

# ગુજરાત યુનિવર્સિટી

નં.એકેડેમિક/ ૨૭ /૨૦૧૧

તા.૦૬/૦૪/૨૦૧૧

## પરિપત્ર : ૯

આથી માન.કુલપતિશ્રીના આદેશાનુસાર જણાવવાનુ કે, મેડિકલ કાઉન્સિલ ઓફ ઇન્ડિયા દ્વારા તૈયાર થયેલ મેડિકલ સુપરસ્પેશ્યાલીટીઝ/ડીગ્રી/ડીપ્લોમા કોર્ષના અભ્યાસક્રમ-માર્ગદર્શિકા આ સાથે સામેલ છે. જેનો અમલ વર્ષ ૨૦૧૦-૧૧થી કરવાનો રહેશે, જેની નોંધ લેવા વિનતી.

  
કા.કુલસચિવ

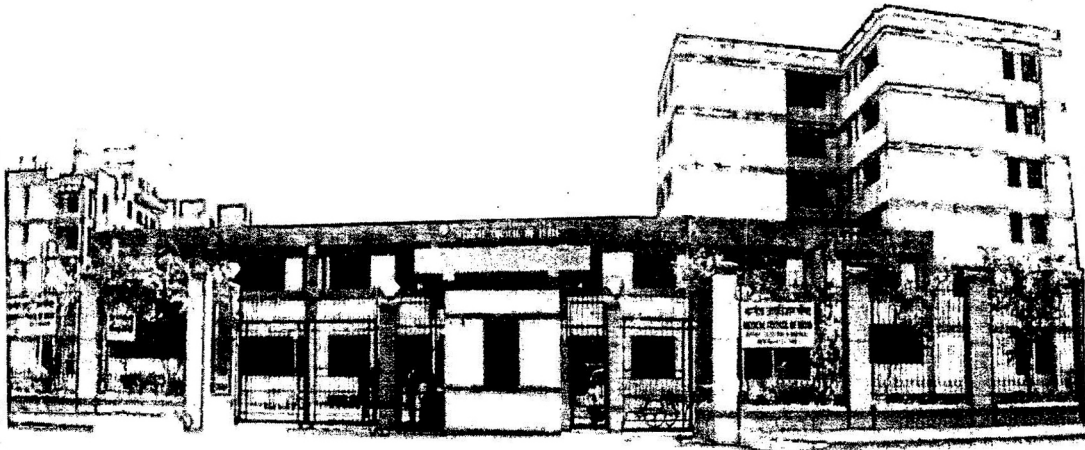
પ્રતિ,

૧. ડીનશ્રી, બી.જે.મેડિકલ કોલેજ, સિવિલ હોસ્પિટલ કેમ્પસ, અસારવા, અમદાવાદ-૧૬
૨. આચાર્યશ્રી, એન.એચ.એલ.મ્યુનિ.મેડિકલ કોલેજ, એલીસબ્રીજ, અમદાવાદ-૬
૩. ડીનશ્રી, ડૉ.કિર્તીભાઈ પટેલ, કેન્સર હોસ્પિટલ, સિવિલ કેમ્પસ, અસારવા. અમદાવાદ-૧૬
૪. પરીક્ષા નિયામકશ્રી. પરીક્ષા વિભાગ, (રાજુભાઈ દરજી) ગુજરાત યુનિવર્સિટી, અમદાવાદ-૮.
૫. ગ્રંથપાલશ્રી, યુનિ.ગ્રંથાલય, ગુજ.યુનિ..અમદાવાદ-૮

Annexure - IV

# MEDICAL COUNCIL OF INDIA

*Syllabus of Postgraduate Degree /  
Diploma Training Programmes*



## MEDICAL COUNCIL OF INDIA

Pocket-14, Sector-8, Dwarka,  
New Delhi-110045

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# **GUIDELINES FOR COMPETENCY BASED POST GRADUATE TRAINING PROGRAMME FOR MS IN ORTHOPAEDICS**

## **Preamble**

The purpose of this programme is to standardize Orthopedics teaching at Post Graduate level through out the country so that it will benefit in achieving uniformity in undergraduate teaching as well and resultantly creating, competent orthopedic surgeons with appropriate expertise.

## **Programme Objectives**

A candidate upon successfully qualifying in the M.S. (Orthopaedics) examinations should be -

1. Identify the diseases and injuries of musculo-skeletal system and obtain proper history and perform thorough clinical examination.
2. Plan and interpret investigations and institute the management in diseases and injuries of musculo-skeletal system.
3. Acquire scientific temper for teaching and research in the discipline/subject.
4. Acquire skills to manage orthopaedic services.
5. Organise rehabilitative services to the Physically handicapped persons

## **Specific Learning Objectives**

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

1. the mode of injury, clinical presentation, plan & interpret investigations and institute the management of musculoskeletal injured patient.
2. and identify the bones, joints, ligaments, muscles and nerves of
  - a. upper limb
  - b. lower limb
3. the course and distribution of major arteries, veins and nerves of
  - a. upper limb

- b. lower limb
- 4. the non operative and operative management and complications of fractures of limb bone.
  - a. in adults
  - b. in children
- 5. the mechanism of metabolic response to trauma and infections.
- 6. the process of fracture healing in
  - a. closed fractures
  - b. open fractures
  - c. delayed union
  - d. non-union
  - e. bone transplantation
  - f. infections
- 7. the structure and function of diaphragm, abdominal wall, thorax, pelvis and their contents in relation to trauma and diseases.
- 8. the mode of injury & clinical presentation, plan and interpret investigations and institute management of
  - a. fracture of pelvis
  - b. fracture of ribs
- 9. the mechanism of homeostasis, fibrinolysis and methods to control hemorrhage
- 10. the structure and function of the vertebral column, the muscles, ligaments, vertebrae, Intervertebral Disc, Spinal Cord, meninges, related blood supply.
  - in normal person
  - in disorders and deformities of spine
- 11. the mode of injury, clinical presentation, plan & interpret investigation, prognostic factors institute management of :
  - fracture of vertebral column
  - spinal cord injured patients
- 12. the morphogenesis of axial and appendicular skeleton
- 13. the normal structure, function and growth changes in the following.
  - Bone
  - Cartilage
  - Skeletal muscles
  - Joints
  - Nerves
- 14. the response of bone and cartilage to

15. the clinical presentation, plan and interpret investigations, institute management and prevention of the following:
  - Nutritional deficiency diseases affecting the bones
  - Deposition arthropathies
  - Endocrine abnormalities affecting bones
  - Crystal arthropathies
  - Skeletal dysplasias
  - Spinal dysraphism
  - Congenital Anomalies of spine & limbs
  - Developmental skeletal disorders
16. the causative factors, clinical presentation, plan and interpret investigations, prevention and institute the management of
  - acquired limb deformities
  - Limb length inequalities
17. the pathogenesis, clinical features, plan and interpret investigations and institute the management in adults & children in tubercular, pyogenic and mycotic infections of bones and joints.
  - Rheumatoid arthropathy
  - Ankylosing spondylitis
  - Osteo-arthritis and spondylosis
  - Sero-negative arthropathies
18. the pathogenesis, clinical presentation, plan and interpret investigations and Institute appropriate interventions in the following :
  - Residual poliomyelitis
  - Cerebral palsy
  - Muscular dystrophies
  - Nerve injuries (acute and entrapment neuropathies)
19. the etiology & pathogenesis, clinical presentation, plan and interpret the investigations and institute management of the musculo skeletal manifestations of:
  - Bleeding disorders
  - Haemoglobinopathies
  - Osteonecrosis of bones
20. the musculo skeletal manifestations of AIDS and plan the management
21. the etiology & pathogenesis plan and interpret investigation and institute the management of osteonecrosis of bones.

22. identify situations requiring rehabilitation services and prescribe suitable orthotic, prosthetic appliances and act as a member of team providing rehabilitative care
23. identify a problem, prepare a research protocol, conduct a study, record observations, analyse data, interpret the results discuss and disseminate the findings.
24. identify emergency situations like disaster and plan disaster management at district/Zonal/tertiary care hospital and identify learning objectives in different situations for the medical team and facilitate teaching learning activities.

### **Surgical Skills and Procedures**

Students should be able to:

1. manage wound and skin graft
2. manage shock and resuscitation.
3. resuscitate injured patients
4. expose & repair the femoral, popliteal and brachial artery.
5. perform incision and drainage abscesses
6. perform biopsy-closed & open
7. perform aspiration and infiltration of all joints
8. apply all types of casts, splints & traction's
9. perform closed reduction of fractures
10. recognize compartment syndrome and perform surgical decompression
11. perform open reduction/internal fixation of unreduced dislocations
12. perform internal fixation of common fractures of long bones of limbs
13. perform debridement
14. apply external fixators
15. perform arthrotomy/synovectomy of all joints
16. perform surgical decompression in case of acute osteomyelitis
17. perform sequestrectomy and saucerisation
18. perform release operation in common entrapment syndromes and other orthopedic problems
19. perform tendon transfer and repair open hand injuries
20. perform nerve repair
21. perform local steroid infiltrations in the soft tissues & joints.
22. perform arthrodesis of joints.
23. perform meniscectomy

24. correct common deformities of limbs by conservative/surgical procedures
25. perform amputations and disarticulations.
26. perform skin grafting and flaps
27. perform excision of benign tumor, cysts and cyst like conditions of bones and soft tissues.
28. perform limb salvage surgery in malignant bone tumours
29. perform all types of bone grafting
30. perform excisional arthroplasty and hemiarthroplasty

## **Post Graduate Training**

The residents are required to work full time in the department of Orthopaedic Surgery. They will fully participate in the day to day care of the patients in the wards, outpatient clinics and operation theatres. They will also participate in the academic and research activities of the department.

During first year the residents shall be posted mainly in orthopaedic wards and in emergency. Under the supervision of his superior colleagues, he shall be responsible for the care of the patients in the ward. During the first year of his residency, he shall also start with his thesis work after submission of the plan. He shall also be rotated in different surgical specialities as follows:

The Student should be rotated for two weeks in each speciality namely Intensive Care Unit, Plastic Surgery, Vascular Surgery, General Surgery, to obtain the core experience during 1<sup>st</sup> year.

The student should be able to describe and perform the following at the end of the Core experience (1<sup>st</sup> Year)

- **ICU**
  - (i) Identify and rectify electrolyte disturbance and acid base imbalance
  - (ii) Cardiopulmonary resuscitation and endotracheal intubation (oral)
  - (iii) AC. & Ch. Respiratory insufficiency interpretation of blood Gas analysis and its use in patient management.
- **General Surgery**
  - (i) Triage and establishment of treatment priorities in polytrauma patient

- (ii) tracheostomy
- (iii) Identification of Chest wall/lung injuries and chest tube insertion
- (iv) Peripheral Venous cutdown
- (v) Subclavian and internal jugular puncture
- (vi) CVP catheter monitoring
- (vii) 4 quadrant abdominal tap for haemoperitoneum
- (viii) describe the potential complications of major intra-abdominal injuries and indication for emergency laparotomy
- (ix) assessment and management of head injuries and differential diagnosis of altered level of consciousness

- **Plastic Surgery**

- (i) Split skin grafting
- (ii) Local skin rotation flaps
- (iii) Muscle pedicle and myocutaneous flaps
- (iv) Management of supernumerary digits and syndactyly

- **Vascular Surgery**

- (i) Identification of peripheral vascular injury in limb injuries and know the indications for arterial reconstruction
- (ii) Management of deep vein thrombosis and pulmonary embolism

**Teaching Methods**

- Didactic lectures
- Bed side clinics
- OPD clinics
- Journal review
- Symposia and seminar
- CME programme, Local, State-National level – **at least 1 CME / workshop during the course**
- Workshop
- Standard textbooks
- Journals, periodicals
- Thesis for M.S. Course



- Clinical ward work
- Out Patient Deptt.
- Operation theatre
- Rehabilitation
  - Orthosis
  - Prosthetics

A log book is to be maintained.

## Post Graduate Examination

The Post Graduate examination shall be in three parts :-

1. **Thesis, to be submitted by each candidate at least 6 months before the date of commencement of the theory examination.**
2. **Theory : There shall be four theory papers.**

There shall be four theory papers:

- |           |   |  |
|-----------|---|--|
| Paper I   | - | Basic Sciences related to speciality   |
| Paper II  | - | Traumatology and Rehabilitation        |
| Paper III | - | Orthopaedic diseases                   |
| Paper IV  | - | Recent advances in orthopaedic surgery |

### 3. **Practicals**

The practical examination should consist of the following and Should be spread over two days.

1. One long case: History taking, physical examination interpretation of clinical findings, differential diagnosis, investigation, prognosis and management.
2. 3 short cases from various sections of the speciality.

### 3. **Viva-voce Examination**

- Surgical Anatomy including Osteology
- Radiology
- Surgical Pathology

- Instruments and operative surgery
- Rehabilitation aids.

## **COURSE CONTENT**

- Metabolic Bone Diseases
- Bone Infection – pyogenic, tubercular and mycotic
  - Arthritis
  - Tubercular
  - Non-tubercular
  - Congenital Deformities
  - Developmental conditions.
  - Diseases of Joints and Surgical treatments
  - Orthopaedic Neurology
  - Poliomyelitis, Cerebral palsy
  - Nerve injuries (Traumatic and non-traumatic)
  - Spina bifida and related disorders
  - Tumours of Bone-including secondary tumours of bone
  - Diseases of Muscles
  - Fibrous Diseases
  - Unclassified Diseases of Bone
  - Paget's Diseases
  - Tumours of Haemopoietic Tissue
  - Histocytic Lymphoma
  - Tumours Invading Bone from overlying structures.
  - Peripheral vascular diseases  
Bleeding disorders and orthopaedic manifestation, hemoglobinopathies and its orthopaedic manifestations.
  - Regional Orthopaedic Condition of Adults and children
  - Spine
  - Cervicobrachial Region
  - The shoulder
  - The Elbow
  - The Hand
  - The Wrist
  - The Hip

- The Knee
- The Foot and the ankle
- The Pelvis
- Skin grafting & flaps
- Trauma:
- Limb Length inequality & its management
- Microsurgical techniques in orthopaedics
- Spinal cord injuries
- Orthotics and prosthetics
- AIDS related orthopaedic conditions
- Theatre techniques and sterilization
- Disaster relief
- Advance trauma life support
- Fractures:
- Definitions, types, grades, patterns, complications.
- Pathology of Fracture and fracture healing
- Clinical & radiological features of fractures & dislocations.
- General principles of fracture treatment
- Fractures of lower extremity
- Fractures of hip & pelvis
- Fractures of upper extremity & shoulder girdle
- Fracture & dislocation in children
- Malunited fractures
- Delayed union & non union of fractures
- Fractures, dislocations & fracture dislocations of spine
- Dislocation & Subluxation:
- Acute dislocations
- Old unreduced dislocations
- Recurrent dislocations.
- Traumatic Disorders of joints:
- Ankle injuries
- Knee injuries
- Shoulder & elbow injuries
- Wrist and hand injuries
- Arthrodesis:
- Arthrodesis of lower extremity & hip
- Arthrodesis of upper extremity

- Arthrodesis of Spine
- Bone grafts & Bone substitute (Bone banking)
- Arthroplasty:
- Biomechanics of joints and joint replacement
- Hip
- Knee
- Ankle
- Shoulder
- Elbow
- Arthroscopy:
- General principles of Arthroscopy
- Arthroscopy of knee & ankle
- Arthroscopy of shoulder and elbow
- Amputations and disarticulation:

### **Journals**

1. Journal of bone and joint surgery (American & British)
2. Clinical orthopaedics and related research.
3. International orthopaedics.
4. Acta orthopaedica scandinavica
5. Orthopaedic clinics of North America.
6. Indian Journal of Orthopaedics.
7. Orthopaedics
8. Journal of Orthopaedic Trauma.
9. Archives of rehabilitation.

# **GUIDELINES FOR COMPETENCY BASED POST GRADUATE TRAINING PROGRAMME FOR DIPLOMA IN ORTHOPAEDICS**

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