SYLLABUS

FOR THE TRADE OF

DENTAL LABORATORY TECHNICIAN

UNDER

APPRENTICE TRAINING SCHEME (ATS)

Designed in
2010

by

Govt. Of India
Ministry of Labour & Employment (D.G.E. & T.)
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-Block, Sector –V, Salt Lake,
Kolkata-700091.
List of Members of the Trade Committee Meeting approved the syllabus for the trade of “Dental Laboratory Technician” under A.T.S. held on 05.04.2010 at RAJKOT, Gujarat.

Shri S.D. Lahiri, Director, C.S.T.A.R.I., Kolkata

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<thead>
<tr>
<th>Sl No</th>
<th>Name &amp; Designation</th>
<th>Name of the organization</th>
<th>Remarks</th>
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<tr>
<td>1</td>
<td>Shri V.G. Mavani, Director</td>
<td>TRUMEX IND</td>
<td>Chairman</td>
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<td>2</td>
<td>Dr. Hiren Thumar</td>
<td>PARTH DENTEL CARE, RAJKOT</td>
<td>Member</td>
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<td>3</td>
<td>Dr. Mira Ghoricha</td>
<td>GURUKUL HOSPITAL</td>
<td>Member</td>
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<td>4</td>
<td>Dr. Dharmendra Shah, MDS. Dental Surgeen</td>
<td>Medical Practitioner, Amedabad</td>
<td>Member</td>
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<td>5</td>
<td>Dr. P.R. Bhanvaidya</td>
<td>GURUKUL HOSPITAL RAJKOT</td>
<td>Member</td>
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<td>6</td>
<td>Dr. Kashyap Pandya, BDS, Dental Surgeon</td>
<td>Nirmal charitable Trust, Sola Road, Ahmedabad.</td>
<td>Member</td>
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<td>7</td>
<td>Dr. Shrvanbhai Joshi, BDS, Dental Surgeon</td>
<td>Shravan Dental Clinic, Ahmedabad</td>
<td>Member</td>
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<td>8</td>
<td>Shri Rakesh Raval, Dental Technician</td>
<td>Plus Dental Lab, Nava vadej, Ahmedabad.</td>
<td>Member</td>
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<td>Shri Satish Raval, Dental Technician</td>
<td>Plus Dental Lab, Nava vadej, Ahmedabad.</td>
<td>Member</td>
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<td>10</td>
<td>Dr. Suresh J Rathi</td>
<td>Asst.Professor, Department of Community Medicine, SBKS Medical Institute &amp; Research Centre, Pipaliya, Di. Vadodara</td>
<td>Member</td>
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<td>11</td>
<td>Bhavin N. Rathod</td>
<td>Director, Gujarat Training Centre Vadhan, Di. Surendranagar.</td>
<td>Member</td>
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<td>12</td>
<td>Shri S.A. Pandav, Regional Deputy Director</td>
<td>Regional Office, Rajkot.</td>
<td>Member</td>
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<td>13</td>
<td>Shri PL Raval, Principal</td>
<td>I.T.I. Rajkot</td>
<td>Member</td>
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<td>14</td>
<td>Shri L.K. Mukherjee, Deputy Director</td>
<td>C.S.T.A.R.I., Kolkata</td>
<td>Member</td>
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# General Information

1. **Name of the Trade**: DENTAL LABORATORY TECHNICIAN
2. **N. C. O. Code No.**: 7311.80
3. **Entry Qualification - Essential**: Passed 10th class under 10 + 2 system of education or its equivalent.
4. **Duration of Craftsman Training**: Two years
5. **Duration of Apprenticeship Training**: Three year including Two Years in Craftsman training.
6. **Rebate of ITI Passed Trainees**: Two Years for ITI/ITC passed out trainees in the trade of DENTAL LABORATORY TECHNICIAN
7. **Ratio of Apprentice to Workers**: 1 : 5
Syllabus for the Trade of “DENTAL LABORATORY TECHNICIAN”
Under Apprenticeship Training Scheme (ATS)

Duration of Training: Three year

First two year :- During first two year the apprentices will undergo the syllabus same as CTS for the trade of DENTAL LABORATORY TECHNICIAN

Next one year :- Shop floor training in the related establishment (Industry).

Practical :

1. Introduction to course to make the trainees familiar with syllabus, Role & Responsibilities of Dental technicians & to informed about safety precautions.
2. Weighing machine & Practice on weighing correct to a milligram. Reading, temperature shown by temperature gauge. Practical demonstration on conduction, convection and radiations.
3. Measuring voltage, current, (Both AC & DC) working with electric furnaces and electroplating, electroforming and anodising exercise.
5. Setting of teeth and wax fixing.
6. Flasking, dewaxing, packing, curing and deflasking.
7. Finishing and polishing of dentures.
8. Additions, repairs, relining and reversing of dentures.
10. Wire bending. wrought clasps and lingual bars preparation.
11. Setting of teeth and completion of denture on metals skeletons
13. Preparation removal orthodontic appliance, activators, retention appliances and oral screen.
14. Construction of fixed orthodontic appliances, bands, tubes and arches
15. Soldering and spot welding
16. Casting machines,
17. Centrifugal and pressure casting machines, furnaces
18. Construction of fixed orthodontic appliances, bands, tubes and arches.
19. Practice on Soldering and spot welding – Soldering of clasps, togs, strengtheners and lingual bars.
20. Construction and bridge using porcelain and acrylic pontics.
Related Instructions:

1. Safety precautions to be observed during handling of chemical, laboratory apparatus equipments and machineries
2. Study of density, specific gravity, properties of matter, cohesion, viscosity, elasticity, diffusion and osmosis.
3. Temperature, temperature Measurements, temperature measuring instruments & thermostats
4. Boyle’s Law and Charles Law, unit of heat, thermal capacity, specific heat, latent heat, melting point, expansion of solids, liquids and gases by heat. Gas pressure and hydraulic pressure, study of properties of vapours, conduction, convection and radiation
5. Study of electro – technology applied to dental work.
   Basic Electricity, voltage, current, Ohm’s Law, Kirchhop’s Law, AC, DC, Electrical Measurements. Electrical safety, Low voltage systems, Isolation Transformer, Necessity of Earthing.
6. Knowledge about motors, different types & uses.
7. Study of electrical features, heaters, temperature cantilever, electro plating, electroforming and anodising.
8. Study of work, power and energy, power, friction, momentum, centre of gravity, types of lever, stress, strain, shearing strain, torsion, mechanical properties of metals.
   - Knowledge of atmosphere. Physical and chemical changes of elements, mixtures and compounds. Oxides, burning, rusting.
   - Electrolysis, ionic theory of solution, electro potential, Electroplating
9. General characteristics of common metal used in the dental work and their compounds. Alcohol, ethers, aldehydes and ketones. Fatty acids and their more important derivatives, amines, carbohydrates, fats and proteins. Benzenes and its homologues.

Study of Dental Materials:

10. Study of composition, properties, uses, advantages & disadvantages of the following materials:-
    Stone plaster, dental cement, plaster & pairs, zinc oxide, investment materials, impression materials, waxes, denture base materials, both for cold curing and heat curing, tooth materials, base plate and other materials used in dentistry
11. Knowledge about metallurgical terms. Study in metals used in dentistry such as gold, silver, copper, zinc, tin, lead and aluminium.
12. Study of alloys used in dentistry i.e. casting of silver alloys, gold, stainless steel etc.
14. Tarnish and corrosion.
15. Electroplating (electric deposition). Study of Principles of wire bending

Oral Anatomy:

18. Tooth carving in wax and plaster
21. Cast preparation, trimming, including orthodontic casts.
22. Cast duplication – various methods.
23. Construction and bridge using porcelain and acrylic pontics. Principles of bridge work –
types of abutments, abutment & pontics.
25. Articulators Occlusal plane, protrusive balance, working bite, balancing bite, curve of space,
compensating curve, lateral curve.
27. 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.
28. Principles of wire bending. Preparation of wrought clasps, occlusal rests and lingual bars

Study of :
29. Casting machines: Centrifugal and pressure casting machines, furnaces, principles of casting.
30. Casting techniques of partial denture (skeleton) clasps, bars, occlusion rest.
31. Mechanical principles of orthodontic appliances, anchorage, force, tissue changes and
retention.
32. Use of various types of expansion screws.
33. Method of removal orthodontic appliances, activators, retention appliance and oral screen.
34. Study of Construction of fixed orthodontic appliances, bands, tubes and arches.
35. Soldering and spot welding – soldering of clasps, togs, strengtheners and lingual bars.
36. Inlays and crowns-classification and construction - facing and backings, casting procedures.
and bridge using porcelain and acrylic pontics.
38. Gypsum product and Die materials.

39. Industrial Visit