

**DPU**

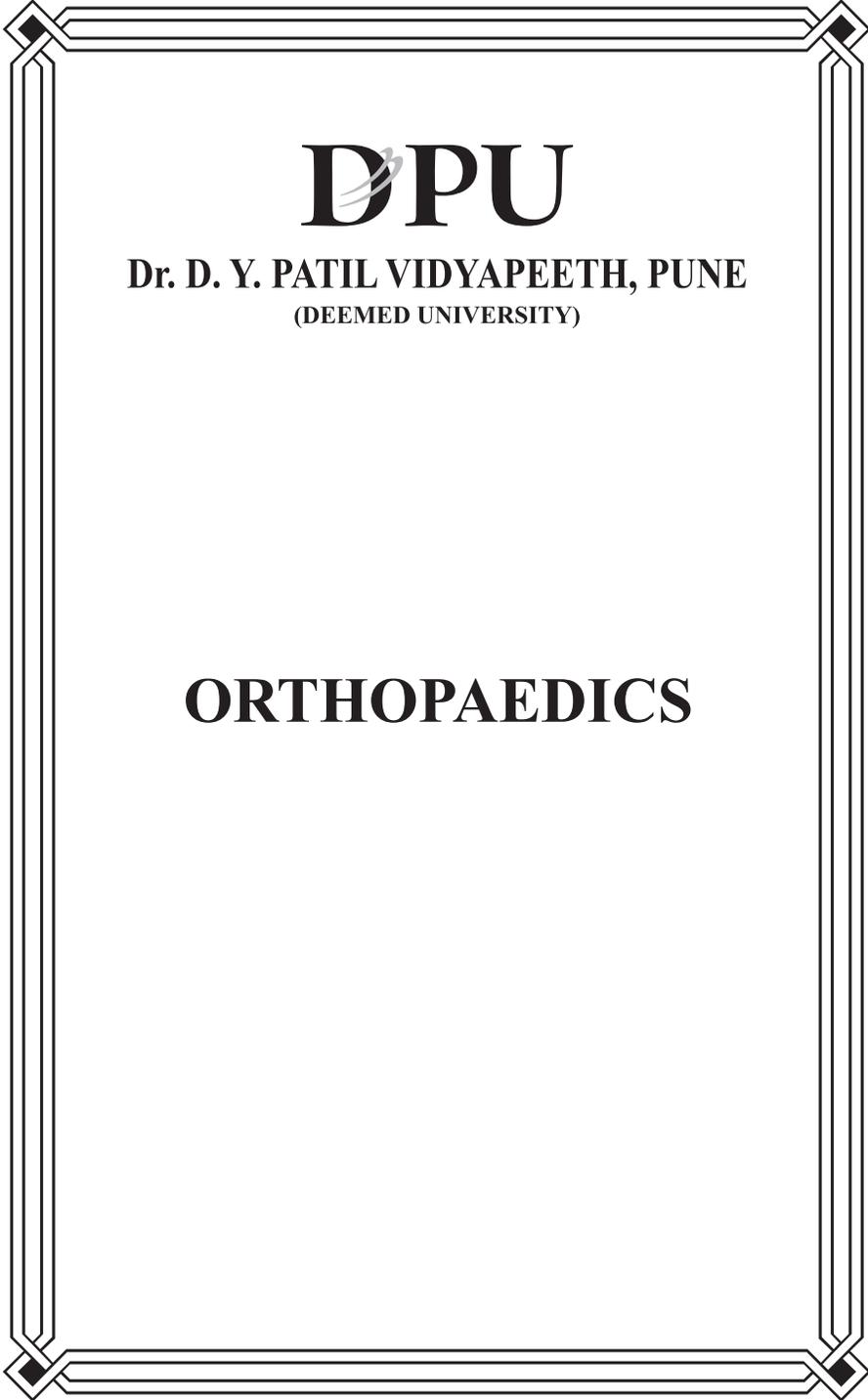
**Dr. D. Y. PATIL VIDYAPEETH, PUNE**  
(DEEMED UNIVERSITY)

**SYLLABUS**  
**for**  
**III - MBBS**  
**(Part - II)**

**2014-15**

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**DPU**

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**ORTHOPAEDICS**

**1. GOAL :**

The student shall be able to :

1. Take relevant points in the history, Clinical examination to diagnose fractures and deformities.
2. Deliver first aid measures for common fractures and sprains
3. Use techniques of splinting, plaster, immobilization
4. Diagnose congenital anomalies, skeletal deformity and metabolic bone diseases, infections of bone and joint, joint arthritis,

**2. SKILLS**

At the end of the course, the student should be able to:

1. Detect sprains and deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, Colles's, forearm, phalanges etc.
2. Techniques of splinting, plaster, immobilization etc.
3. Management of common bone infections, learn indications for sequestration, amputations and corrective measures for bone deformities.
4. Aspect of rehabilitation for Polio, Cerebral Palsy and Amputation.

**3. APPLICATION**

Be able to perform certain orthopedic skills, provide sound advise of skeletal and related conditions at primary or secondary health care level.

**4. INTEGRATION**

Integration with anatomy, surgery, pathology, radiology and Forensic Medicine be don

**5<sup>th</sup> Semester**

1. Students must be able to take relevant points in the history
2. Clinical examination to diagnose fractures and deformities.
3. Evaluations done by post term completion examinations

### **6th Semester**

1. Students must know the basic physiology of fracture healing, types of fractures and complication of fractures.
2. Basic principles of plaster techniques and complications.
3. Lectures on injuries of upper limb.

### **7<sup>th</sup> Semester**

1. Lectures on injuries of lower extremities.
2. Clinically, Student must be able to examine & diagnose common diseases of upper limb.

### **8<sup>th</sup> Semester**

1. Students are taught about injuries of the pelvis and spine
2. Common congenital anomalies
3. Common arthritic conditions, neoplastic & neurological conditions like poliomyelitis, cerebral palsy etc.
4. Theoretical knowledge regarding chronic & acute infection of bone & joints
5. During their clinical posting they are taught to examine various orthopedic conditions of spine.

### **9<sup>th</sup> Semester**

1. Tutorial & Lectures include revision of all orthopaedic conditions & diseases.
2. In Clinical posting, they are trained to examination various orthopaedic conditions involving bones & joints by taking history, clinical examination & relevant investigations
3. Evaluation done by post-term completion examination.

3. **Integration :**  
Lectures for 6, 7, 8, 9 semesters  
Revision lectures for 9 semester  
Tutorials for 9 semester  
Bed side for clinics for 5, 6, 7,8, 8 semester followed by term end exam.

4. **Learning Methods :**  
Lectures, Tutorials bedside clinics and lecture cum demonstrations.  
Distribution of Teaching hours
- Lectures – 50 hours
  - Tutorials and revision – 50 hours
  - Clinical postings in Orthopaedics

Total clinical Posting of 10 weeks of 180 hours

5<sup>th</sup> Semester - 4 weeks

6<sup>th</sup> Semester - 4 weeks

9<sup>th</sup> Semester - 2 weeks

**Course contents and suggested lecture program of Orthopaedics (Total 100 hours)**

This is suggested programme and can vary at institute

Total 100 hours of teaching has to be done in Orthopaedics including Tutorials

Details of syllabus in given separately below after distribution as per semester

- 6<sup>th</sup> Semester Lectures 1 to 16
- 7<sup>th</sup> Semester Lectures 17 to 32
- 8<sup>th</sup> Semester Lectures 33 to 48
- 9<sup>th</sup> Semester Revision Lectures 49 to 60
- 8<sup>th</sup> Semester Tutorial 61 to 81
- 9<sup>th</sup> semester Tutorial 82 to 100

## 5. Syllabus :

### Topic : General Orthopaedics

#### Lectures

1. Introduction and scope of Orthopaedics Traumatology and Orthopaedic Diseases. Idea about Scheme of Examination.
2. Definition and Classification of Fracture and Dislocation Signs, Symptoms and diagnosis of sprain, contusion fracture and dislocation.
3. First aid measures in Poly-trauma patient, spinal cord injury patient and knowledge about various splints.  
PDD

Principles of Management of sprain Fracture and Dislocation with emphasis on various aspects of closed reduction, immobilization including internal fixation and rehabilitation.

6, 7, 8 Complications of fracture and its management with specific reference to malunion Delayed union, Non union, Myositis Ossificans, Sudeck's dystrophy, Volkman's ischaemia, Avascular Necrosis, Fat embolism, secondary Osteoarthritis and injury to Muscles, Tendon, Nerve and Bpkd vessels

9. Plaster technique, plaster complications and plaster disease
10. Fracture Healing in cortical and cancellous bones and factors affecting fracture healing.

### Topic : Orthopaedic Traumatology

11. Fracture clavicle, scapula, neck humerus and shaft humours.
12. Supracondylar fracture humerus with complications
13. Fracture Forearm bones, Monteggia and Galeassi fracture dislocations, fracture olecranon head and neck radius.
14. Fractures scaphoid, Metacarpals and phalanges
15. Colles fracture and complications.

16. Dislocation (Acute and Recurrent) of shoulder and elbow
17. Fracture of Vertebrae with complications
18. Fracture of Pelvis with complications
19. Fracture shaft femur and fractures around knee
20. Fracture neck femur and trochanteric fracture.
21. Meniscus and ligaments injury at knee Fracture Tibia-fibula, fracture of tarsals, metatarsals and phalanges.
22. Fracture dislocation around ankle.
23. Dislocation of Hip, knee, ankle, tarsals and small bones in foot

**Topic : Orthopaedic Diseases**

- 25, 26 Congenital skeletal anomalies with emphasis on congenital Talipes Equino Varus(CTEV)
27. Congenital dislocation of hip (CDH), Osteogenesis Imperfecta spina Bifida and Torticollis
28. Osteochondritis - Various types  
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29. Post Polio Residual Palsy with stress on preventive and rehabilitation aspect.
30. Acute Osteomyelitis.
31. Chronic Osteomyelitis
32. Pyogenic arthritis of Hip, knee
- 33, 34 Osteo-articular Tuberculosis with special reference to tuberculosis with special reference to Tuberculosis of Hip, knee and elbow :
35. Tuberculosis spine and paraplegia
36. Fungal infections and leprosy in Orthopaedics
37. Cerebral palsy, Diagnosis and rehabilitation
38. Rheumatoid arthritis
39. Degenerative arthritis
40. Nerve injuries and principles of management
41. Amputation and Disarticulation - Indications methods and complications.
42. Metabolic bone disease : Rickets, Osteomalacia and Osteoporosis.
- 43, 44 Tumours of bones and its classification, Benign : osteochondroma, Giant cell tumour Unicameral Bone cyst, Aneurysmal cyst, Aneurysmal cyst.

- 45, 46 Malignant – Osteogenic sarcoma, Ewing’s tumour, Fibrosarcoma, Chondrosarcoma, Multiple Myeloma, Secondaries from Primary Carcinoma (Metastatic tumours)
47. Back ache
48. Frozen shoulder, Tennis Elbow, Dequervain’s disease, Dupuytren’s Contracture, Osgood – Schlatterd’s disease, planter fasciitis.

**Practical and Lecture cum Demonstration Classes, in MBBS in Orthopaedics**

Once a week class for two hours in 8<sup>th</sup> / 9<sup>th</sup> semester

Topics of Demonstrations

1. Paster technique and splint applications.
2. Traction, application, orthopaedic appliances demonstration, Demonstration of Physiotherapy equipments.
3. Specimens of sequestrum and Tumours, Madura foot etc.
4. Common instruments and Implants  
5 to 7 Common X-Ray of traumatology, bony infection, joint infection and tuberculosis, Malunited Colle’s fracture, forearm or Supracondylar humerus fracture.

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8 to 10 Chronic osteomyelitis case, knee effusion case, Non-union case, bony tumour case

**Seminar Topics :**

11. Osteomyelitis
12. Tuberculosis
13. Bone tumours
14. First aid and Acute Trauma Life Saving (ATLS) measures.

**Tutorials Topics**

1. Supracondylar fracture Humerus
2. Colle’s fracture
3. Fracture neck femur
4. Spine examination, Pott’s spine and paraplegia
5. CTEV
6. Shoulder, Elbow and wrist examination

7. Hip examination
8. Knee, ankle foot examination
9. Nerve examination and nerve injuries

**6. Lectures, Tutorials (Total Number, Topics) In Each Semester :-**

**6<sup>th</sup> Semester Lectures**

<b>Topic</b>	<b>Lesson Plan</b>
1) Basic of fractures Polytrauma	<ol style="list-style-type: none"> <li>a) Introduction</li> <li>b) Local examination</li> <li>c) Classification</li> <li>d) Diagnosis</li> </ol>
2) Principles of fracture management .  Stages of fracture healing	<ol style="list-style-type: none"> <li>a) Conservative</li> <li>b) Operative</li> </ol> <ol style="list-style-type: none"> <li>a) Cortical bonehealing</li> <li>b) Cancellous bone healing</li> </ol>
3) Complications of fractures	<ol style="list-style-type: none"> <li>a) Immediate</li> <li>b) Early</li> <li>c) late</li> </ol>
4) Injuries to nerves,tendons muscles ligaments	Injuries to nerves , tendons ,muscles ligaments
5) Plaster technique, plaster complications and plaster diseases	Plaster technique ,plaster complications and plaster disease
6) Fractures of carpels, metacarpels, phalanges	<ol style="list-style-type: none"> <li>a) classification</li> <li>b) treatment</li> </ol>
7) Fracture of both bones forearm Monteggia & galleazzi fracture Diseases	<ol style="list-style-type: none"> <li>a) signs symptoms</li> <li>b) treatment</li> </ol>

<b>Topic</b>	<b>Lesson Plan</b>
8) Injuries around the elbow	<ul style="list-style-type: none"> <li>a) Dislocations elbow</li> <li>b) Fracture olecranon               <ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Treatment</li> </ul> </li> <li>c) Fracture radial head               <ul style="list-style-type: none"> <li>d) Classification</li> <li>e) Signs and symptoms</li> <li>f) Treatment</li> </ul> </li> </ul>
9) Fractures of the distal humerus	<ul style="list-style-type: none"> <li>a) Supra condylar fractures of the humerus               <ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Closed treatment</li> <li>d) Operative treatment</li> <li>e) Complications</li> </ul> </li> <li>b) Condylar fractures</li> </ul>
10) Fractures of clavical and Acromioclavicular joint	<ul style="list-style-type: none"> <li>a) Closed treatment</li> <li>b) Pperative treatment</li> </ul>
11) Fractures of proximal humerus and shaft	<ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Treatment</li> </ul>
12) Dislocation Shoulder	<ul style="list-style-type: none"> <li>d) Classification</li> <li>e) Signs and symptoms</li> <li>f) Treatment</li> </ul>

<b>Topic</b>	<b>Lesson Plan</b>
13) Fractures of the foot	<ul style="list-style-type: none"> <li>• Fracture talus and calcaneum</li> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Treatment <ul style="list-style-type: none"> <li>• Metatarsal and phalanx fractures</li> </ul> </li> </ul>
14) Ankle Fractures	<ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Radiological features</li> <li>d) treatment</li> </ul>
15) Fractures of the tibial shaft and fibula	<ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and symptoms</li> <li>c) treatment</li> </ul>
Fractures of the proximal tibia	<ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and symptoms</li> <li>c) treatment</li> </ul>
16) Fractures of patella	<ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and symptoms</li> <li>c) treatment</li> </ul>

### 7<sup>th</sup> Semester Lectures

<b>Topic</b>
17) Fracture olecranon
<ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Treatment</li> </ul>
18) Fracture radial head
<ul style="list-style-type: none"> <li>a) classification</li> </ul>

<b>Topic</b>
<ul style="list-style-type: none"> <li>b) Signs and symptoms</li> <li>c) treatment</li> </ul>
19) Dislocations elbow
20) Supracondylar fractures of the humerus <ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Closed treatment</li> <li>d) Operative treatment</li> </ul>
21) Fractures of the clavicle <ul style="list-style-type: none"> <li>a) Closed treatment</li> <li>b) Operative treatment</li> </ul>
22) Fractures proximal humerus and shaft <ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Sign and symptoms</li> <li>c) treatment</li> </ul>
23) Dislocation shoulder <ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and symptoms</li> <li>c) treatment</li> </ul>
24) Injuries of the acromioclavicular joint
25) Fractures talus and calcaneum <ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and symptoms</li> <li>c) treatment</li> </ul>
26) Metatarsal and phalanx fractures
27) Ankle fractures <ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and symptoms</li> <li>c) radiological features</li> <li>d) treatment</li> </ul>
28) Fractures of the tibial shaft and fibula <ul style="list-style-type: none"> <li>a) classification</li> <li>b) signs and treatment</li> <li>c) treatment</li> </ul>
29) Fractures of patella <ul style="list-style-type: none"> <li>a) classification</li> </ul>

<b>Topic</b>
b) signs and symptoms c) treatment
30) Fractures of the proximal tibia a) classification b) signs and symptoms c) treatment
31) Supracondylar fractures of femur a) classification b) signs and treatment c) treatment
32) Fractures of the femoral shaft a) classification b) signs and symptoms c) treatment

### 8<sup>th</sup> Semester Lectures

<b>Topic</b>	<b>Lesson Plan</b>
33) Supracondylar Fractures of the Femur.	1) Classification 2) Signs and symptoms 3) Treatment
Fractures of the femoral shaft.	a) Classification b) Signs and symptoms c) Treatment
34) Inter Trochanteric fracture.	a) Classification b) Signs and symptoms c) Radiological features d) Treatment
Sub Trochanteric Fracture .	a) Classification b) Signs and symptoms c) Radiological features d) Treatment
Fracture Neck Femur.	a) Classification b) Signs and symptoms

	<ul style="list-style-type: none"> <li>c) Radiological features</li> <li>d) Treatment</li> </ul>
35) Dislocation of hip joint	<ul style="list-style-type: none"> <li>a) Classification</li> <li>b) Signs and symptoms</li> <li>c) Radiological features</li> <li>d) Treatment</li> </ul>
36) Acetabular fracture fracture Pelvis	<ul style="list-style-type: none"> <li>Acetabular fracture</li> <li>Fracture Pelvis</li> </ul>
37) Injuries to the spine Fracture s Pelvis	<ul style="list-style-type: none"> <li>Injuries to Spine</li> <li>Fractures and complications</li> </ul>
38) Introduction of peripheral nerve injury Brachial Plexus injury	<ul style="list-style-type: none"> <li>Introduction of peripheral Nerve injury</li> <li>Brachial Plexus Injury</li> </ul>
39) Peripheral nerve injury cont...	<ul style="list-style-type: none"> <li>a) Ulnar nerve</li> <li>b) Median nerve</li> <li>c) Radial nerve</li> <li>d) Lateral popliteal nerve</li> <li>e) Sciatic nerve</li> </ul>
40) Amputation.	<ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Types and level</li> <li>c) Complications</li> <li>d) Rehabilitation</li> </ul>
41) Osteomyelitis	<ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Types</li> <li>c) Clinical and radiological features</li> <li>d) treatment</li> </ul>
42) Septic arthritis	<ul style="list-style-type: none"> <li>a) Clinical Features</li> <li>b) Investigations</li> <li>c) Treatment</li> </ul>
43) Tuberculosis of joint	<ul style="list-style-type: none"> <li>a) Hip joint</li> <li>b) Knee joint</li> <li>c) Shoulder joint</li> <li>d) Treatment</li> </ul>
44) Tuberculosis of spine	<ul style="list-style-type: none"> <li>a) Clinical Features</li> <li>b) Investigations</li> </ul>

	c) Treatment
45) Regional examination of foot and ankle	a) History b) General examination c) Inspection d) Palpation
46) Regional examination of knee	a) History b) General examination c) Inspection d) Palpation
47) Regional examination of hip	a) History b) General examination c) Inspection d) Palpation
48) Revision	Revision

### 9<sup>th</sup> Semester Revision Lectures

Topic	Lesson Plan
49) Fractures around wrist & hand	1) Fracture of Phalanx & metacarpal 2) Bennett's Fracture Dislocation, Rolando Fracture, Kaplan dislocation, Fracture Scaphoid, dislocation of lunate 3) Colles Fracture, Smith fracture, Barton Fracture dislocation
50) Complication of fracture dislocation end radius	1) Carpal tunnel Syndrome, 2) Sudeck's osteodystrophy
51) Fractures of fracture dislocation end radius	3) Galeazzi Fracture Dislocation 4) Monteggia fracture Dislocation 5) Supracondylar fracture Humerus 6) Lateral condylar fracture 7) Olecranon Fracture 8) Radial head Fracture 9) Dislocation of elbow
52) Complication of Supracondylar fracture of humerus	1) Cubitus varus 2) Myositis ossification 3) Volkmann's ischaemic contracture 4) Acromioclavicular joint dislocation

<b>Topic</b>	<b>Lesson Plan</b>
53) Fractures around shoulder joint	1) Proximal humerus 2) Dislocation Of Shoulder 3) Fracture Of clavicle 4) Acromio clavicular joint dislocation
54) Fractures around Hip	1) Dislocation of Hip 2) Fracture Neck Femur
55) Fracture Of Spine	1) Fracture of Cervical Spine 2) Fracture of Dorsolumbar spine
56) Case presentation	Tumors of Bones
57) Fractures of femur around knee	1) Fracture femur 2) Fracture of surfaces around knee
58) Fractures of Tibia	Fractures of Tibia
59) Fractures around ankle & foot	1) Bimalleolar fracture, ankle dislocation 2) Fracture & Dislocation of foot
60) Revision	Revision

### **8<sup>th</sup> Semester Tutorial**

<b>Topic</b>
61) First aid and acute trauma Life saving (ATLS) measures (Seminar)
62) Case taking general
63) Tuberculosis (Seminar)
64) Tuberculosis (Seminar)
65) X-ray & disease of Lower limb
66) Bone tumours (Seminar)
67) Examination – implants
68) Case taking general
69) Case taking diseases
70) X-rays & disease of Lower limb
71) X-ray of tumors
72) University examination pattern
73) Osteomyelitis (Seminar)
74) X-rays & disease of upper limb
75) X-rays & Disease of spine and pelvis

76) Examination – specimen
77) Examination – orthosis
78) Case taking trauma
79) X-ray & disease of upper limb
80) X-ray & disease of spine and pelvis
81) Examination - specimen

### 9<sup>th</sup> Semester Tutorial

Topic	Lesson Plan
82) Introduction	Introduction
83) University examination pattern	University Examination Pattern
84) Case taking general	Case taking general
85) Case taking trauma	Case taking Trauma
86) Case taking diseases	Case taking disease
87) X-rays & disease of Lower limb	X-rays & disease of Upper Limb
88) X-rays & disease of Lower limb	X-rays & disease of Lower Limb
89) X-rays & disease of spine and pelvis	X-rays & disease of spine and pelvis
90) X-rays of tumors	X-rays of tumors
91) Examination specimen	Examination-specimen
92) Examination - implants	Examination-implants
93) Reconstructive surgeries in polio & CP	Reconstructive surgeries in polio & CP
94) Orthotics-Lower limb	Orthotics-Lower limb
95) Orthotics-Upper limb	Orthotics-Upper limb
96) Role of MRI in Orthopaedics	Role of MRI in Orthopaedics
97) Role of C.T. in Orthopaedics	Role of C.T. in Orthopaedics
98) Back pain & its M/M	Back pain & its M/M
99) Vascular disorders (AVN, Perthe's disease)	Vascular disorders (AVN, Perthe's disease)
100) Splints commonly used in Orthopaedics	Splints commonly used in Orthopaedics

## **7. Evaluation methods**

- 7.1 Internal assessment : Total **100 Marks** (Theory **50 Marks** + Practical **50 Marks**)
- 7.2 Internal Assessment in Theory **50 Marks**
- 7.3 Internal Assessment in Practical **50 Marks**

## **8. Pattern of final Examination (Surgery Paper –I Section - C)**

Long Question     1 x 8 = 8 Marks

Short notes         4 x 3 = Marks

## **9. Books Recommended**

### 9.1 Text books;

- Maheshwari
- Ebnesar
- Surgery Das

### 9.2 Reference Books;

- Campbell operative orthopaedics
- Rock wood & green Trauma
- Tureks Orthopaedics
- Macray Clinical examination.