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Syllabus of Diploma in Orthopedic Technology First Year

S. No	Subject	Distribution of Marks			
		Th	PR	Viva-voce	Total
Paper I	Human Anatomy and Physiology	100			100
Paper II	Pathology of Muscle & Bones	100			100
Paper III	Orthopedics and traumatology	100			100
Paper IV	Physics of Orthopedic Instrument & its Maintenance	100			100
Paper V	Practical & Viva Voce		75	25	100
	Total				500

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S.No.	Subject	Distribution of Marks			
		Th	PR	Viva-voce	Total
Paper I	Orthopedic Procedure and Implant Technology	100	-	-	100
Paper II	Operation Room Technique and its management.	100	-	-	100
Paper III	Patient Care	100	-	-	100
Paper IV	Biomechanics and Physiotherapy	100	-	-	100
Paper V	Practical & Viva-Voce		75	25	100
	Total				500


डॉ. आर. सी. भीणा
 मरिचक आचार्य एवं विभागाध्यक्ष
 अस्थि विभाग (यूनिट-1)
 सवाई मानसिंह चिकित्सालय, जयपुर

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Sr. No.	Subjects
1	Human Anatomy and Physiology
2	Pathology of Muscles and Bones
3	Orthopedics and Traumatology
4	Physics of Orthopedic Instrument and its Maintenance.
5	Practical & Viva-Voce

Human Anatomy and Physiology

1. Introduction to the body as a whole
2. The cells, tissues of the body
3. The cell : Structure, Multiplication
4. Tissue : Types, structure, characteristics, functions
5. Epithelium : Simple, Compound
6. Connective : Areolar, adipose, fibrous, elastic, cartilage, blood and bone
7. Muscle : Striated (Voluntary), Smooth (Involuntary, Cardiac)
8. Nervous tissue
9. Fibrous tissue
10. Cell regeneration
11. Membranes : Musous, Serous, Synovial
12. Osteology (including whole skeleton, bones, joints)
13. Development of bones (Ostogenesis) : Cells inv.
14. Types and functions of bone, types of joints and various movements.
15. AXIAL Skeleton
 - a. Skull : Cranium, face, air sinuses.
 - b. Vertebral column : regions, movements and characteristics.
 - c. Sternum
 - d. Ribs
16. Appendicular skeleton : Bones involving – shoulder girdle and upper limb, pelvic girdle and lower limb, healing of bones : cellular activity, factors that delay healing, disease of bones and joints.
17. Musculoskeletal system
18. Anatomy of joints and its function.
19. The respiratory system :
 - a. Organs : Position and structure
 - b. Nose and nasal cavities.
 - c. Functions : Respiratory, Olfactory
 - d. Pharynx
 - e. Larynx : Functions – Respiratory, Vocal
 - f. Trachea, Bronchi, Lungs : Lobes, Lobules, Pleura.
20. Respiratory functions : External and internal respiration, common terms relating to disease and conditions of the system.

कीर्ति
जॉ. आर. सी. भीणा
वरिष्ठ अध्यापक एवं विभागाध्यक्ष
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Pathology of Muscle and Bones Joint conditions

1. Backache and Neckache
2. Orthopaedic conditions in childhood
3. Minor and adult disorders of Joint and bones, metabolic condition, infection.....
4. Common features.

Orthopaedics and Traumatology

1. Fractures and dislocation
2. Definition
3. Fractures healing,
4. Types of fractures
5. General principles of treatment- Conservative and Operative
6. Common fractures of upper and lower extremities, skull, spine,
7. Radiology – Basic interpretation skills.

Physics of Orthopaedic Instrument and its Maintenance

1. General principles of Operative procedures and orthopedic appliances.
2. Surgical diathermy
3. Suction machine
4. OT Table
5. Various lightening system,
6. Fumigation
7. Orthopedic instruments
8. OT Tables and attachments,
9. Autoclave instrument
10. Handling and care
11. C-Arm image intensifier (Conventional & Digital)

अभिनेता

डॉ. आर. सी. भीगा
वरिष्ठ अर्थोपेडिक एवं त्रिभागाध्यक्ष
अस्थि विभाग (यूनिट-1)
सवाई मानसिंह चिकित्सालय, जयपुर

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Orthopedic Procedure and Implant Technology

1. History of plaster of paris
2. Properties of plaster of paris
3. Preparation of plaster of paris bandages,
4. Different types of slabs and casts.
5. Correct method of applying slabs and casts
6. Special plaster – FCB, PTB etc.
7. Plaster removal
8. Plaster cutter and associated instruments
9. Casting and splinting
10. Braces and traction
11. Types of plaster its advancement
12. Dressing and dressing room techniques
13. Introduction : general environment and cleanliness
14. Dressing table and trolley, drums : preparation contents and maintenance
15. Dressing material : types, preparation, use and sterilization.
16. Different types of solutions used for dressing viz. hydrogen peroxide, providing iodine etc.
17. Medicated dressings viz sofratulley, collagen etc.
18. Basic principles of bandaging
19. Principles involved in the design, fabrication and use of orthopedic implants.
20. Orthopedic implant mechanics and materials
21. Biocompatibility, strength, lubrication and interfacing.
22. Hip joint replacement
23. Knee joint replacement
24. Ankle joint replacement
25. Fractures, fracture healing and non-surgical fixation
26. Surgical fracture fixation.

Operation Room Techniques and its Management

1. Reception of patients in OT premises
2. Scrubbing, dressing
3. Tourniquet and its' application
4. Growing, painting and draping
5. OT Fumigation and UV Lights
6. Autoclaving


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7. Preparation for anesthesia
8. Check out procedure
9. Sterilization : Definition, classification of sterilizing agents, physical methods of sterilization, importance of sterilization.
10. Sutures
 1. Absorbable – Surgical catgut, collagen sutures, synthetic absorbable sutures etc.
 2. Nonabsorbable – silks, cotton, polyamide, polypropylene, stainless steel etc.

Patient Care

1. Fundamentals of patient care
2. Definition
3. Introduction : General environment and cleanliness
4. Proper disposal of ward waste.
5. Bed : bed making, posturing in bed, special beds viz pneumatic, water beds.
6. Hygienic care : care of skin, care of hairs and nails, oral hygiene, care of pressurepoints, exercise and activity : principles of good posturing and body behavior, moving and lifting patient, posture changes assisting patient in attaining ambulatory status.
7. Promoting urinary and intestinal eliminations : offering urinal, bedpan, observations of urine and feces, maintaining nutrition.
8. Maintaining fluid and electrolyte balance.
9. Maintenance of input/output records.
10. Oral intake measures.
11. Management of acutely injured :
 - First aid
 - Transport
 - Resuscitation methods
 - Infection control procedures
 - Legal and ethical responsibilities
 - Medical errors.

Biomechanics & Physiotherapy

1. Biomechanics : mechanics of the human musculoskeletal system.
2. Biomechanics of skeletal : basic properties and mechanics of bone, articular cartilage, tendons and ligaments, biomechanics of lower limb, major joints of the lower limb, including the bio-mechanics of walking.
3. Upper limb and spine : detailed examination of the forces acting on the spine during lifting.
4. Physiotherapy of spine, upper limb (shoulder joint, elbow joint, wrist joint), lower limb (knee joint, ankle joint, pharynx etc.)
5. Rehabilitation of patient after recovery from trauma / injury/ operative procedure.

वकील

डॉ. आर. सी. शीमा
बरीक अस्पताल एवं शिक्षणालय
अस्थि विभाग (यूनिट-1)
सवाई मन्सिंह चिकित्सालय, जयपुर