

**SYLLABUS**  
**FOR**  
**DENTALTECHNICIAN/MEC**  
**HANIC**

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**Dean & Principal**  
Tomo Riba Institute of Health &  
Medical Sciences (TRIHMS)  
Arunachal Pradesh  
Naharlagun

## Syllabus for DENTAL MECHANICS/Technician

### 1. APPLIED PHYSICS:

- Specific gravity, density, properties of matter, including cohesion, capillarity, surface tension viscosity, elasticity, diffusion and osmosis.
- Heat: Temperature and its measurements, Thermometers and Pyrometers. General account of expansion by heat of solids, liquids and gases, Thermostats, Pressure gas and hydraulic. Boyle,s and Charles Laws. Unit of heat, thermal capacity and specific Heat, Change of State: Latent heat: Melting Point.
- Properties of vapours, conduction, convection and radiation.
- Principles of electro-technology applied to dental work room, small motors, constructional features and characteristics, electric furnaces, heaters, thermostats, pyrometers, spot welders electroplating, electro-forming and anodizing, wiring regulations relating to low voltage supplies.

### 2. APPLIED MECHANICS:-

- Forces, Parallelogram and triangle of forces. Moments, Couples, Centre of gravity. Principles of lever and cantilever work, Energy, Power, Friction, Inclined plane, Screw Stress, Strain, Sheating Strain, Torsion, Bending movements, Strength and stiffness of materials.

### 3. APPLIED CHEMISTRY:-

- Distinction between physical and chemical change: elements, mixture, and compounds; composition of the atmosphere: Oxygen oxides, burning and rusting: water solvent properties and crystallization; action of water on metals: composition of water hydrogen; Laws of chemical combination; meaning of chemical symbols valency: simple chemical equations; acids, bases and salts.
- Electrolysis, The ionic theory of solution. The electropotential series, electroplating, General characteristics of the metals including an elementary study of the common metals and their alloys with special reference to those used in the dental work room.
- Alcohol, ethers, adlehydes and ketones, fatty acids and their more important derivatives, amines. Simple treatment of carbohydrates, fats and proteins, Benzens and its homologues. General characteristics of aromatic substances. Synthetic resins and plastics used in Dentistry.

### 4. APPLIED ORAL ANATOMY:-

- Elementary anatomy and structure of denture/bearing area.
- Human dentition and occlusion.
- Functions of teeth and morphology of Crowns of teeth.
- Muscles of mastication and facial expression.
- Mastication deglutition and phonation.
- Movements of tempera—mandibular joint.

### 5. DENTAL MECHANICS (PRIMARY):

- Infection control measures for impressions and models.
- Impression Preservation and Boxing-in.
- Cast; Preparation, Trimming, including Orthodontic casts.
- Cast duplication - various methods.
- Construction of special trays—spacers.
- Bite blocks- base plates and wax rims.
- Articulators: Classification, daily uses, and care of articulators.
- Adjustments, Mounting of casts.
- Articulation, Occlusal plane, protrusive balance, working bite, balancing bite, curve of spee, compensating curve, lateral curve.
- Principal of selection of teeth.
- Setting of teeth and wax finishing
- Flasking, Dewaxing, Packing, curing and Deflasking.
- Finishing and polishing of dentures.
- Additions, repairs, relining and revasing of dentures.
- Immediate denture construction.
- Making of acrylic teeth.
- Kennedy's classification of partial dentures.
- Principles of partial denture, design, clasp surveyor, surveying, path of insertion and removal. Establishment of clasp seat. Clasp's parts, classification, function and reciprocation.
- Principles of wire bending, Preparation of wrought clasps, occlusal rests and lingual bars.

6. **DENTAL MECHANICS (FINAL):-**

- Casting machines: Centrifugal and pressure casting machines, Furnaces, principles of casting.
- Casting techniques of partial denture (Skeletal) Clasps, bars, occlusion rest.
- Setting of teeth and completion of dentures on metal skeletons.
- Mechanical principles of Orthodontic appliances, anchorage, force, tissue changes and retention.
- Stainless steel wire-preparation of clasps, springs and Arch wires for Orthodontic appliances.
- Use of various types of expansion screws.
- **Designing-** Implant supported Prosthesis (if facilities available for Dental Implants)
- Ceramic, laminates and Veneers.
- **Fabricating-** Maxillofacial prosthesis such as eye, nose ear, cheek, obturator and splint.
- Indirect Resin Restoration preparation techniques.
- Porcelain firing techniques.
- Preparation of removable Orthodontic appliances, Activators, Retention appliances and Oral screen.
- Construction of fixed Orthodontic appliances, bands, tubes and arches.
- Soldering and spot welding-Soldering of clasps, tags, Strengtheners and lingual bars.
- Inlays and Crowns –classification and construction facing & backings.
- Casting Procedures.



- Principles of bridge work-types of abutments—abutments and pontics- construction of bridges using porcelain and acrylic pontics.

7. **DENTAL MATERIALS AND METALLURGY:-**

**Dental Materials:-**

Composition, Properties, Uses, Advantages & Disadvantages of the following materials:-

- Plaster of paris; Dental Stone, Die Stone.
- Investment Materials.
- All Impression Materials.
- Tray Materials.
- Denture Base Materials, both for cold curing and heat curing, Tooth Materials Waxes.
- Base Plates.
- Zinc Oxide.
- Dental Luting Cements.
- Dental Ceramics and indirect resin restoration materials.

**Dental Metallurgy:-**

- Metallurgical Terms,
- General
- Study of:
  - (a) Metals used in Dentistry particularly Gold, Silver, Copper, Zinc, Tin, Lead and Aluminium.
  - (b) Alloys used in Dentistry particularly, Casting Gold Wrought Gold Silver Alloys, Stainless Steel, Chrome Cobalt Alloys.
- Heat treatment - annealing and tempering.
- Solders, Fluxes, Anti Fluxes.
- Tarnish and Corrosion
- Electric Deposition
- Dental implant materials.

8. **BASIC KNOWLEDGE OF COMPUTERS:-**

- General office routine economics, record-keeping services, Professional referrals and computing skill;
- Record keeping of materials indented and Audit of use.
- Receipt and dispatch of work from clinicians.

  
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