Syllabus for

DIPLOMA IN DENTAL TECHNICIAN COURSE
(TWO YEARS COURSE)

B.N.S. Kumar
Secretary
In view of representation from the Faculty the Syllabus for the 1st year in all Para medical courses is modified accordingly and kept on website.

| DIPLOMA IN DENTAL TECHNICIAN COURSE  
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**Syllabus for First Year**

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<th>Paper-I</th>
<th>BASIC HUMAN SCIENCES</th>
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| A) Basics of Anatomy  
B) Basics of Physiology  
C) Basics of Biochemistry  
D) Basics of Bio-statistics |

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<th>Paper-II</th>
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| A) Basics of Pathology  
B) Basics of Blood Banking  
C) Basics of Microbiology  
D) Basics of Central Sterilization Services. |

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<th>Paper-III</th>
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| A) Hospital Awareness  
B) Familiarization of different tables/tubes in surgical department, Surgical Awareness, preparation of patient for surgery.  
C) Patient related services.  
D) Communication & Computer Skills & Visual Aids |
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<th>Paper-I</th>
<th>Dental Mechanics &amp; (RPD &amp; CD)</th>
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<td>Paper-II</td>
<td>Dental Materials (Ceramics) &amp; Implantology</td>
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| Paper-III            | Oral Anatomy & Physiology (General & Dental)  
                        Orthodontia  
1st YEAR

PAPER-I

Basics of Anatomy & Physiology

Basics of Anatomy

1. Introduction to Human Anatomy
2. Cell- Tissues Properties, Different Tissues
3. Digestive System & Hepatobiliary System
4. Respiratory System
5. Cardio Vascular System
6. Lymphatic System
7. Bones and Joints
8. Nervous System
9. Endocrine System
10. Sense Organs
11. Excretory System
12. Reproductive System

Basics of Physiology

1. Introduction to Human Physiology
2. Blood
3. Cardio Vascular System
4. Lymphoid System
5. Digestive System
6. Respiratory System
7. Nervous System
8. Endocrine System
9. Excretory System
10. Reproductive System
11. Sense Organs
Basics of Bio – Chemistry

1. Introduction to Basics of Bio-chemistry including code of ethics for Medical Lab Technicians and Medical Lab Organization.

2. Reception, Registration and bio-chemical parameters investigated.

3. Glassware and plastic ware used in a bio-chemical laboratory.
   a. Glassware:
      1) Types of glass and composition.
      2) Types of glassware used, their identification, application & uses.
      3) Cleaning, drying, maintenance and storage of glassware.
   b. Plastic ware: Brief outline

4. Instrumental methods of Bio-chemical analysis.
   a. Colorimetry :
      Visual and photoelectric methods, instrumentation, principle & laws involved construction, operation, care and maintenance, applications.
   b. Spectrophotometry
      Principle and theory, types, construction, & applications

5. Basic lab operations like
   a. Separation of solids from liquids
      1. Centrifugation: Principle, Different types of centrifuges care and maintenance, applications.
      2. Filtration using funnel.
      3. Weighing : Different types of balances used, care and maintenance.
      4. Evaporation
      5. Distillation
      6. Refluxing
      7. Drying different salts and dessicotion.
6. Water Chemicals and related substances
   a. Purity of chemicals
   b. Corrosives
   c. Hygroscopic Subsatance

7. Prevention, Safety and first aid in lab accidents.

8. Collection of Specimens
   a. **Blood:** Types of Spencimens, Collection, Precations during collection, processing and preservation.
   b. **Urine:** Types of Specimens, Collection, Precautions during collection, Processing and Preservation.


10. Units of measurements

11. **Solutions:** Types based on solute and solvent, Types based on method of expressing concentration, calculations.

12. **Carbohydrates:** Definitions, Biological importance, Acid value, iodine value, saponification value.

13. Amino acids and Proteins Definition, Biological importance, Classification, Qualitative tests.

14. **Diagnosistic tests:** Blood sugar, Glucose tolerance test, Blood urea, Serurmic acid, Serum creatinine.

15. **Vitamins and Minerals**

   a. **Vitamins:**
      Water Soluble vitamins, Fat Soluble vitamins, Sources, Daily requirements, Deficiency diseases.

   b. **Minerals :**
      Sources, Daily requirements, Deficiency diseases.
Paper-II

Basics of Pathology

Introduction to Pathology in brief

1. Urine – Analysis – Physical Examination – specific gravity PH, reaction, colour.
   Chemical Examination – Sugar Albumin, bile salts, bile Pigments etc.
   Microscopic, Sediment for RBC, WBC, Epithelial cells, casts, crystals, parasites.

   Preparation of Reagents, procedure and principle of tests.

2. Sputum Analysis – Physical Examination, Preparation and staining smear for Microscopic Examination.


4. Body Fluids – Differential count of Peritoneal, pericardial, pleural fluids and CSF, charging chamber, Identifying and counting the cells.
Basics of Microbiology

I. Introduction to Microbiology in brief

Definition,
History

II. Microscopy

a) Principle working and maintenance of compound Microscope.

History

Types of Microscope: (a) Light Microscope, (b) DGI, (c) Fluroscent, (d) Phase contrast.


III. Sterilization and disinfection – classification and Methods of sterilization.

Sterilization: Definition, types and principles of sterilization methods:

(a) Heat (dry heat, moist heat with special reference to autoclave, (b) Radiation, (c) Filtration, efficiency testing to various sterilizers.

Antiseptics and Disinfectants:

Definition, types and properties, mode of action, uses of various disinfectants, precautions while using the disinfectants, qualities of a good disinfectants, testing efficiency of various disinfectants.
1) Principle and Methods of sterilization by heat
   
a) By Dry Heat, flaming, Red Heat, Hot air oven, incineration.
   b) By Merit Heat-pasteurization, Inspissation, tyndalisation, autoclave.

2) Filtration Methods

3) Ionising Radiation – Disinfection, Mode of action and uses of important chemical disinfections – Phenol and Phenolic compounds, alcohols, halogens, dyes and acids and alkalies.

4) Gaseous Methods of sterilization.

IV. Cleaning, drying & Sterilization of Glassware disposal of contaminated material i.e. clinical infective material inoculated culture media. Handling and Disposal of Biomedical waste.

V. **Biomedical waste management in a Microbiology Laboratory** : types of the waste generated, segregation, treatment, disposal.

VI. Morphology and classification of Bacteria Sp. of cell, capsule, flagella, spore, Anaerobic Methods of cultivation of Bacteria.
PAPER-III

A. Hospital Awareness

A brief idea of hospital as an organization management different units of a hospital effective communication skills, communication channel

- Maintenance of records
- Effective leadership
- General patient care
- Medical terminologies
- Vital signs
- Unit preparation
- Transporting & Transferring patients
- Sterilization Techniques
- Control of infection
- Medication – Oral & parenteral
- Admission – Discharge procedure
- Bandages

Practicals: Posted in ward & taught clinically

A. Surgical Department

Familiarization of different tubes

1. Drainage tube
2. Post Operative Exercises
3. Post OP Management of Patient
4. Shock of Management
5. Changing Surgical Dressing.

1. Preoperative preparation of patient
2. Preanesthetic preparation
3. Assisting in operation
4. Anaesthesia
5. CSSD

1. Recovery room
2. Movement of papers
3. Scheduling of theaters
4. Supplying of articles
5. Specific area practices
   - As scrub nurse
   - As circulating nurse
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<tr>
<td><strong>COMMUNICATION</strong></td>
<td>Process</td>
<td>Types of communication</td>
<td>Strategies for effective Communication</td>
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<tr>
<td><strong>SOFTWARE SKILLS</strong></td>
<td>Presentation with the use of visual aids such as power point</td>
<td>Conversation</td>
<td>Extempore speech, usage of effective language for communication of health work.</td>
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<tr>
<td><strong>COMPUTER</strong></td>
<td>Computer basic</td>
<td>MS – Office</td>
<td>MS – Word</td>
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<td><strong>INTERNET CONCEPTS</strong></td>
<td>Browsing</td>
<td>Down- Loading</td>
<td>Use of Slide Projector</td>
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2nd Year

Paper-I

Dental Mechanics (RPD & CD)

Introduction
Dental Formulas
Cronology
Anatomical landmarks
Impression trays, types
Primary impression care and casting the impression with various materials
Final Impressions
Beeplings And Boxing Of Impression
Construction Special Trays With
Shellac Base plate
Self cure acrylic
With Spacers
Without spacers
Cast Preparation
Trimming, Including Orthodontic Costs
Preparation Of Occusal Rims
Articulators - Parts Classification
Adjustments Mounting Of Cast
Selection Teeth

Principles Of Teeth Setting

Teeth Setting And Waxing - Finishing
Articulation, Occlusal Plane, Curve Of Spee, Compensating Curve, Balancing Bite,
Flascking Dewaxing, Packing, Curing, Deflasking, Finishing And Polishing of Dentures
Dentures Relining, Rebasing Denture Repairs
Kennedy’s classification of partial dentures
Principles of partial denture design
Surveyor-Surveying path of insertion and path of removal
Designing of clasps, parts of clasp, Principles of wire bending
Occlusal rests, lingual bars and various component parts of partial Denture
General principles of denture retention
DENTAL MECHANICS (THEORY)

INTRODUCTION
Crown and Bridge
Importance, Advantages

CASTING
Centrifuge casting machine
Pressure casting machine
Induction casting machine
Casting furnaces and procedures involved

principles of casting
Casting techniques of bridges, full crowns, occlusal rests partial denture (Skeleton)
Wax Pattern Fabrication
Investing Procedures-Spruing the wax pattern and investing

COSTING PROCEDURES - Burnout Procedures
METALTRIMMING, FINISHING AND POLISHING
INLAYS- Classification
Types Of Abutments
Various Pontic Designs
Cobalt Chromium Denture Bases
Wrought Alloy Bases
Cast Gold Restoration.
Ceramic Types of Ceramic Materials Ceramic, Hi-Ceramics, Meal Fusing Ceramic,
Maxillofacial Proshonisis - Obturators, Splints, Mouth Guards Casting Duplication
Various Methods Immediate Dentures Construction.
Fabrication of Complete denture

Caste Preparation
Base plate adaptation
Occlusal rims preparation
Mounting
Teeth setting
Waxing & Carving
Flasking
De waxing
Packing
Curing
Deflasking
Trimming sand papering, polishing

Dental Materials

The Sciences of Dental Materials : Introduction
Gypsum and Gypsum Products
Impression materials: RIGID

Elastic impression materials

Irreversible Hydro Collaoid; ALGINATE
Elastomerix impression materials
Denture Base materials
Dental cements
Direct filling gold
Dental casting alloys
Dental waxes
Dental casting investment materials
Model cast, and die materials
Dental ceramics
Abrasives and polishing agents
All kinds of Restorative materials
Dental Implant materials
Dental Metallurgy

Metallurgical Terms
General Properties of Metals

Metals used in dentistry particularly, Gold, Silver, Copper, Zinc, Tin, Lead and Aluminium

Alloys used in dentistry particularly casting gold, wrought, Gold, Silver alloys, stainless steel, Cu., Cobalt alloys.

- Heat treatment - annealing, tempering
- Solders, fluxes, antifluxes
- Tarinsh and corrosion
- Eletric deposition
- Dies-counter, dies-electroforming
- Stainless Steel
- Soldering and Welding
- Chrome cobalt casting
- Metal polishing material.
- Materials and alloys used in implantology
Oral Anatomy & Physiology (General & Dental)

Introduction:

Dental formulae
Cronology
Parts of tooth
Elementary Anatomy of Structure of Denture Bearing Area
Anatomical Landmarks
Human Dentition And Occlusion
Functions of Teeth
Morphology Of Crowns Of Teeth
Upper central incisor to 2\textsuperscript{nd} molar
Lower central incisor to 2\textsuperscript{nd} molar
Muscles of Mastication
Muscles Of Facial Expression
Neeve Supply Of Maxiuary And Amndibulor Teeth
Blood Supply Of Maxiuary And Mandibular Teeth
Temprom Mandibulow Joint
Jaw Bones
Maxilla
Mandible
Orthodontia

INTRODUCTION

Definition
Nature of Malocclusion
The Need for Orthodontic treatment

MALOCCLUSION

Malposition of Individual teeth
Classification of malocclusion

AETIOLOGY

APPLIANCE THERAPY IN GENERAL
Histological aspects of tooth movements
Mechanical appliances
Functional appliance
The components parts mechanical appliance
Ar.chorage
Relative advantage of fixed and movable appliance
Designing on appliances
Materials used in the construction of appliances
Soldering
Welding

REMOVABLE AND FUNCTIONAL APPLIANCES

Removable appliances in which screws are incorporated
Removable appliances with auxiliary springs
The Construction of removable appliances with screws and springs

Fixed appliances
Molar bands Incisor Bands Attachments Labial Lingual appliances Spring or Flexible bows Local fixed appliances
PRACTICALS

1. Monitoring of vital signs, Spo2
2. ABG analysis
3. Types of Anesthesia required for different types of surgeries
4. A regular check of cannula and drains
5. Maintain records and reports
6. Transportation of patient to SICU
7. Suctioning of Endotracheal tube / Tracheostomy tube
8. After care of equipment
9. Mechanical ventilation – Settings and modes