



GOVERNMENT OF INDIA  
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP  
DIRECTORATE GENERAL OF TRAINING

**COMPETENCY BASED CURRICULUM**

# DENTAL LABORATORY EQUIPMENT TECHNICIAN

(Duration: Two Years)

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL- 5**



**SECTOR – HEALTHCARE**



Directorate General of Training

# DENTAL LABORATORY EQUIPMENT TECHNICIAN

(Non-Engineering Trade)

(Revised in 2019)

Version: 1.2

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL- 5**

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

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## 1. COURSE INFORMATION

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During the two-year duration of “Dental Laboratory Equipment Technician” trade a candidate is trained on professional skill, professional knowledge and Employability skill related to job role. In addition to this a candidate is entrusted to undertake project work, extracurricular activities and on job training to build up confidence. The broad components covered under Professional skill subject are as below: -

**FIRST YEAR** - the trainee will learn about safety and occupational health process. Differentiate between the responsibilities of the dental team providing dental treatment and weigh various metals and alloys used in dental laboratory. Trainee will measure temperature and monitor its effects in dental laboratory and also apply accurate voltage systems required to operate various machines with electrical safety. Establishes relevance of melting points of different alloys used in dental laboratory and also selects various alloys as per requirement for fabrication of dental prosthesis. Identifies various forms of gypsum products, special trays, occlusal runs and articulates casts, retractive components of orthodontic appliances, active components of orthodontic appliances and also prosthesis orthodontic appliances. Trainee will perform teeth setting and also plan and process the denture. Trainee will repair broken denture and reline the denture. Identify and select wires and fabricates retentive components of orthodontic appliances.

The trainee will be able to carve maxillary anterior teeth, mandibular anterior teeth, maxillary premolars, mandibular premolars, maxillary molars, mandibular molars. Trainee will be able to assemble the equipments to be used for duplication of cast. Trainee will be also able to identify and apply various concept of occlusion in all dental casts and also can classify partial denture. Trainee will construct immediate dentures, removable partial dentures and also perform survey and will be able to identify the fixed components of orthodontics appliances. Trainee will fabricate oral screen and activator and also weld appliances.

**SECOND YEAR** - The trainee will learn how to fabricate temporary acrylic jacket crowns. Trainee will be able to prepare cast and die for fixed partial denture, full metal crown and also full metal bridge.

The trainee will familiarize with equipment used in fixed prosthodontics. Trainee will mock up of anterior crowns, fabricate copings, prepare die and also fabricate porcelain fused to metal crown.

## 2. TRAINING SYSTEM

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### 2.1 GENERAL

The Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under the aegis of Directorate General of Training (DGT). Craftsman Training Scheme (CTS) with variants and Apprenticeship Training Scheme (ATS) are two pioneer schemes of DGT for strengthening vocational training.

‘Dental Laboratory Equipment Technician’ trade under CTS is one of the popular courses delivered nationwide through network of ITIs. The course is of Two years duration. It mainly consists of Domain area and Core area. The Domain area (Trade Theory & Practical) imparts professional skills and knowledge, while Core area (Employability Skills) imparts requisite core skill & knowledge and life skills. After passing out the training program, the trainee is awarded National Trade Certificate (NTC) by DGT which is recognized worldwide.

#### **Candidates need broadly to demonstrate that they are able to:**

- Read and interpret technical parameters/ documents, plan and organize work processes, identify necessary materials and tools;
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional skill, knowledge & employability skills while performing jobs.
- Check the job/ assembly as per drawing for functioning identify and rectify errors in job/ assembly.
- Document the technical parameters related to the task undertaken.

### 2.2 PROGRESSION PATHWAYS

- Can join industry as Technician and will progress further as Senior Technician, Supervisor and can rise up to the level of Manager.
- Can become Entrepreneur in the related field.
- Can appear in 10+2 examination through National Institute of Open Schooling (NIOS) for acquiring higher secondary certificate and can go further for General/ Technical education.
- Can join Apprenticeship programme in different types of industries leading to National Apprenticeship certificate (NAC).

- Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs.
- Can join Advanced Diploma (Vocational) courses under DGT as applicable.

## 2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of two years: -

S No.	Course Element	Notional Training Hours	
		1 <sup>st</sup> Year	2 <sup>nd</sup> Year
1	Professional Skill (Trade Practical)	1200	1200
2	Professional Knowledge (Trade Theory)	240	320
3	Employability Skills	160	80
	<b>Total</b>	<b>1600</b>	<b>1600</b>

## 2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of course through formative assessment and at the end of the training programme through summative assessment as notified by the DGT from time to time.

a) The **Internal Assessment** during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute have to maintain individual *trainee portfolio* as detailed in assessment guideline. The marks of internal assessment will be as per the formative assessment template provided on [www.bharatskills.gov.in](http://www.bharatskills.gov.in)

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NTC will be conducted by DGT as per the guideline of Govt. of India. The pattern and marking structure is being notified by Govt. of India from time to time. **The learning outcome and assessment criteria will be basis for setting question papers for final assessment. The examiner during final examination will also check** individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

### 2.4.1 PASS REGULATION

For the purposes of determining the overall result, weightage of 100% is applied for six months and one year duration courses and 50% weightage is applied to each examination for two years courses. The minimum pass percent for Trade Practical and Formative assessment is 60% & for all other subjects is 33%. There will be no Grace marks.

### 2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/wastage as per procedure, behavioral attitude, sensitivity to environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based, comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Evidences and records of internal (Formative) assessments are to be preserved until forthcoming examination for audit and verification by examination body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60 -75% to be allotted during assessment	
For performance in this grade, the candidate should produce work which demonstrates attainment of an acceptable standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices.	<ul style="list-style-type: none"> <li>• Demonstration of good skills and accuracy in the field of work/ assignments.</li> <li>• A fairly good level of neatness and consistency to accomplish job activities.</li> <li>• Occasional support in completing the task/ job.</li> </ul>

(b) Weightage in the range of above 75% - 90% to be allotted during assessment	
<p>For this grade, a candidate should produce work which demonstrates attainment of a reasonable standard of craftsmanship, with little guidance, and regard for safety procedures and practices.</p>	<ul style="list-style-type: none"> <li>• Good skill levels and accuracy in the field of work/ assignments.</li> <li>• A good level of neatness and consistency to accomplish job activities.</li> <li>• Little support in completing the task/job.</li> </ul>
(c) Weightage in the range of above 90% to be allotted during assessment	
<p>For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.</p>	<ul style="list-style-type: none"> <li>• High skill levels and accuracy in the field of work/ assignments.</li> <li>• A high level of neatness and consistency to accomplish job activities.</li> <li>• Minimal or no support in completing the task/ job.</li> </ul>



### **3. JOB ROLE**

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**Dental Prosthetic Technicians;** Medical and Dental Prosthetic Technicians design, fit, service and repair medical and dental devices and appliances following prescriptions or instructions established by a health professional. They may service a wide range of support instruments to correct physical medical or dental problems such as neck braces, orthopedic splints, artificial limbs, hearing aids, arch supports, dentures, and dental crowns and bridges.

**Mechanic, Dental;** Dental Technician makes full or partial dentures, inlay, bridges, and crowns of metal, vulcanite or other composition plates from wax or plaster plate impressions taken by DENTIST and repairs dental aids as prescribed by him. Makes special impression trays as designed by DENTIST and prepares plaster casts of upper and lower jaws from wax impression taken by him to provide pattern for work to be done. Shapes metal vulcanite or plastic plates for dentures and sets artificial teeth in plates. Processes denture in acrylic resin or metal and makes fixed metal restorations such as crowns, bridges etc. according to impression taken by Dentist. Forms porcelain teeth and crowns and repairs or makes additions on existing dentures as directed. May assist Dentist in general dental practice and undertake chair side clinical work on patients.

#### **Reference NCO-2015:**

- (i) 3214.9900 - Medical and Dental Prosthetic Technicians
- (ii) 3214.0100 - Dental Mechanic

## 4. GENERAL INFORMATION

<b>Name of the Trade</b>	<b>Dental Laboratory Equipment Technician</b>
<b>Trade Code</b>	DGT/1047
<b>NCO - 2015</b>	3214.9900, 3214.0100
<b>NSQF Level</b>	Level-5
<b>Duration of Craftsmen Training</b>	Two Year (3200 Hours)
<b>Entry Qualification</b>	Passed 10 <sup>th</sup> class examination
<b>Minimum Age</b>	14 years as on first day of academic session.
<b>Eligibility for PwD</b>	NIL
<b>Unit Strength (No. of Student)</b>	24 (There is no separate provision of supernumerary seats)
<b>Space Norms</b>	120 Sq. m
<b>Power Norms</b>	12 KW
<b>Instructors Qualification for:</b>	
<b>(i) Dental laboratory Equipment Technician</b>	<p>One Qualified Dental Surgeon and One Qualified Dental &amp; Laboratory Technician</p> <p><b>Essential Qualification:</b>  Relevant National Craft Instructor Certificate (NCIC) in any of the variants under DGT.</p> <p><b>Note: Out of two Instructors required for the unit of 2 (1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications. However both of them must possess NCIC in any of its variants.</b></p>
<b>(ii) Employability Skill</b>	<p>MBA/ BBA / Any Graduate/ Diploma in any discipline with Two years' experience with short term ToT Course in Employability Skills from DGT institutes.</p> <p>(Must have studied English/ Communication Skills and Basic Computer at 12<sup>th</sup> / Diploma level and above)</p>

	<b>OR</b>			
	Existing Social Studies Instructors in ITIs with short term ToT Course in Employability Skills from DGT institutes.			
<b>(iii) Minimum age for Instructor</b>	21 years			
<b>List of Tools and Equipment</b>	As per Annexure – I			
<b>Distribution of training on Hourly basis: (Indicative only)</b>				
Year	Total Hrs /week	Trade Practical	Trade Theory	Employability Skills
1 <sup>st</sup>	40 Hours	30 Hours	6 Hours	4 Hours
2 <sup>nd</sup>	40 Hours	30 Hours	8 Hours	2 Hours

## 5. LEARNING OUTCOME

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*Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.*

### 5.1 LEARNING OUTCOMES (TRADE SPECIFIC)

#### FIRST YEAR

1. Identify the basic safety of occupational health process and differentiate between the various responsibilities of the dental team in providing dental treatment following safety precautions.
2. Weigh various metals and alloys used in dental laboratory and also measure temperature and monitor its effects in dental laboratory.
3. Establishes relevance of melting point of different alloys used in dental laboratories.
4. Apply accurate voltage system required to operate various machines with electrical safety.
5. Select various alloys as per requirement for fabrication of dental prosthesis.
6. Manipulate and use gypsum products efficiently and dental cement effectively.
7. Manipulates and uses dental waxes and impression materials and uses dental based materials effectively.
8. Make diagnostic and master casts, special trays and occlusal runs and articulates casts.
9. Perform teeth setting.
10. Plan and process the denture and also repair broken denture and reline the denture.
11. Identify and select wires and fabricates retentive components of orthodontic appliances and make retractive components of orthodontic appliances.
12. Make active components of orthodontic appliances and prosthesis orthodontic appliances.
13. Carve various maxillary anterior teeth, mandibular anterior teeth, maxillary premolar, mandibular premolar, maxillary molars and mandibular molars.
14. Duplication of casts.
15. Identify and apply various concepts of occlusion in all dental casts
16. Identify partial denture classification, construct immediate dentures and construct removable partial dentures and also survey the removable partial denture.
17. Prepare appropriate retention features in removable partial dentures.
18. Identify the fixed components of orthodontic appliances and fabricate oral screen, activator and weld appliances.

**SECOND YEAR**

19. Fabricate temporary acrylic jacket crowns.
20. Prepare various cast, die for fixed partial denture, full metal crown and full metal bridges.
21. Familiarize with equipment used in fixed prosthodontics and mock up of anterior crowns.
22. Fabricate copings and prepare die.
23. Fabricate porcelain fused to metal crown.

## 6. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
<b>FIRST YEAR</b>	
1. Identify the basic safety of occupational health process and differentiate between the various responsibilities of the dental team in providing dental treatment following safety precautions.	Practice individual responsibility in relation to maintaining workplace health safety and security requirements.
	Comply with health, safety and security procedures for the work place.
	Report any identify breaches in health, safety and security procedures to the designated persons.
	Identify potential hazards at work place.
	Complete any health and safety records accurately.
	Maintain personal hygiene and contribute effectively and actively to the health check ecosystem.
	Identify different team members working in a dental set up.
	Establish appropriate communication with the different persons designated to perform different tasks in a dental set up.
	Seek supervision for the work to be performed from suitable and designated professional of the dental team.
Maintain competence within the role and field of practice.	
2. Weigh various metals and alloys used in dental laboratory and also measure temperature and monitor its effects in dental laboratory.	Identify appropriate metal and alloys used in dental laboratories.
	Prepare and calibrate equipment for weighting.
	Properly measures desired amount of metal or alloy required to make or prosthesis.
	Avoid wastage of metal and alloys.
	Records the weighed alloy legibly and correctly.
	Reads temperature efficiently and records it legibly in the book.
	Understands the effects of change in temperature in dental laboratory towards the processing of prosthesis.
Identifies temperature of environment and modifies the techniques as per requirement.	
3. Establishes relevance of melting points of different alloys used in dental laboratory.	Knows the significance of melting point of alloys which are used in dental laboratory.
	Chooses the alloy used for casting various prosthesis in dental laboratory.

	Matches the coefficient of thermal expansion of alloys with the ceramic system.
4. Apply accurate voltage system required to operate various machines with electrical safety.	Knows the power consumption of every equipment.
	Proficiently reads the power output to the machines.
	Recognize appropriate voltage stabilizers installed with the equipment.
	Switch off the machines during interrupted power supplies.
	Reports the power setbacks to the concerned authority.
	Knows about electrical hazards which can occur in a dental laboratory.
	Safely operates all electrical equipments.
	Can manage electrical fires or short circuits.
	Can administer first aid for electrical burns and shock
5. Selects various alloys as per requirement for fabrication of dental prosthesis.	Identifies different alloy systems used in dentistry.
	Understand physical and mechanical properties of various alloy used in dentistry.
	Selects the appropriate alloy for a specific prosthesis to be fabricated.
	Can read and apply specific manipulating instruction supplied along with the alloy from the manufactures.
6. Manipulate and use gypsum products efficiently and dental cement effectively.	Identifies various forms of gypsum products used in dentistry.
	Follows instructions for manipulation for gypsum products.
	Selects appropriate gypsum product to be used for a specific purpose in dental laboratory.
	Applies mixing ratio of powder and liquid, mixing time, working time and setting time appropriately.
	Alters the properties of gypsum products by adding accelerators and retarders.
	Can identify dental cements used in dentistry.
	Arranges all materials to be used while mixing.
	Knows about the properties of dental cements.
	Knows the application of individuals cement.
	Manipulates the cements according to manufacturer's instructions.
Loads the material efficiently and carefully for transfer.	
7. Manipulates and uses	Identifies various types of waxes used in dental laboratory.

dental waxes and impression materials and uses dental based materials effectively.	Knows the properties of dental waxes used in dentistry.
	Uses appropriate armamentarium used to manipulate waxes.
	Manipulates the waxes efficiently.
	Maintains uniform heating of waxes.
	Stores the work done with wax at appropriate temperature.
	Identifies the impression materials used in dentistry.
	Arranges appropriate armamentarium used to manipulate impression materials.
	Knows the properties of dental impression materials.
	Effectively loads the impression materials.
	Handle impressions carefully to avoid distortion.
	Disinfects impressions carefully.
	Stores impressions as recommended.
	Knows the use of denture base materials.
	Knows the properties of denture base materials.
	Read manufacturer's instructions carefully.
Manipulates the denture base materials as per recommended instructions to avoid bubbles.	
Stores the denture base materials at appropriate temperatures.	
Carefully avoids contamination of denture base materials while manipulating.	
8. Make diagnostic and master casts, special trays and occlusal runs and articulates casts.	Disinfects the impression while observing not to distort the impression thoroughly understands all the instruction provided by dentistry.
	Identify the materials and equipment required for preparing the cast.
	Prepare equipment and materials required to fabricate cast.
	Prepare master cast using approved die stone free of bubble void or damage.
	Produce opposing cast using approved base fore with approved stone, free of bubble, void or damage.
	Trims the cast to produce finished cast
	Examines the cast carefully to notice any defect in the cast.
	Knows the purpose of special trays.
	Assembles all equipment and armamentarium used to make special tray.
	Applies separating medium properly on cast.
Adapts spacer on the cast efficiently.	



	Uses raw material if indicioucly avoiding wastage.
	Fabricate special tray on the cast both upper and lower.
	Knows anatomical landmarks of the cast both maxillary and mandibular.
	Terms and finishes the specials tray smoothly.
	Avoid incorporation of any defects while fabricating special tray.
	Knows the significance of making occlusal rims.
	To familiar with the concept of jaw relation.
	Knows the dimensions of maxillary and mandibular rims.
	Articulates the casts with the rims on the desired articulator.
	Can check the articulator accuracy before mounting the casts.
	Follows planes of occlusion while articulating the casts.
9. Perform teeth setting.	Selects teeth according to the requirements of the dentist.
	Seeks communication with the dentist to confirm the teeth selected.
	Knows the principles of anterior teeth setting.
	Knows the principles of posterior teeth setting.
	Knows the concepts of occlusion and its various types.
	Does teeth setting on the occlusal rims and incorporates functional principles of teeth setting.
	To able to produce gum patterns in wax.
	Produces a neat finish in teeth setting and wax up.
10. Plan and process the denture and also repair broken denture and reline the denture.	Carefully selects the appropriate size of flasks for the denture to be processed.
	Assembles all equipment and raw material required for denture processing.
	Flasks the denture carefully in flasks
	Applies separating medium carefully
	Dewaxes the denture maintaining intact position of the teeth in the flask.
	Mixes heat cure powder and liquid in appropriate ratio.
	Packs heat cure dough into the flask.
	Removes all flash while packing.
	Acrylizes the denture at the desired temperature and at the chosen cycle.
	Carefully de-flasks denture after bench working.
	Returns the dentures from the flask efficiently.

	Trims the denture as desired to produced finished surface.
	Polishes the denture to make a polished denture fine of all defects.
	Can assess whether the broken denture can be repaired or not.
	Assembles and seats all parts of broken denture on the cast.
	Informs the dentist about the success probabilities to repair
	Carries out procedure of repair the denture as desired.
	Carefully selects the raw material required to repair the denture as to closely match the material with the previous material used.
	Produces a finished and polished repaired denture.
	Knows the concept of relining of denture.
	Carefully seats denture to be relined on new cast.
11. Identify and select wires and fabricates retentive components of orthodontic appliances and make retractive components of orthodontic appliances.	Can select the appropriate gauge of wire for making desired components of clasp.
	Can make pin bead clasp.
	Can adapt C clasp.
	Can make Adam's clasp.
	Can hold the armamentarium properly
	Can seat the components on the cast
	Can differentiate between retentive and retractive components of appliances.
	Understands the concept of retractive components and can activate their working.
	Can make lalrial bows of both long and short types.
	Can adapt lateral bows well on the surface of the cast.
Can use appropriate wire for their fabrication.	
12. Make active components of orthodontic appliances and prosthesis orthodontic appliances.	Knows the concept of active components and can activate their working.
	Can identify wires and use them for their fabrication.
	Can make all types of springs.
	Can adapt all types of springs on the surface of the cast.
	Fabricates all the components of the desire appliances.
	Assembles all the components of the appliance on the surface of the cast.
	Fabricates simple retention plate (Hawley's ratintion appliances).
	Fabricates tongue thrusting appliances.
Fabricates expansion screw appliances.	

	Acrylics the appliance free of defects.
	Finishes and polishes the appliances.
13. Carve various maxillary anterior teeth, mandibular anterior teeth, maxillary premolar, mandibular premolar, maxillary molars and mandibular molars.	Knows the placement of maxillary anterior teeth in the mouth.
	Knows the detailed anatomy of central incisor, lateral incisor and canine.
	Knows the dimensions of central incisor, lateral incisor and canine.
	Carves maxillary central incisor on wax block and reproduce all anatomical landmarks on the wax block.
	Carves maxillary lateral incisor on wax block and reproduces all anatomical landmarks on the wax block.
	Carves canine on the block and reproduces all anatomical landmarks on the wax block.
	Knows the placement of all mandibular anterior teeth
	Knows the detailed anatomy of all mandibular anterior teeth.
	Knows the dimensions of all mandibular anterior teeth.
	Carves mandibular central mandibular and reproduce all anatomical landmarks on the wax block.
	Carves mandibular canine and reproduces all anatomical landmarks on the wax blocks.
	Knows the placement of maxillary premolar in the mouth.
	Knows the detailed anatomy of maxillary first and second premolar.
	Knows the dimension of maxillary premolar.
	Carves maxillary first premolar and reproduces all anatomical landmarks on the wax block.
	Carves maxillary second premolar and reproduces all anatomical landmarks on the wax block.
	Knows the placement of mandibular premolars in the mouth.
	Knows the detailed anatomy of mandibular premolar first and second.
	Knows the dimensions of mandibular premolars.
	Carves mandibular first premolar and reproduces all anatomical landmarks on the wax block.
Carves mandibular second premolar and reproduces all anatomical landmarks on the wax block.	
Knows the placement of all maxillary molars in the mouth.	
Knows the detailed anatomy of all maxillary molars.	
Carves maxillary first molar and reproduces all anatomical details on	

	the wax block.
	Carves maxillary second molar and reproduces all anatomical details on the wax block.
	Knows the placement of all maxillary molars in the mouth.
	Knows the detailed anatomy of all mandibular molars.
	Knows the dimensions of all mandibular molars.
	Carves mandibular first molar and reproduces all anatomical details on the wax block.
	Carves mandibular second molar and reproduces all anatomical details on the wax block.
14. Duplication of casts.	Knowledge of material agar-agar.
	Assembles the equipments to be used for duplication of cast.
	Examines the master cast to be duplicated.
	Trims and finishes the cast.
15. Identify and apply various concepts of occlusion in all dental casts.	Understands the term occlusion.
	Knows the classification of occlusion can classify casts based on occlusion.
	Understand various curves of occlusion.
	Can reproduce desired occlusion patterns in the casts.
16. Identify partial denture classification, construct immediate dentures and construct removable partial dentures and also survey the removable partial denture.	Knows the difference between partial dentures and complete dentistry.
	Can classify partial denture.
	Use Kennedy's classification system.
	Is well versed with applegate's rules of application to kennedy system of classification.
	Knows the concept and indications of immediate dentures.
	Knows the complete process of immediate dentures on partial dentures.
	Assembles all armamentarium required to make immediate dentures.
	Fabricates immediate denture.
	Finishes and polishes immediate denture.
	Knows the principles involved in the fabrication of partial denture.
	Can design partial denture to be fabricated to meet aesthetic and functional needs.
	Examines the master cast on which removable partial denture would

	be fabricated.
	Duplicates removable partial denture following all metal steps sequentially.
	Finishes and polishes fabricated removal partial denture.
	Can identify surveyor and all its parts.
	Surveys the master cast with all the lines and wakes there properly on the media cast.
17. Prepare appropriate retention features in removable partial dentures.	Knows about the structure features and components to be incorporated in the removable partial denture.
	Can design sleek and appropriate relative features as per required cut of the prosthesis.
	Can incorporate these features in the cast.
18. Identify the fixed components of orthodontic appliances and fabricate oral screen, activator and weld appliances.	Knows about removable and fixed orthodontics and difference between them.
	Can identify the fixed components of fixed orthodontics like bands, arches, brackets etc.
	Knows the construction of bands, tubes arches and brackets etc.
	Knows about myofunctional appliances.
	Assembles armamentarium necessary for making oral screen and activator.
	Examines casts and occludes them in accurate position for both the arches.
	Adapts wire bending required.
	Acrylize the prosthesis.
	Finishes and polishes the prosthesis.
	Understands welding and spot welding and the difference between them.
	Assembles the equipments and raw material required to do welding.
	Assembles the parts to be welded.
	Performs welding.
	Finishes and polishes the appliances.
<b>SECOND YEAR</b>	
19. Fabricate temporary acrylic jacket crowns.	Is familiar with the term temporary a jacket crowns.
	Examines the cast for accuracy for making jacket crowns
	Waxes up the tooth with modelling wax to full anatomic contour.

	Flasks the crown appropriately dewaxes the crown.
	Selects appropriate shade for packing.
	Acrylizes the crown.
	Finishes the crown.
20. Prepare various cast, die for fixed partial denture, full metal crown and full metal bridges.	Pours the cast in die stone.
	Trims the cast and marks the pinning points on the cast.
	Pin the cast.
	Die cuts the cast.
	Ditches the die.
	Applies die hardener spacer and separator.
	Knows the complete process of making metal crowns.
	Examines the cast for accuracy.
	Waxes up the crown to full anatomic crown.
	Sprues the crown at the desired surface.
	Invests the crown in the investing ring.
	Selects the appropriate investment material.
	Casts the units with appropriate alloy.
	Divests the investing ring.
	Trims and finishes the crowns polish the crown.
	Knows the difference between full unit metal and three Unit Bridge.
	Examines the cast for accuracy.
	Waxes up the cast for three Unit Bridge to full anatomic contour.
	Designs suitable pontics.
	Selects appropriate connector design.
Sprues the bridge at the desired surface.	
Invests the bridge in the investing ring.	
Selects the appropriate investment material.	
Casts the units with appropriate alloy.	
Divests the investing ring.	
Trims and finishes the bridge.	
Polishes the bridge.	
21. Familiarize with equipment used in fixed prosthodontics and mock up of anterior crowns.	Identifies the equipment utilized in fixed prosthodontics.
	Handles the equipment according to manufacturer instructions.
	Operates the equipment smoothly.
	Records the breakdowns of the apparatus and informs the authorized authorities.

	Understands the term mock up and its relevance.
	Knows the anatomy of the tooth/ teeth to be mocked up.
	Analyzes the cast for accurateness and free of defects before starting mock up.
	Assembles all equipment, tools and raw materials for mock up.
	Performs mock up of desired teeth.
22. Fabricate copings and prepare die.	Understands the term metal substructure or copings.
	Knows where copings are desired.
	Designs the copings according to the requirement of the cast.
	Check the cast of accuracy assembles desired armamentarium.
	Manipulates blue inlay wax with the urgent techniques and adapts it well to make wax copings.
	Makes proper collar in wax and seals the cervical outline efficiently.
	Spaces the copings at the prescribed area.
	Invests the copings in the investing ring of right size chooses appropriate investment material.
	Casts the copings with suitable alloy.
	Trims and finishes the copings by sequentially using the desired Equipments.
	Knows the purpose of cutting the cast into die.
	Assembles armamentarium required for die cutting the die.
	Trims the cast, indexes the cast.
	Pins the cast.
	Cuts the die, ditches the die.
	Seals the defects of the cast if any after communicating with the dentist.
	Applies die hardener, spacer and separator in the layers.
23. Fabricate porcelain fused to metal crown.	Knows the types of fixed crowns that are made.
	Knows the steps and process to fabricate different types of crowns.
	Selects appropriate ceramic systems & shades, oxidises the copings.
	Applies opaque and wash opaque smoothly and fires at right temperature in the porcelain furnace.
	Applies dentin on the opaque layer fired.
	Holds the crown properly while firing
	Assesses if 2nd denture build up and firing is required
	Applies enamel and finishes the crown with ceramic finishing burs.
	Glazes the crown.

## 7. TRADE SYLLABUS

SYLLABUS FOR DENTAL LABORATORY EQUIPMENT TECHNICIAN TRADE			
FIRST YEAR			
Duration	Reference Learning outcome	Professional Skills (Trade Practical) With Indicative Hours	Professional Knowledge (Trade Theory)
Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs	Identify the basic safety of occupational health process and differentiate between the various responsibilities of the dental team in providing dental treatment following safety precautions.	<ol style="list-style-type: none"> <li>1. Make a flowchart of various professionals working in dental hospitals, clinics and laboratories indicating their hierarchy. (7 Hrs.)</li> <li>2. Tabulate various branches of Dentistry indicating places where they are commonly found working and the kind of work they do. (7 Hrs.)</li> <li>3. Draw a neat sketch of Department in your institute and label various sections. (5 Hrs.)</li> <li>4. Tabulate various departments and paste the photographs of various machines and equipments used in different sections of laboratories and label them. Write safety precautions while handling each equipment below it. (6 Hrs.)</li> <li>5. Identify and demonstrate use of various safety precaution devices. Paste their photographs in your workbook. (5 Hrs.)</li> </ol>	<ul style="list-style-type: none"> <li>• Introduction to various courses/branches of Dentistry.</li> <li>• Role and responsibilities of Dental Technicians.</li> <li>• Familiarisation of the institute.</li> <li>• Safety precautions to be observed during handling of chemicals, laboratory equipment and machines. (06 hrs.)</li> </ul>



<p>Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs</p>	<p>Weigh various metals and alloys used in dental laboratory and also measure temperature and monitor its effects in dental laboratory.</p>	<p>6. Familiarization and demonstration of the use of weighing machines and weights. Practice on weighing correct to milligram. (12Hrs.) 7. Prepare a chart of various scales and their conversions used for measuring temperature. (6 Hrs.) 8. Identify and paste photographs of various temperature measuring devices. (12 Hrs.)</p>	<p>Study of density, specific gravity, properties of matter, cohesion, viscosity, elasticity, diffusion and osmosis.  Study of Temperature, temperature measurements, temperature measuring instruments &amp; thermostats. (06 hrs.)</p>
<p>Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs</p>	<p>Establish relevance of melting points of different alloys used in dental laboratory.</p>	<p>9. Tabulate melting point of various alloys used in dental laboratories. (12 Hrs.) 10. Simple practicals on heat transfer and conduction &amp; convection. (18 Hrs.)</p>	<p>Boyle's Law and Charles Law, unit of heat, latent heat, melting point, expansion of solids, liquids and gases by heat. Study of Gas pressure and properties of vapours, conduction, convection and radiation.(06 hrs.)</p>
<p>Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs</p>	<p>Apply accurate voltage system required to operate various machines with electrical safety.</p>	<p>11. Practice on measuring voltage &amp; current (Both AC &amp; DC). (24 Hrs.) 12. Demonstrate and Prepare chart on electrical safety reflecting important instructions (6 Hrs.)</p>	<p>Study of Ohm's Law, Electrical Measurement and measuring instruments i.e. Voltmeter, Ammeters etc.  Electrical safety, Low voltage systems, Necessity of Earthing. (06 hrs.)</p>
<p>Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs</p>	<p>Select various alloys as per requirement for fabrication of dental prosthesis.</p>	<p>13. Tabulate physical properties of elements, mixtures and compounds. (12 Hrs.) 14. Draw a well labelled diagram of electrolysis theory. (12 Hrs.) 15. Tabulate various physical</p>	<p>Study of work, power and energy, power, friction, momentum, centre of gravity, types of lever, stress, strain, shearing strain, torsion, mechanical properties of metals.  Physical and chemical changes</p>

		properties of metals used in dentistry. (6 Hrs.)	of elements, mixtures and compounds. Oxides, burning, rusting. Electrolysis, ionic theory of solution, electro potential, Electroplating General characteristics of common metal used in the dental work and their compounds.(06 hrs.)
Professional Skill 60 Hrs;  Professional Knowledge 12 Hrs	Manipulate and use gypsum products efficiently and dental cement effectively.	16. Identify various gypsum products. (8 Hrs.) 17. Manipulate various gypsum products. (14 Hrs.) 18. Tabulate various gypsum products, their mixing time, working and setting time. (8 Hrs.) 19. Manipulate dental cements. (30 Hrs.)	Study of dental materials- Gypsum products. Study of dental material:-Dental cements. (12 hrs.)
Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs	Manipulates and uses dental waxes and impression materials and uses dental based materials effectively.	20. Identify various dental waxes.(6 Hrs.) 21. Manipulate sticky, modeling and blue sulay wax. (12 Hrs.) 22. Manipulate impression. (6 Hrs.) 23. Manipulation of alginate. (6 Hrs.) 24. Manipulate usage of self cure acrylic resins. (12 Hrs.) 25. Manipulate and use heat cure acrylic resins. (12 Hrs.) 26. Tabulate differences between self cure and heat cure acrylic resins. (6 Hrs.)	Study of dental waxes. Study of impression materials. Study of denture base materials.(06 hrs.)
Professional Skill 120Hrs;	Make diagnostic and master casts, special trays and occlusal	27. Fabricate diagnostic and master casts. (12 Hrs.) 28. Practice Boxing of	Explain fabrication and preservation of casts, Boxing in and trimming of casts.

Professional Knowledge 24 Hrs	runs and articulates casts.	impression. (12 Hrs.) 29. Practice Trimming of casts. (6 Hrs.) 30. Make special trays with spacers. (30 Hrs.) 31. Prepare Base Adapting plates. (12 Hrs.) 32. Make upper occlusal rims. (18 Hrs.) 33. Make lower occlusal rims. (18 Hrs.) 34. Articulate upper and lower casts. (12 Hrs.)	Explain denture bases like base plates. Theory of occlusal rims and articulation.(24 hrs.)
Professional Skill 60 Hrs;  Professional Knowledge 12 Hrs	Perform teeth setting.	35. Prepare and set upper teeth. (24 Hrs.) 36. Prepare and set lower teeth. (24 Hrs.) 37. Perform Wax up for try in. (12 Hrs.)	Selection of teeth and principles of teeth setting. (12 hrs.)
Professional Skill 90 Hrs;  Professional Knowledge 18 Hrs	Plan and process the denture and also repair broken denture and reline the denture.	38. Perform flasking of denture. (6Hrs.) 39. Carry out Dewaxing of denture. (6Hrs.) 40. Perform Acrylization of denture. (12 Hrs.) 41. Perform Deflasking of denture. (6 Hrs.) 42. Carry out trimming of denture. (12 Hrs.) 43. Carry out finishing of denture (6 Hrs.) 44. Perform polishing of denture. (12 Hrs.) 45. Repair the broken denture. (18 Hrs.) 46. Perform the relining of the denture. (12 Hrs.)	Explain and discuss Acrylization of denture. Explain and discuss repair & relining of denture. (18 hrs.)
Professional Skill 60 Hrs;	Identify and select wires and fabricates	47. Carry out straightening of wire. (6 Hrs.)	Explain orthodontics, Principles of wire bending and retention

<p>Professional Knowledge 12 Hrs</p>	<p>retentive components of orthodontic appliances and make retractive components of orthodontic appliances.</p>	<p>48. Fabricate clasps. (24 Hrs.) 49. Fabricate labrial bows short and long. (30 Hrs.)</p>	<p>components. Explain Retraction components. (12 hrs.)</p>
<p>Professional Skill 60 Hrs;  Professional Knowledge 12 Hrs</p>	<p>Make active components of orthodontic appliances and prosthesis orthodontic appliances.</p>	<p>50. Fabricate various springs. (30 Hrs.) 51. Fabricate sample retention appliance. (6 Hrs.) 52. Fabricate retraction appliance. (6 Hrs.) 53. Fabricate tongue thrusting appliance. (6 Hrs.) 54. Fabricate expansion screw appliance. (6 Hrs.) 55. Perform Finishing and polishing of appliance. (6 Hrs.)</p>	<p>Explain various springs –active components. Explain Acrylization of various orthodontic appliances. (12 hrs.)</p>
<p>Professional Skill 300 Hrs;  Professional Knowledge 60 Hrs</p>	<p>Carve various maxillary anterior teeth, mandibular anterior teeth, maxillary premolar, mandibular premolar, maxillary molars and mandibular molars.</p>	<p>56. Carving of teeth in wax maxillary anterior teeth. (55 Hrs.) 57. Carve mandibular anterior teeth. (55 Hrs.) 58. Carve maxillary premolars. (50 Hrs.) 59. Carve mandibular premolars. (50Hrs.) 60. Carve maxillary molars. (45Hrs.) 61. Carving of mandibular molars. (45 Hrs.)</p>	<p>Human dentition. Nomenclature of teeth. Tooth morphology basic terminology. Tooth morphology maxillary anterior teeth. Morphology lower anterior teeth. Morphology Maxillary premolars Muscles of mastication. Morphology Mandibular Premolars Morphology Maxillary molars Muscles of deglutination. Muscles of facial expression.</p> <ul style="list-style-type: none"> <li>• Morphology mandibular molars</li> <li>• Phonetics</li> </ul>

			<ul style="list-style-type: none"> <li>• TMJ (60 hrs.)</li> </ul>
Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs	Duplication of casts.	62. Cast duplication and trimming and finishing of casts. (30 Hrs.)	Explain Cast duplication material.(06 hrs.)
Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs	Identify and apply various concepts of occlusion in all dental casts.	63. Demonstrate various concepts of occlusion. (12 Hrs.) 64. Demonstrate curve of monsoon and curve of spee. (12 Hrs.) 65. Make table on concept of Balanced Occlusion. (6 Hrs.)	Explain on Occlusion Theory. (06 hrs.)
Professional Skill 90 Hrs;  Professional Knowledge 18 Hrs	Identify partial denture classification, construct immediate dentures and construct removable partial dentures and also survey the removable partial denture.	66. Practice by drawing and labelling all forms of Kennedy's classification. (05 Hrs.) 67. Construct immediate Denture. (22 Hrs.) 68. Fabricate Partial Denture. (38Hrs.) 69. Practice by drawing and labelling various parts of surveyor. (05 Hrs.) 70. Survey the Cast. (20Hrs.)	Kennedy's classification of Partial Denture. Immediate Denture. Principles of Partial Denture Design. Explain Surveyor and principles of Surveying. (18 hrs.)
Professional Skill 30 Hrs;  Professional Knowledge 06 Hrs	Prepare appropriate retention features in Removable partial dentures.	71. Prepare and incorporate clasps in Removable Partial Denture. (30 Hrs.)	Preparation of Clasps for Removable Partial Denture. (06 hrs.)
Professional Skill 90 Hrs;  Professional Knowledge 06 Hrs	Identify the fixed components of orthodontic appliances and	72. Demonstrate construction of Bands, Tubes and Arches lingual Bars. (30 Hrs.)	Introduction to fixed orthodontic Bands, Arches and Tubes. Oral Screen and Activator

<p>Knowledge 18 Hrs</p>	<p>fabricate oral screen, activator and weld appliances.</p>	<p>73. Construct Activator. (18 Hrs.) 74. Construct Oral Screen. (12 Hrs.) 75. Practice on welding and spot welding. (30 Hrs.)</p>	<p>Orthodontic appliances. Welding and Spot welding. Tarnish and Corrosion. (18 hrs.)</p>
<p><b>Project work / Hospital visit</b> <b>Broad Areas:</b></p> <ul style="list-style-type: none"> <li>a) Carving of teeth in wax maxillary anterior teeth.</li> <li>b) Practice by drawing and labelling various parts of surveyor.</li> <li>c) Fabricate partial denture.</li> <li>d) Prepare and incorporate clasps in Removable Partial Denture.</li> <li>e) Practice on welding and spot welding.</li> <li>f) Make table on concept of Balanced Occlusion.</li> </ul>			

## SYLLABUS – DENTAL LABORATORY EQUIPMENT TECHNICIAN

### SECOND YEAR

Duration	Reference Learning outcome	Professional Skills (Trade Practical) With indicative hours	Professional Knowledge (Trade Theory)
Professional Skill 90 Hrs;  Professional Knowledge 24 Hrs	Fabricate temporary acrylic Jacket crowns.	76. Fabricate temporary Acrylic Crown Anterior. (30 Hrs.) 77. Fabricate temporary Acrylic Crown Posterior. (30 Hrs.) 78. Fabricate temporary Acrylic 3 Unit Bridges. (30 Hrs.)	Temporary Acrylic Crowns. (24 hrs.)
Professional Skill 510 Hrs;  Professional Knowledge 136 Hrs	Prepare various cast, die for fixed partial denture, full metal crown and full metal bridges.	79. Manipulate Blue Inlay Wax. (18 Hrs.) 80. Perform Cast Pouring and Trimming for Fixed Partial Denture. (30 Hrs.) 81. Prepare Die for Fixed Partial Denture. (30 Hrs.) 82. Application of Spacer and Hardener. (12 Hrs.) 83. Plan and execute full metal wax up of Maxillary Premolars. (50 Hrs.) 84. Plan and execute full metal wax up of mandibular premolar. (50 Hrs.) 85. Plan and execute full metal wax up of molars (90 Hrs.) 86. Carry out spruing full metal restorations (13 Hrs.) 87. Carry out Investing of full metal restorations. (12	Blue Inlay wax. Casts preparation for fixed partial Dentures. Die and die preparation. Spacer and Hardener. Wax up Full Metal Crowns. Spruing, Investing Full Metal restorations. Introduction to casting machine and principles of casting.(136 hrs.)

		<p>Hrs.)</p> <p>88. Prepare and cast full metal restorations. (20 Hrs.)</p> <p>89. Perform divesting full of metal restorations. (25 Hrs.)</p> <p>90. Carryout trimming of full metal restorations. (15 Hrs.)</p> <p>91. Carryout Polishing full metal restorations. (15 Hrs.)</p> <p>92. Plan and Prepare cast and die for bridge. (25Hrs.)</p> <p>93. Carry out Wax up full Metal three Unit Bridge. (55Hrs.)</p> <p>94. Perform Spruing, Investing, Casting and Divesting Bridge. (25Hrs.)</p> <p>95. Carry out Trimming, Finishing and Polishing of three units full Metal Restoration. (25Hrs.)</p>	
<p>Professional Skill 150 Hrs;</p> <p>Professional Knowledge 40 Hrs</p>	<p>Familiarize with equipment used in fixed prosthodontics and mock up of anterior crowns.</p>	<p>96. Operates all equipment used in fixed prosthodontics. (10 Hrs.)</p> <p>97. Handle all equipment according to manufacturer's instructions. (20Hrs..)</p> <p>98. Mock up of anterior crowns for porcelain fused to metal and metal free crowns. (90Hrs..)</p>	<p>Identification application and operation of equipment necessary in the fabrication of prosthesis</p> <p>Differences b/w fixed and removable prosthodontics</p> <p>Mock up and its importance. (40 hrs.)</p>
<p>Professional Skill 240 Hrs;</p>	<p>Fabricate copings and prepare die.</p>	<p>99. Wax up for copings (20 Hrs.)</p> <p>100. Wax up copings for</p>	<p>Metal sub-structure types properties and uses.</p> <p>Spruing investing finishing and</p>



<p>Professional Knowledge 64 Hrs</p>		<p>ceramic facings. (20 Hrs.) 101. Spruing for copings (20 Hrs.) 102. Casting copings (25 Hrs.) 103. Devesting copings (40 Hrs.) 104. Trimming, finishing and polishing of copings.(50 Hrs.) 105. Trims the cast (15Hrs.) 106. Indexes the cast (15 Hrs.) 107. Die pinning the cast (08Hrs.) 108. Die cutting the cast (10Hrs.) 109. Die ditching (10 Hrs.) 110. Articulating the models (07Hrs.)</p>	<p>polishing metal restorations. Die preparation and its relevance. (64 hrs.)</p>
<p>Professional Skill 210Hrs;  Professional Knowledge 56Hrs</p>	<p>Fabricate porcelain fused to metal crown.</p>	<p>105. Oxidizes the crown.(30 Hrs.) 106. Ceramic layering anterior crown. (40 Hrs.) 107. Ceramic layering posterior maxillary. (35 Hrs.) 108. Ceramic layering maxillary first molar. (45 Hrs.) 109. Ceramic layering mandibular molar glazing.(60Hrs.)</p>	<p>Ceramic as a material, shade selection, oxidation, opaque, layering dentin layers, enamel layering. Introduction to various ceramic systems ceramic systems, available in market, economic interpretation of the ceramic systems. Choosing right systems Advances in dental ceramics communicating with the dentist. (56 hrs.)</p>
<p><b>Project work / Hospital visit</b> <b>Broad Areas:</b></p> <ol style="list-style-type: none"> <li>Operates all equipment used in fixed prosthodontics.</li> <li>Handle all equipment according to manufacturer’s instructions.</li> <li>Mock up of anterior crowns for porcelain fused to metal and metal free crowns.</li> <li>Trimming, finishing and polishing of copings.</li> <li>Ceramic layering anterior crown.</li> <li>Articulating the models.</li> </ol>			

## SYLLABUS FOR CORE SKILLS

1. Employability Skills (Common for all CTS trades) (160 Hrs+80 Hrs )

Learning outcomes, assessment criteria, syllabus and Tool List of Core Skills subjects which is common for a group of trades, provided separately in [www.bharatskills.gov.in](http://www.bharatskills.gov.in)

<b>List of Tools &amp; Equipment</b>			
<b>DENTAL LABORATORY EQUIPMENT TECHNICIAN</b>			
<b>S No.</b>	<b>Name of the Tools and Equipment</b>	<b>Specification</b>	<b>Quantity</b>
<b>TRAINEES TOOL KIT ( For each additional unit trainees tool kit Sl. 1-9 is required additionally)</b>			
1.	Works knife		24 Nos.
2.	Works spatula		24 Nos.
3.	Plaster knife		24 Nos.
4.	Plaster spatula		24 Nos.
5.	Rubber bowl		24 Nos.
6.	Some trimming burs for Acrylic, Metal, & ceramic		24 Nos.
7.	Flask (Different Size)		As required
8.	PKT- Set		24 set
9.	Needle Holder		24 Nos.
<b>SHOP TOOLS, INSTRUMENTS – For 2 (1+1) units no additional items are required</b>			
<b>Lists of Tools:</b>			
<b>A. For Denture Section</b>			
10.	Hanging Motor		2 Nos.
11.	Hand Piece		2 Nos.
12.	Polishing Machine		4 Nos.
13.	Cable Arm		2 Nos.
<b>B. For Metal Section</b>			
14.	Micro Motor Inc. Hand Piece		1 set
15.	Vacuum Mixer Cum Vibrator Mc.		1 No.
16.	Metal Finishing Cabinet		2 Nos.
<b>C. For Wax -up Section</b>			
17.	Electro Waxer M/c. with hand piece		1 set.
18.	Hand Wax curver		2 Nos.
19.	Exhaust Fan	heavy duty	As required
<b>D. For Ceramic Section</b>			
20.	Porcelain Furnace		1No.
21.	Micro Motor with Hand Piece		2 Nos.
22.	Ultra Sonic Cleaner		1 No.
23.	Ceramic Systems		1 Box
24.	Air conditioner		As required

<b>E. For casting Section</b>			
25.	Induction casting Mc.		1 No.
26.	Sand Blasting Mc.		1 No.
27.	Muffle Furnace		1 No.
28.	Manual Casting Machine		1 No.
29.	Air compressor		1 No.
<b>F. For Model Section</b>			
30.	Trimmer		1 No.
31.	Finishing lathe		1 No.
32.	Heating Oven		1 No.
<b>G. COMMON FOR ALL THE SECTIONS</b>			
33.	Tongs		1 No.
34.	Portable weighing machine		1 No.
35.	Hammer		1 No.
36.	Plier		1 No.
37.	Cutter		1 No.
38.	Die saw		
<b>H. Audio Visual Aid</b>			
39.	LCD Projector		1 No.
40.	Computer with the configuration:		1 No.
41.	Model of Oral Anatomy		2 Nos.
42.	Charts related to Dentistry		As required
<b>List of Chemicals, store and Raw Materials (As required)</b>			
<b>A. For Denture Section</b>			
43.	Sand Paper		1 No.
44.	Modeling Wax		1 No.
45.	RR Powder		1 No.
46.	RR Liquid		1 No.
47.	Articulator 3 Pin		1 No.
48.	Shellac Base Plate-Upper		1 No.
49.	Shellac Base Plate-Upper		1 No.
50.	Chip Blower		1 No.
51.	Teeth Set		1 No.
52.	Flask		1 No.
53.	Clamp		1 No.
54.	Container (Vessel)		1 No.
55.	Gas Cylinder		1 No.
56.	Denture Polishing Buff-Cotton		1 No.
57.	Denture Polishing Cake		1 No.
58.	Acrylic trimming Burs		1 No.
59.	Sand Paper		1 No.

60.	Stainless Steel Wire		1 No.
61.	Heat Cure Powder		1 No.
62.	Heat Cure Liquid		1 No.
63.	Cold Mould Seal		1 No.
64.	Mckintosh sheet		1 No.
65.	Pumice Powder		1 No.
66.	SC-10		1 No.
<b>B. For Metal Section</b>			
67.	Crucible		1 No.
68.	Graphite Crucible		1 No.
69.	Alloy Nickel Chromium		1 No.
70.	Japanese gold alloy		1 No.
71.	Cutting disc small		1 No.
72.	Cutting disc large		1 No.
73.	Conical Bur		1 No.
74.	Casbide Bur		1 No.
75.	Metal Gauze		1 No.
76.	Mask		1 No.
77.	Sanitary Bur		1 No.
78.	Sand		1 No.
79.	Polishing Cake -Metal		1 No.
80.	Silicon wheel		1 No.
81.	Rubber Pont		1 No.
82.	Buff –Metal		1 No.
83.	Mandrel		1 No.
84.	Sand Paper-Mandrel		1 No.
<b>C. For Wax -up Section</b>			
85.	Blue Inlay wax		1 No.
86.	Margin wax		1 No.
87.	Hard wax		1 No.
88.	Mock up wax		1 No.
89.	Spacer		1 No.
90.	Hardener		1 No.
91.	Brush		1 No.
92.	Sprue		1 No.
93.	Debnbblyzer		1 No.
94.	BP Blade		1 No.
95.	BP Handle		1 No.
96.	Investing Ring		1 No.
97.	Vaseline		1 No.
98.	Investment Powder		1 No.
99.	Investment Liquid		1 No.

100.	Ring Liniss		1 No.
101.	Articulator		1 No.
102.	Articulating Paper		1 No.
<b>D. For Ceramic Section</b>			
103.	Opaque-Powder		1 No.
104.	Opaque Paste		1 No.
105.	Ceramic Brushes		1 No.
106.	Ceramic Blade		1 No.
107.	Dentin Powder		1 No.
108.	Enamel Powder		1 No.
109.	Modelling fluid		1 No.
110.	Glass slab		1 No.
111.	Glass sterrea		1 No.
112.	Mixing Spatula		1 No.
113.	Filling Tray		1 No.
114.	Diamond Bur		1 No.
115.	Round Bur		1 No.
116.	Glaze Powder-Liquid		1 No.
117.	Ceramic Stone		1 No.
118.	Stains-Yellow		1 No.
119.	Articulator		1 No.
120.	Articulating Paper		1 No.
121.	Tissue Roll		1 No.
<b>E. For casting Section</b>			
122.	Investing Ring		1 No.
123.	Investment powder		1 No.
124.	Investment Liquid		1 No.
125.	Crucible		1 No.
126.	Ring Liniss		1 No.
127.	Graphite Crucible		1 No.
128.	Alloy Nickel Chromium		1 No.
129.	Japanese Gold Alloy		1 No.
<b>F. For Model Section</b>			
130.	Base Former		1 No.
131.	Dental Stone		1 No.
132.	Die Stone		1 No.
133.	Dental Plaster		1 No.
134.	Die Saw Blade		1 No.
135.	Die Pins		1 No.
<b>Note: -</b>			
1. Internet facility is desired to be provided in the class room.			

The DGT sincerely acknowledges contributions of the Industries, State Directorates, Trade Experts, Domain Experts and all others who contributed in revising the curriculum. Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

<b>List of Expert Members participated for finalizing the course curricula of Dental Laboratory Equipment Technician held on 18.05.2017 at NIT Centre, New Delhi</b>			
<b>S No.</b>	<b>Name &amp; Designation Sh./Mr./Ms.</b>	<b>Organization</b>	<b>Remarks</b>
1.	Dr. Ritesh Garg, M.B.B.S., D.M.R.D	Shivam Diagnostics & Cancer Research Institute, C- 41 Mahendru Enclave Lane , Delhi- 110033	Chairman
2.	C. Shibu, Faculty	-Do-	Member
3.	Dr. Sushil Gupta, M.B.B.S, D.M.R.D.	-Do-	Member
4.	Dr. Anil Grover, M.B.B.S, M.D.	-Do-	Member
5.	Dr. Rajneesh Aggarwal, M.B.B.S., D.M.R.D.	-Do-	Member
6.	Dr. Gaurav Mathur, Consultant	-Do-	Member
7.	Dr. Patwinder Bedi, Consultant	-Do-	Member
8.	Dr. Veerpal Nathoo, Surgeon	Singh's Dental Hospital (On panel C.G.H.S, govt. of India)	Member
9.	Dr. Rachna, BDS,MIDA	-Do-	Member
10.	Dr. Anamika Singh, B.D.S., M.I.D.A.	-Do-	Member
11.	Dr. Ritu, Faculty	-Do-	Member
12.	Dr. Madhavi Raj, Faculty	-Do-	Member
13.	Pooja Rana, Faculty	-Do-	Member
14.	Dr. Priyanka, Faculty	-Do-	Member
15.	Dr. Nisha Gulia, Faculty	Govt. General Hospital, Bahadurgarh, HR	Member
16.	Dr. Sumit Nigam, BPT,	Dynamic Physiotherapy Services,	Member

	Director	5495, 2 <sup>nd</sup> Floor Shorakothi Paharganj New Delhi- 110055	
17.	Dr. Sonia, BPT	-Do-	Member
18.	Dr. Rohit, MPT	-Do-	Member
19.	Dr. Rashmi Lohia, BPT	-Do-	Member
20.	Dr. S.K. Yadav, B.P.T., M.P.T. (Ortho), M.I.A.P, D.C.P	-Do-	Member
21.	Dr. Sushanta Kapoor, B.D.S.	Kapoor Dental Care, C-18, Model town-III, Delhi-110009	Member
22.	Kirti Sharma, Faculty	National Industrial Training Centre, Dwarka, New Delhi	Member
23.	Mukta Singh, Faculty	-Do-	Member
24.	Geeta Deswal, Faculty	-Do-	Member
25.	Preeti Singh, Faculty	-Do-	Member
26.	Akash Kumar, Faculty	-Do-	Member
27.	Bhawna, Instructor	-Do-	Member
28.	Dr. Urvashi Jain, M.D.	-Do-	Member
29.	Ramesh Kumar Garg, M.B.B.S, M.D.	-Do-	Member
30.	Dr. P.K. Anand, Faculty	-Do-	Member
31.	Amit Sethi, Consultant	-Do-	Member
32.	L.K. Mukherjee, DDT	CSTARI, Kolkata	Member
33.	P.K. Bairagi, T.O.	-Do-	Member/ coordinator
34.	K.V.S. Narayana, T.O.	-Do-	Member/ coordinator



### ABBREVIATIONS

CTS	Craftsmen Training Scheme
ATS	Apprenticeship Training Scheme
CITS	Craft Instructor Training Scheme
DGT	Directorate General of Training
MSDE	Ministry of Skill Development and Entrepreneurship
NTC	National Trade Certificate
NAC	National Apprenticeship Certificate
NCIC	National Craft Instructor Certificate
LD	Locomotor Disability
CP	Cerebral Palsy
MD	Multiple Disabilities
LV	Low Vision
HH	Hard of Hearing
ID	Intellectual Disabilities
LC	Leprosy Cured
SLD	Specific Learning Disabilities
DW	Dwarfism
MI	Mental Illness
AA	Acid Attack
PwD	Person with disabilities

