

**MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI**

1	Name of Course	<b>C.C. IN DENTAL ASSISTANT (W. E. F. 2015-16)</b>																																																														
2	Course Code	<b>201227</b>																																																														
3	Max.No.of Students Per Batch	25 Students																																																														
4	Duration	1 year																																																														
5	Type	Full Time																																																														
6	No.Of Days / Week	6 Days																																																														
7	No.Of Hours /Days	7 hrs.																																																														
8	Space Required	Practical Lab = 200 Sq.ft. Class Room = 200 Sq.ft. TOTAL = 400 Sq.ft. 1) MOU with Dental Hospital is required. 2) Distance between Hospital and Institute Should not be more than 10 Km.																																																														
9	Minimum Entry Qualification	S.S.C. Pass																																																														
10	Objective Of Course	Successful candidate would be able to take working Cast & dies, make wax patterns, make pontic design, do metal & all ceramic restoration, do finishing & polishing of cast etc. On completion of this module, the participants can be employed as Dental Ceramic Assistant in public/ private hospital or Clinic.																																																														
11	Employment	This Course for Assisting Qualified person																																																														
12	Teacher's Qualification	Qualified dental laboratory technician or BDS																																																														
13	Training System	<b>Training System Per Week</b> <table><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>12hrs</td><td>30hrs</td><td>42hrs</td></tr></table>							Theory	Practical	Total	12hrs	30hrs	42hrs																																																		
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14	Exam. System	<table><tr><td>Sr. No.</td><td>Paper Code</td><td>Name of Subject</td><td>TH/PR</td><td>Hours</td><td>Max. Marks</td><td>Mini. Marks</td></tr><tr><td>1</td><td>20122711</td><td>Introduction to Dental &amp; Basic Dental Laboratory</td><td>TH-I</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>2</td><td>20122712</td><td>Study of Dental Materials</td><td>TH II</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>3</td><td>20122713</td><td>Study and practices on casting machine</td><td>TH-III</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>4</td><td>20122721</td><td>Pattern Making &amp; Basic Dental Laboratory</td><td>PR I</td><td>3 hrs.</td><td>100</td><td>50</td></tr><tr><td>5</td><td>20122722</td><td>Practices on dental Materials &amp; Dental Polishing and coloring</td><td>PR-II</td><td>3 hrs.</td><td>100</td><td>50</td></tr><tr><td>6</td><td>20122723</td><td>Familiarization with casting machines</td><td>PR III</td><td>3 hrs.</td><td>100</td><td>50</td></tr><tr><td></td><td></td><td><b>Total</b></td><td></td><td></td><td><b>600</b></td><td><b>255</b></td></tr></table>							Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Mini. Marks	1	20122711	Introduction to Dental & Basic Dental Laboratory	TH-I	3 hrs.	100	35	2	20122712	Study of Dental Materials	TH II	3 hrs.	100	35	3	20122713	Study and practices on casting machine	TH-III	3 hrs.	100	35	4	20122721	Pattern Making & Basic Dental Laboratory	PR I	3 hrs.	100	50	5	20122722	Practices on dental Materials & Dental Polishing and coloring	PR-II	3 hrs.	100	50	6	20122723	Familiarization with casting machines	PR III	3 hrs.	100	50			<b>Total</b>			<b>600</b>	<b>255</b>
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## **C.C.IN DENTAL ASSISTANT**

### **THEORY – I - INTRODUCTION TO DENTAL & BASIC DENTAL LABORATORY**

Introduction of the course, Role & responsibilities of Dental Technicians.

Familiarization of the Institute.

Safety precautions to be observed during handling of chemical, laboratory apparatus equipments and machineries.

Study of density, specific gravity, properties of matter, cohesion, viscosity, elasticity, diffusion and osmosis.

Temperature, temperature measurements, temperature measuring instruments & thermostats.

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 vapors, conduction, convection and radiation..

Study of electro – technology applied to dental work.

Basic Electricity, voltage, current Ohm's Law Kirchhoff's Law, AC, DC, Electrical Measurements.

Electrical safety, Low voltage systems, Isolation Transformer, necessity of Earthlings.

Knowledge about motors, different types & Uses.

Study of electrical features, heaters, temperature cantilever, electro plating, electroforming and anodizing.

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, ionization theory of solution, electro potential, Electroplating.

General characteristics of common metal used in the dental work and their compounds.

Alcohol, ethers, aldehydes and ketenes. Fatty acids and their more important derivatives, amines, carbohydrates, fats and proteins. Benzenes and its homologues.

Principles of Wax patterns making, Pontic design, Principles of color & shade Selection, Metal ceramic restoration, All metallic restoration, Finishing the cast

## **THEORY - II - STUDY OF DENTAL MATERIALS**

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.

Knowledge about metallurgical terms. Study in metals used in dentistry such as gold silver, copper, zinc, tin, lead and aluminum.

Study of alloys used in dentistry i.e. casting of silver alloys, gold, stainless steel etc.

Heat treatment, annealing and Solders, flexes, anti-flexes.

Tarnish and corrosion.

Electroplating (electric deposition). Study of principles of wire.

### **ANATOMY**

Elementary anatomy of structure of denture/bearing area.

Human dentition and occlusion.

Function of teeth and morphology of crowns of teeth.

Tooth carving in wax and plaster.

Muscles of mastication and facial expression.

Mastication duplication and phonation.

Movements of temporomandibular joint.

Cast preparation, trimming, including orthodontic casts.

Cast duplication – Various methods.

Construction and bridge using porcelain and acrylic pontics.

Principles of bridge work – Types of abutments, abutment & pontics.

Bite blocks – base plates and wax rims .

Articulators Occlusal plane, protrusive balance, working bite, balancing bite, curve of space, compensating curve, lateral curve.

Principles of selection of teeth.

Immediate denture construction.

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, and reciprocation.

Principles of wire bending. Preparation of wrought clasps, occlusal rests and lingual bars.

### **THEORY - III - STUDY AND PRACTICES ON CASTING MACHINE**

Casting machines: Centrifugal and pressure casting machines, furnaces, Principles of casting.

Casting techniques partial denture(skeleton) clasps, bars, occlusion rest.

Mechanical principles of orthodontic appliances, anchorage, force, tissue changes and retention.

Use of various types of expansion screws.

Method of removal, orthodontic appliances, bands, tubes and arches.

Soldering and spot welding-soldering of clasps, tongs, strengtheners lingual bars.

Inlays and crowns-classification and construction – facing and backing casting procedures.

Principles of bridgework – types of abutments, abutment & pontics.

Study of Construction and bridge using porcelain and acrylic pontics.

Gypsum product and die materials.

## **PRACTICAL - I - PATTERN MAKING & BASIC DENTAL LABORATORY**

Introduction of the course, Role & responsibilities of Dental Technicians.

Familiarization of the Institute.

Safety precautions to be observed during handling of chemical, laboratory apparatus equipments and machineries.

Familiarization with weighing machine.

Practice on weighing correct to a milligram.

Demonstration of specific gravity of solids and liquids.

Practice of reading temperature shown by temperature gauge fitted in the different equipments.

Some practical experiment on conduction, convection, radiation,

Practice on measuring voltage, current, (Both AC & DC)

Practice on working with electrical furnaces, Familiarization with the Process of electroplating, electroforming, and anodizing.

Test for acids & alkalis radicals.

Simple exercise on electroplating of metal.

Working cast & dies, Making of Wax pattern, Frame work design & metal selection for metal ceramic restoration, pontic design, Investing & casting

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## **PRACTICAL - II - PRACTICE ON DENTAL MATERIALS & DENTAL POLISHING AND COLORING**

Impression – preservation and Boxing-in

Cast:- Preparation, trimming, including orthodontic casts.

Construction of special trays – spacers.

Adjustments, mounting of casts.

Setting of teeth and wax fixing.

Flashing, dew axing, packing, curing and deflasking.

Finishing and polishing of dentures.

Additions repairs, reining and reversing of dentures.

Making of Acrylic teeth.

Principles of wire bending. Preparation of wrought clasps, occlusal rests and lingual bars.

Setting of teeth and completion of denture on metals skeletons.

Stainless steel wire preparation of clasps springs and arch wires for orthodontic appliance.

Preparation removal orthodontic appliance, activators, retention appliances and oral screen.

Construction of fixed orthodontic appliances, bands, tubes and arches.

Soldering and spot welding – soldering of clasps, togs, strengtheners and lingual bars.

Selection of color & shade, Metal ceramic restoration, All ceramic restoration, Finishing the Cast, Polishing, Soldering & welding

## **PRACTICAL – III - FAMILIARIZATION WITH CASTING MACHINE**

Familiarization with Casting machines furnaces.

Construction of fixed orthodontic appliances, bands, tubes and arches.

Practice on Soldering and spot welding-soldering clasps, togs, strengtheners and lingual bars.

Construction and bridge using porcelain and acrylic pontics.

## INFRASTRUCTRE FOR PRACTICE REQUIRED IN INSTITUTE

<b>1</b>	ADMINISTRATIVE OFFICE
<b>2</b>	LIBRARY FOR INSTITUTE
<b>3</b>	ONE CLASSROOM WITH A CAPICITY FOR 25 STUDENTS
<b>4</b>	PROJECTOR
<b>5</b>	VIROUS DENTAL CHARTS & CD'S
<b>6</b>	BASIC DENTAL TOOLS FOR PRACTICAL
<b>7</b>	CLINICAL ACTIVITIES.
<b>8</b>	COMMON ROOM FOR BOYS
<b>9</b>	COMMON ROOM FOR GIRLS
<b>10</b>	INTERNET FACILITY.

## EQUIPMENTS FOR PRACTICE REQUIRED IN INSTITUTE

<b>Sr.No.</b>	<b>Items</b>
<b>1</b>	MIRROR
<b>2</b>	PROBES
<b>3</b>	RETRACTORS
<b>4</b>	DENTAL DRILLS
<b>5</b>	DENTAL TORQUE WRENCH
<b>6</b>	BURS
<b>7</b>	OPERATIVE BURS
<b>8</b>	EXCAVATORS
<b>9</b>	BURNISHERS
<b>10</b>	PLUGGERS
<b>11</b>	PERIODONTAL SCALERS
<b>12</b>	CURETTES
<b>13</b>	REMOVABLE PROSTHODONTICS
<b>14</b>	DENTAL FORCEPS
<b>15</b>	ELEVATORS
<b>16</b>	CHISELS
<b>17</b>	DENTAL LASER

**MACHINE / EQUIPMENTS /INSTRUMENTS ARE IN DENTAL HOSPITAL  
REQUIRED IN MOU HOSPITAL**

a)	For Denture Section	
1)	Hanging Motor	2
2)	Hand Piece	2
3)	Cable Arm	2
b)	For Metal Section	1
1)	Hanging Motor	1
2)	Hand Piece	1
3)	Cable Arm	1
4)	Micro Motor Inc. Hand Piece.	1
5)	Vacuum Mixer Cum Vibrator Mc.	1
c)	For Wax-up Section	
1)	Electro Waxier M/c. With hand Piece	1
2)	Hand Wax curvier (PKT Set)	
3)	Air Conditioner	1
d)	For Casting Section	1
1)	Induction casting Mc. (Galloni)	1
2)	Sand Blasting Mc.	1
3)	Heating Furnace	1
4)	Muffle Furnace	1
5)	Manual Casting Machine	1
e)	For Model Section	
1)	Trimmer	1
2)	Finishing lathe	1
3)	Heating Oven	1
f)	For Electrical	
1)	MultiMate	1
2)	Voltmeter (AC & DC (0-250v,o-500V)	1
3)	Ammeter AC & DC (o-5A,0-20A)	1
g)	Audio Visual Aid	
1)	Over Head Projector (OHP)	1
2)	VCD	1
3)	VCR	1
4)	Color T.V.	1
5)	Model of Oral Anatomy	
6)	Charts	
h)	For Ceramic Section	
1)	Multi Mate Furnace	1
2)	Vita Vacuumed - 40 Furnace	
3)	Micro Motor with Hand Piece	2
4)	Compact Ultra Sonic Cleaner	1
5)	Vita Chrom Delta Stains	1
6)	VKM 95 (3-D Masters Std Set-12)	1
7)	Air Conditioner	1
8)	Ultrasonic Cleaner	1
i)	For Ceramic Section	
1.	Dental chair.	01 Unit
2.	Dental X-ray unit.	01 Unit



3.	Developer & fixer of X-ray films	As required
4.	Scaler unit.	As required
5.	Light cure unit.	As required
6.	Autoclave.	01 Unit
7.	Periodontal probe.	10
8.	Periodontal mirror	10
9.	Tweezer	10
10.	Bowl & spatula.	10
11.	Wax carver.	10
12.	Wax knife.	10
13.	Cement spatula.	10
14.	Cement callies.	10
15.	Condenser.	10
16.	Depein dish.	10
17.	Burs	10
18.	Straight hand piece.	01
19.	Contra angle hand piece.	01
20.	Air motor hand piece.	01
21.	Trays.	10
22.	Extraction forceps.	02 Kits
23.	Elevator forceps.	02 Kits
24.	Boiling sterilizer.	01
25.	Curettes	10
26.	X-Ray films (Dental)	10
27.	Kidney tray.	10
28.	Suture material.	02
29.	Pariosteal elevator	10
30.	Cold cure powder & liquids. Wax sheet.	As required
31.	Green stick. Impression compound. P.O.P	02
32.	Zinc oxide powder & Eugenol.	As required
33.	Glass inonomer cement.	As required
34.	Calcium Hydroxide	As required.
35.	Zinc phosphate.	As required
36.	Files : 15, 20, 25, 30, 35, 40	As required
37.	GP Point. Cotton RCT Box	As required
38.	Crown remover. Gloves.	As required
39.	Face mask.	As required

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