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
10.	FRONT OF FOREARM (Continued) & PALM	<ul style="list-style-type: none"> <li>Proximal to the FI. Retinac trace the radial art. Lat. To the tendon of F.C.R.</li> <li>Identify the Ulnar Vs. &amp; N. between the FCU &amp; FDS &amp; trace them sup. To Flex. Retinac.</li> <li>Clean &amp; trace</li> </ul>	<ul style="list-style-type: none"> <li>Radial artery.</li> <li>Ulnar Vessels and Nerve.</li> <li>From latl. to med: EPL; Median Nerve;FDS; FD</li> <li>Palmar aponeurosis</li> <li>Thenar &amp;</li> </ul>		<ul style="list-style-type: none"> <li>Palmar cut. Br. of Ulnar</li> </ul>	<ul style="list-style-type: none"> <li>Thenar &amp; Hypothenar ms.</li> <li>Palmar arches: <ul style="list-style-type: none"> <li>Sup</li> <li>Deep</li> </ul> </li> <li>Median N.</li> <li>Ulnar N.</li> </ul>	<ul style="list-style-type: none"> <li>Actions of thenar &amp; Hypothenar ms.</li> <li>Actions of the long flexor ms.</li> <li>Actions of lumbricals</li> <li>Flexor synovial sheath</li> <li>Ulnar bursa</li> <li>Radial bursa</li> </ul>

		<p>the structures deep to the FI. Retinac.</p> <ul style="list-style-type: none"> <li>• Continue incision 5 over the palm</li> <li>• Reflect the skin flaps</li> <li>• Separate the palmar apo. From the thenar &amp; hypothenar ms.</li> <li>• Cut the apo. Proximally turn it distally &amp; identify:</li> <li>• Clean &amp; define the thenar &amp; hypothenar ms.</li> <li>• Cut the palmaris brevis</li> <li>• Trace the tendons of the FDS &amp; FDP upto their insertions &amp; identify</li> </ul>	<p>Hypothenar muscles.</p> <ul style="list-style-type: none"> <li>• Supfl. Palmar arch</li> <li>• Thenar muscles.(4):</li> <li>• AbPB</li> <li>• Hypothenar ms.(4): PB, ABDMB, FDDB &amp; OppDDB</li> <li>• Deep br. of Ulnar Nerve</li> <li>• Lumbricals in the tendons of FDP</li> <li>• Synovial sheaths</li> <li>• Deep palmar arch</li> </ul>	<ul style="list-style-type: none"> <li>• Sup. Br. of ulnar N</li> <li>• Flexor synovial sheath of long flexors</li> </ul>	<ul style="list-style-type: none"> <li>• N Dorsal br. of Ulnar N</li> </ul>	<ul style="list-style-type: none"> <li>• Distrib. Of:</li> <li>• Median N</li> <li>• Ulnar N</li> </ul>
<b>APPLIED ASPECTS</b>						
<ul style="list-style-type: none"> <li>• Claw hand</li> <li>• Ape thumb deformity</li> <li>• Mid palmar space</li> </ul>						

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
11.	BACK OF FOREARM (EXTENSOR COMPARTMENT)	<ul style="list-style-type: none"> <li>• Remove the skin &amp; fascia from the forearm, leaving the extensor retinaculum intact &amp; define its attachments</li> <li>• Separate extensor ms. from each other at the wrist</li> <li>• Separate BR, ECRL &amp; ECRB from extensor digitorum</li> <li>• Expose &amp; clean supinator (lying deep to the above ms.)</li> <li>• Expose the Postr. Interosseous N. emerging from supinator</li> </ul>	<ul style="list-style-type: none"> <li>• Brachioradialis</li> <li>• ECRL &amp; ECRB</li> <li>• ED</li> <li>• Postr. Interosseous Nerve.</li> </ul>	<ul style="list-style-type: none"> <li>• Superficial Branch of radial Nerve.</li> </ul>	<ul style="list-style-type: none"> <li>• Posterior interosseous art.</li> <li>• Branches. of posterior interosseous Nerve to the various muscles.</li> </ul>	<ul style="list-style-type: none"> <li>• Extensor retinaculum - its various compartments &amp; their contents</li> </ul>	<ul style="list-style-type: none"> <li>• Actions of the ms. of extensor compartment</li> <li>• Dorsal digital expansion</li> <li>• Cutaneous innervation of dorsum of hand</li> </ul>
<b>APPLIED ASPECTS</b>							
<ul style="list-style-type: none"> <li>• Wrist drop</li> </ul>							

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
12.	12. ELBOW JOINT	<ul style="list-style-type: none"> <li>• Separate all the muscles from the epicondyles &amp; reflect them distally</li> <li>• Divide the biceps, brachialis &amp; triceps about 3-4 cm proximal to</li> </ul>				<ul style="list-style-type: none"> <li>• Fibrous capsule</li> <li>• Radial collateral lig.</li> <li>• Ulnar collateral lig.</li> </ul>	<ul style="list-style-type: none"> <li>• Classification of the joint.</li> <li>• Movements Permitted &amp; muscles causing them</li> <li>• Carrying angle</li> <li>• Relations &amp; Nerve supply of Elbow Joint.</li> </ul>

		the elbow & turn them distally <ul style="list-style-type: none"> <li>Separate all surrounding muscles. From the fibrous capsule of Elbow Joint, retaining the brachial vessels. &amp; nerves</li> <li>Median</li> <li>Radial</li> <li>Ulnar</li> <li>Make a transverse incision through the anterior &amp; posterior part of the fibrous capsule examine the synovial membrane</li> </ul>	<ul style="list-style-type: none"> <li>Fibrous capsule</li> </ul>	<ul style="list-style-type: none"> <li>Radial collateral ligament.</li> <li>Ulnar collateral lig.</li> </ul>	<ul style="list-style-type: none"> <li>Anterior lig.</li> <li>Posterior lig.</li> </ul>	
<b>APPLIED ASPECTS</b>						
<ul style="list-style-type: none"> <li>Dislocation</li> <li>Tennis elbow</li> <li>Students elbow</li> <li>Golfer's elbow</li> </ul>						

S.No	TOPIC	DISSECTION STEPS	WHAT IS EXPECTED FROM THE STUDENTS			SUMMARY	
			LEVEL 1	LEVEL 2	LEVEL 3	IDENTIFY	UNDERSTAND
13.	WRIST JOINT	<ul style="list-style-type: none"> <li>Remove the remain of the thenar &amp; the hypothenar ms. from the bones</li> <li>Reflect all flexor &amp; extensor tendons distally</li> <li>Clean &amp; define the fibrous capsule</li> </ul>	<ul style="list-style-type: none"> <li>Fibrous capsule</li> </ul>	<ul style="list-style-type: none"> <li>Radial coll. Lig.</li> <li>Ulnar coll. Lig</li> </ul>	<ul style="list-style-type: none"> <li>Anterior lig.</li> <li>Posterior lig.</li> </ul>	<ul style="list-style-type: none"> <li>Fibrous capsule</li> <li>Radial &amp; ulnar collateral lig.</li> </ul>	<ul style="list-style-type: none"> <li>Classification of wrist joint</li> <li>Movts. Permitted &amp; the ms. causing them</li> <li>Relations &amp; nerve supply</li> </ul>
<b>APPLIED ASPECTS</b>							
<ul style="list-style-type: none"> <li>Wrist drop</li> <li>Colle's Fracture</li> <li>Smith's Fracture</li> </ul>							

## SECTION – II (Course Content under Level – I, II, III)

### TUTORIALS

#### OUTLINE OF TUTORIALS

S.No	TOPIC	MUST KNOW	SHOULD KNOW	COULD KNOW
1.	SCAPULA	1. Type of bone 2. Parts of bone felt subcutaneously 3. Side determination 4. Anatomical position 5. Vertebral levels 6. General attachment of muscles 8. Capsular attachment 10. Clinical: Winging of scapula	7. Ligament attachment 9. Ossification & Ossification centres	10. Clinical: Fracture of Scapula. 11. Pulsating scapula

2.	CLAVICLE	<ol style="list-style-type: none"> <li>1. Type of bone</li> <li>2. Parts of bone</li> <li>3. Side determination</li> <li>4. Features</li> <li>5. General attachment of muscles</li> <li>6. a. Ligament attachment - coracoclavicular</li> </ol> <ol style="list-style-type: none"> <li>9. Functions</li> <li>10. Ossification</li> <li>11. Clinical: Fracture of shaft Weight transmission</li> </ol>	<ol style="list-style-type: none"> <li>7. Peculiarities of clavicle</li> <li>8. Sex differences</li> </ol>	<p>6b. Capsules &amp; Ligaments except coracoclavicular</p>
3.	HUMERUS	<ol style="list-style-type: none"> <li>1. Type of bone</li> <li>2. Parts of bone</li> <li>3. Side determination</li> <li>4. Features</li> <li>5. Attachment of muscles</li> <li>6. Capsular attachment - shoulderjoint elbow joint</li> <li>7. Glenohumeral lig, coracohumeral &amp; transverse humeral lig.</li> </ol> <ol style="list-style-type: none"> <li>10. Clinical: -Ulnar nerve palpation - Dislocation of shoulder - Fracture of surgical neck</li> </ol>	<ol style="list-style-type: none"> <li>8. Ligaments</li> <li>9. Ossification</li> </ol> <ol style="list-style-type: none"> <li>1. Clinical: Supracondylar # Volkman's ischaemic contracture Saturday night paralysis Tennis elbow</li> </ol>	<ol style="list-style-type: none"> <li>2. Struther's ligament</li> </ol>
4.	RADIUS & ULNA	<ol style="list-style-type: none"> <li>1. Type of bone</li> <li>2. Parts of bone</li> <li>3. Side determination</li> <li>4. Features</li> <li>5. Muscles acting on elbow &amp; RU joint</li> <li>6. Capsule &amp; Ligament of elbow joint</li> <li>7. Radial &amp; Ulnar collateral ligament of wrist joint</li> </ol> <ol style="list-style-type: none"> <li>9. Clinical: # staff of radius &amp; ulna Colle's # Pulled elbow</li> </ol>	<ol style="list-style-type: none"> <li>8. Articular disc of Inf. RU joints.</li> <li>11. Clinical: Student's elbow</li> </ol>	<ol style="list-style-type: none"> <li>8. Smith Peterson's #</li> <li>9. # Midshaft ulna</li> </ol>
5.	ARTICULATED HAND	<ol style="list-style-type: none"> <li>1. Names of carpal bones : Proximal row Distal row</li> </ol> <ol style="list-style-type: none"> <li>3. Muscle attachment</li> <li>4. Flexor retinaculum</li> <li>5. Relation of FCR; FCU</li> </ol>	<ol style="list-style-type: none"> <li>2. Individual bone- Identification of carpal bones in an articulated skeleton or in a X-Ray film</li> </ol> <ol style="list-style-type: none"> <li>6. Relation of Ulnar nerve to hook of hamate</li> </ol>	<ol style="list-style-type: none"> <li>7. Clinical Anatomy: A vascular necrosis of scaphoid dislocation of lunate.</li> </ol>
6.	LIVING ANATOMY	<ol style="list-style-type: none"> <li>1. Movements of joints</li> <li>2. Anatomical snuff box</li> <li>4. Palpate ulnar nerve, radial artery, bony prominences, brachial artery</li> <li>5. Demonstration of actions of muscles</li> </ol>	<ol style="list-style-type: none"> <li>3. Relative position of styloid process of radius &amp; ulna</li> </ol>	
7.	RADIOLOGY	<ol style="list-style-type: none"> <li>1. Bones &amp; Joints identification</li> </ol>	<ol style="list-style-type: none"> <li>2. Ossification</li> </ol>	



8	SURFACE ANATOMY	<ol style="list-style-type: none"> <li>1. Palpaton of: Clavicle, Scapula: spine, inferior angle, coracoid process; Humerus: epicondyles; Ulna- Olecranon process, head, styloid process; radius-head, styloid process; Haeds of metacarpals; Pisiform; Hook of the hamate.</li> <li>2. Joints Shoulder girdle; Shoulder joint, Elbow joint; Radio-ulnar joints; Wrist joint; First carpo-metacarpal joint; Metcarpo-phalangeal and interphalangeal joints</li> <li>3. Muscles: Demonstrations of testing the actions of : Trapezius; Serratus anterior, Latissimus dorsi, Pectoralis major, Deltiod, Biceps brachii, Brachioradialis, Brachialis, Extensors at the elbow, Supinators, Flexors of the wrist, extensors at the wrist, Small muscles of the hand.</li> <li>4. Nerves: Dermatomes Ulnar nerve</li> </ol>	<p>Ulnar nerve thickening in leprosy</p> <p>Palpation of: Axillary artery Brachial artery Radial artery</p>	
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