



## **SUMANDEEP VIDYAPEETH**

An institution Deemed to be University Under Section 3 of UGC Act, 1956

Accredited by NAAC 'A' grade with CGPA score 3.53 on 4 point scale

Category I deemed to be university under UGC regulation 2018

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## **DENTAL MECHANIC DIPLOMA COURSE**

### **RULES, REGULATIONS AND SYLLABUS**

**(As framed by the Faculty of Dental Sciences and approved by the Academic Council and Board of Management of Sumandeep Vidyapeeth)**

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**(An Institution Deemed to be University)**

**At. Piparia, Ta. Waghodia,**

**Vadodara, Gujarat 391760 India.**

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**SECTION-I**  
**DENTAL MECHANIC DIPLOMA COURSE**  
**RULES AND REGULATIONS**

**1. SHORT TITLE AND COMMENCEMENT**

1.1 These Regulations shall be called

**“THE REGULATIONS FOR THE DENTAL MECHANIC DIPLOMA COURSE  
OF THE SUMANDEEP VIDYAPEETH, PIPARIA-VADODARA”.**

1.2 They shall come into force from the Academic year 2008 onwards.

1.3 The Regulations and the Syllabus are as prescribed in these Regulations and are subject to modifications by the Academic Council of Sumandeep Vidyapeeth from time to time.

**2. REGULATIONS FOR THE MAINTENANCE OF MINIMUM EDUCATIONAL  
STANDARD FOR DENTAL MECHANIC DIPLOMA COURSE**

“Dental Mechanic” means a person who makes or repairs denture and dental appliances. She/he shall restrict his activities to purely mechanical laboratory work at the instance of the Registered Dental Surgeon. She/he shall not do any chair side work.

**3. ELIGIBILITY CRITERIA FOR THE INSTITUTION TO RUN THE COURSE**

In order to regularize and standardize the conferment of the qualifications for Diploma in Dental Mechanic, it is prescribed that:

- 3.1 The Dental Mechanic Diploma Course shall be started by a recognized Dental College or a Dental College, which got the permission from the central Government for 3<sup>rd</sup> year BDS Course onwards with maximum of 20 seats.
- 3.2 The course of studies shall be extended over a period of two academic years and lead to the qualification of Diploma in Dental Mechanic.
- 3.3 A separate course shall be arranged for the training of Dental Mechanic by the institutions. These shall run under a separate School / section of Dental Mechanic within the Institution.
- 3.4 The medium of instruction shall be in English and the course of studies and regulations for the Diploma Examinations and the syllabus to be followed in each subject has been drawn up and appended.

#### 4. ELIGIBILITY CRITERIA FOR THE ADMISSION OF THE STUDENTS

For the purpose of establishment of uniformity in dental education in this course throughout India it is necessary that the course of instructions to be pursued in all the institutions shall be standardized. To achieve this:

- 4.1 A candidate shall be at least 17 years of age at the time of admission or within 3 months of it and should be medically fit to pursue the course.
- 4.2 The candidate must have passed 10+2 or two years intermediate or equivalent course thereof with science subjects i.e. Physics, Chemistry and Biology from a recognized Indian University or PreUniversity/Intermediate Board.

#### 5. PHYSICAL FITNESS CERTIFICATE

- 5.1 Every candidate before admission to the course shall submit to the Principal of the Institution a Certificate of Medical Fitness from an authorized Medical Officer that the Candidate is physically fit to undergo the Dental Mechanic Diploma Course and does not suffer from any contagious disease or Psychiatric problems.
- 5.2 Students with Disability should produce the Disability Certificate issued by the duly constituted District Medical Board.

#### 6. ENROLLMENT

A candidate admitted to the Dental Mechanic Diploma Course in any one of the affiliated institutions of the Sumandeep Vidyapeeth, Piparia shall submit the prescribed application form for Enrollment, duly filled along with prescribed fee and filled in Declaration Form to the Registrar of this University through the Principal of the affiliated institution within 15 days from the joining to the Dental Mechanic Diploma Course. The candidate who fails to submit the Enrollment form in stipulated time period shall get an Extension of One term i.e. Six months.

#### 7. DURATION OF THE COURSE

- 1.1 The Period of certified study & training of the Dental Mechanic Diploma Course shall be of Complete **Two Years**.
- 1.2 No exemption shall be given from this period of study and training for any other experience gained prior to the admission to the Dental Mechanic Diploma Course.

#### 8. COMMENCEMENT OF THE COURSE

Academic Year for the Dental Mechanic Diploma Course shall commence from **First working day of July** of Each Year.

## OBJECTIVES

The Dental Mechanics Diploma endeavours to develop a Dental Mechanic who will be able to:

- Demonstrate basic and advanced knowledge, skills and communication needed for providing dental laboratory service to dental practitioners

Program Outcomes:

The Diploma holders will acquire the following program outcomes during the period of training-

1. Comprehensive training for students with basic and advanced knowledge and practical dexterity of Dental Technology and Mechanics
2. Knowledge and skills including communication skills necessary to be a dental lab entrepreneur and fabricate dental prosthesis and appliances.

## 9. MINIMUM REQUIREMENTS FOR INSTITUTIONS IMPARTING TRAINING FOR DENTAL MECHANIC

9.1 The medium of instruction shall be in English.

9.2 The minimum hours devoted to the under mentioned subjects shall be as follows:

### FIRST YEAR

Subjects	Lectures	Demonstrations / Practicals	Total
Applied Physics & Mechanic	30	20	50
Applied Chemistry	30	20	50
Applied Oral Anatomy	20	90	110
Dental Materials	20	40	60
Dental Metallurgy	15	15	30
Dental Mechanic (Primary)	30	600	630
<b>Total</b>	<b>145</b>	<b>785</b>	<b>930</b>

### SECOND YEAR

Subjects	Lectures	Demonstrations / Practicals	Total
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Dental Materials and Dental Metallurgy	20	40	60
Dental Mechanic (Final)	30	785	815
Basic Knowledge of computers and Medical Records Management	10	10	20
<b>Total</b>	<b>60</b>	<b>835</b>	<b>895</b>

9.3 The classes in different subjects of the curriculum shall be taught exclusively for the course.

9.4 There shall be at least one instructor for every 10 students working in Technical Laboratories at any given time.

9.5 For the teaching of dental subjects no person except those holding recognized dental qualification shall be employed as instructors. A person holding recognized Dental Mechanic Diploma shall also be eligible as a Tutor for the Demonstrations and supervision of Laboratory Practicals.

9.6 The institution imparting training in this course must possess the following minimum requirements, besides other criterion for recognized Dental College:

9.6.1 At least two class rooms i.e. one each for 1<sup>st</sup> & 2<sup>nd</sup> year students, at least one of which must be equipped with a LCD and OHP projector.

9.6.2 Subject wise Technical Laboratory facilities shall be provided for students to conduct practical / demonstrations on Applied Physics & Mechanic, Applied Chemistry, Applied Oral Anatomy, Dental Materials & Dental Metallurgy, Dental Mechanic (Primary) and Dental Mechanic (Final).

9.6.3 The laboratories shall be equipped with Ceramic Furnace, Pressable Furnace, Centrifugal/ Resistance Casting Machine, Burn out Furnace, Sand Blaster, Etching and Pickling Equipment, Blowtorch for Oxygen and LPG, Electro Polishing Unit, Acryliser, High Speed Dental Lathe, Lab Micro Motor etc.

9.6.4 A professional library with text books shall be available to the students for reference on the subjects of the Dental Mechanic Course.

9.6.5 Teaching staff: In addition to the requirement of BDS & MDS staff, exclusive teaching staff will be as under:

**(a)** Reader – MDS (Prosthodontics)..... One

**(b)** Lecturer – MDS (Prosthodontics).....One

**(c)** Tutor (Diploma in Dental Mechanic)..... One

**(d)** Other Staff for teaching Physics, Chemistry etc..... as required

9.7 The candidates shall do the following Pre-clinical work:

**9.7.1** Preparation of plaster blocks, edentulous models, shellac and auto-polymerizing base plates, occlusal rims, class-I ideal teeth set-up, wax up and curing.

**9.7.2** Model and die preparation.

**9.7.3** Preparation of inlay/crown on prepared models.

**9.7.4** RPD model duplication and wax pattern preparation followed by casting.

**9.7.5** Orthodontic wire exercises (straightening /circle /triangle /square)

**9.7.6** Fabrication of Orthodontic clasps and appliances.

**9.7.7** Single unit crown on Implant Analogue.

9.8 The minimum amount of practical work that has to be completed by each student during his/her two years course:-

**9.8.1 Complete Dentures**

**9.8.1.1** Acrylic-20

**9.8.1.2** Metallic-05

(At least 2 Dentures against natural teeth in the opposing jaw)

**9.8.2 Partial Dentures**

**9.8.2.1** Acrylic-15

**9.8.2.2** Metallic-05

**9.8.3** Repairing/Relining Of Dentures-20

**9.8.4** Inlays:

**9.8.4.1** Indirect Composite - 05

**9.8.4.2** Metallic-10

**9.8.4.3** Ceramic-01

9.8.5 Crowns:

**9.8.5.1** Acrylic-05

**9.8.5.2** PFM-05

**9.8.5.3** Metallic-05

**9.8.5.4** Pressable ceramic-01

**9.8.5.5** Zirconium/CAD-CAM-01(At least demonstration)

**9.8.6 Bridge Work (Various Types)**

**9.8.6.1** Provisional-10

**9.8.6.2** 3 Unit Metal-15

**9.8.6.3** 3 Unit PFM-15

**9.8.6.4** 3 Unit Resin Bonded-03

**9.8.7 Splints**

**9.8.7.1** Acrylic Cap Splint-03

**9.8.7.2** Night Guard (Vacuum formed)-03

**9.8.7.3** Bleaching Trays-02

**9.8.8** Maxillofacial Appliances-02

**9.8.9** Orthodontic Study Casts-06

- 9.8.10** Orthodontic Appliances-12
- 9.8.11** Implant Prostheses Fabrication-05  
(If facilities available)
- 9.8.12** Laminates And Veneers-01

Note: Appropriate Department to teach the Dental Mechanic Diploma Course.

In view of the difficulties experienced by dental departments and dental teachers of dental college, the teaching of Dental Mechanic Diploma Course be entrusted to the Department of Prosthodontics or to the faculty where above mentioned staff are available.

## 10. EXAMINATIONS

**10.1 Eligibility to Appear:** The following requirements shall be fulfilled by every candidate to become Eligible to appear for the Final examination. The examination shall be opened to any students who-

10.1.1 Has been enrolled during one academic year preceding the examination in an institution approved/recognized by the dental council of India for this purpose.

10.1.2 The candidates must have passed 10+2 or two years intermediate or equivalent course there of with science subjects (i.e.) physics, chemistry and biology from a recognized Indian university or pre-university / intermediate board.

10.1.3 Has his / her name submitted to the board of examiners by the head of the institution in which he/she is enrolled;

10.1.4 Produce the following certificates signed by the head of the institution

- Certificate of good character
- **Attendance Certificate:** Every candidate shall fulfill at least 75 % of the attendance during the each academic year of the Dental Mechanic Diploma course.

10.1.5 **Progress and Conduct:**

- Every candidate shall complete the **Work Quota** as designed by the concerned department. The satisfactory work completion certificate shall be certified by the Head of the department.
- **Work diary and Log book:** Every candidate shall maintain a Work Diary and Log book for recording his or her participation in the training program conducted by the department. The work done diary and log book shall be verified and certified by the Head of the department, Head of the institution and the Dean of Dental Faculty. The certification of satisfactory progress is based on the Work diary and Log book.



**10.2** Every candidate shall forward his/her application to the examining body by a date fixed by that body, accompanied by the prescribed fee. A candidate who fails to pass or present himself/herself for examination shall not be entitled to claim a refund of the fee.

**10.3 University Examinations:**

**10.3.1** The University examination shall be held on such dates as may be fixed by the University

**10.3.2** The Dental Mechanic Diploma Course Shall Have Two University/External Examinations: (1) Primary University Examination and (2) Final University Examination

**10.3.3** There shall be a Supplementary Examination for the failed candidates in one or more subjects.

**10.3.4** Supplementary Examination shall be conducted within the SIX months after the main/regular examination.

**10.3.5 The Primary University examination:**

**10.3.5.1** Primary University Examinations shall be conducted in the last month of Successful completion of First Academic years of Dental Mechanic Diploma Course

**10.3.5.2** Every candidate shall be required to take up all subjects of the Primary University Examination.

**10.3.5.3** TITLE OF PAPERS: For written examination, following shall be the Titles of

Papers in which the students shall be examined

Paper - I - Applied Physics, Chemistry and Mechanic

Paper - II - Dental Mechanic (Primary)

Paper - III - Applied Oral Anatomy

**10.3.5.4** Each theory paper shall be of THREE hours duration

**10.3.5.5** The practical examination shall be conducted in the subjects of

**10.3.5.6** Dental Mechanic (Primary)

**10.3.5.7** Applied Oral Anatomy

**10.3.5.8** Viva voce of 25 marks for all THREE subjects shall be conducted at the same day of practical examination by the same examiners who are selected for Practical Examinations.

**10.3.5.9** Scheme of examinations and distribution of marks shall be as shown in following table:

PAPER No	TITLE	Written/ Theory Examinations	Oral/ Viva Voce	Practical Examinations	Total
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Paper-I	Applied Physics, Chemistry and Mechanic	75	25	NA	100
Paper-II	Dental Mechanic (Primary)	75	25	100	200
Paper-III	Applied Oral Anatomy	75	25	100	200

**10.3.5.10** Each theory paper shall consist of two sections as follows:

**a.** Section I.....40 marks

**b.** Section II.....35 marks

**10.3.5.11** Scheme of Theory question paper is as shown in **Annexure-I**

**10.3.5.12** The practical examination shall be conducted for one day for both the subjects

**10.3.5.13** The practical examination shall include, but not necessarily be limited to the following:

- Model preparation, beading, and boxing of models
- Class-I ideal denture setup and wax up
- RPD- surveying of models and wax pattern preparation
- Spotting of dental materials, specimens
- Manipulation of lab dental materials
- Carving of teeth

#### **10.3.6 The Final University Examinations:**

**10.3.6.1** Final University Examinations shall be conducted in the last month of Successful completion of First Academic years of Dental Mechanic Diploma Course

**10.3.6.2** The candidate who has cleared Primary University Examination can only be eligible to appear the Final University Examinations along with other eligibility criteria mentioned in **10.1**

**10.3.6.3** Every candidate shall be required to take up all subjects of the Final University Examinations

**10.3.6.4** TITLE OF PAPERS: For written examination, following shall be the Titles of

Papers in which the students shall be examined Paper - I - Dental Mechanic (Final)

Paper - II - Dental Materials & Metallurgy

Paper - III - Basic Knowledge of Computer & Medical Records Management

**10.3.6.5** Each theory paper shall be of THREE hours duration

**10.3.6.6** The practical examination shall be conducted in the subject of Dental Mechanic (Final)

**10.3.6.7** Viva voce of 25 marks for all THREE subjects shall be conducted at the same day of practical examination by the same examiners who are selected for Practical Examinations.

**10.3.6.8** Topic covered under Dental Mechanic Primary Examination shall not be repeated in the final examination.

**10.3.6.9** Scheme of examinations and distribution of marks shall be as shown in following table:

PAPER No	TITLE	Written/Theory Examination	Oral	Practical	Total
Paper-I	Dental Mechanic (Final)	75	25	100	200
Paper-II	Dental Materials & Metallurgy	75	25	-----	100
Paper-III	Basic Knowledge of Computer & Medical Records Management	75	25	-----	100

**10.3.6.10** The practical examination shall be conducted for one day.

**10.3.6.11** The practical examination shall include, but not necessarily be limited to the following:

- Three units all metal FPD.
- Model pouring.
- Die-preparation.
- Ditching.
- Spacer application.
- Wax pattern.
- Casting of all metal bridge.
- Ceramic application on single unit crown (Cast before)

#### **10.4 EXAMINATION CENTRE:**

**10.4.1** Selection of center for Theory Examinations will be rotated as per the discretion of the University.

**10.4.2** The practical examination centre shall be in the department of Prosthodontics of the colleges.

#### **10.5 SELECTION OF THE EXAMINERS**

10.5.1 An examination for the grant of Diploma in Dental Mechanic shall be conducted by a board of three examiners imparting for qualification of Diploma in Dental Mechanic Course approved by the Dental Council of India.

10.5.2 One of the examiners must be external (from outside the institution)

10.5.3 Out of 3 members of Examining Board the external and one internal examiner shall be a Reader in prosthodontics (MDS) and third examiner can be a Tutor (dental Mechanic) involved in practical teaching of the course

10.5.4 She/he shall be an active teacher of the prosthodontics specialty at the level of reader in the department of prosthodontics in a recognized dental institution

10.5.5 The panel of examiners shall be prepared as per the Sumandeep Vidyapeeth

#### **10.6 NUMBER OF ATTEMPTS:**

10.6.1 A candidate registered for Two years Dental Mechanic Diploma Course must qualify in the Examinations within six years from the date of his / her admission.

10.6.2 The candidate shall not be permitted to appear for more than **Six attempts** in the final examinations and shall be discharged from the course if he / she fails to pass examination in the said number of attempts.

10.6.3 The discretionary powers pertaining to number of attempts will be with The Vice chancellor of Sumandeep Vidyapeeth.

#### **10.7 GRACING PATTERN:**

There shall be provision of 5 Grace Marks in the Dental Mechanic Diploma Course examinations either in Theory and / or in Practical if the student is failing only in ONE subject.

#### **10.8 CRITERIA FOR DECLARING AS PASS IN THE SUBJECT:**

10.8.1 The minimum marks criteria required to pass the examination shall be fifty percent in each paper both in the (i) written with oral and (ii) practical parts of the examination. A candidate securing less mark as described above shall be declared to have failed in the examination.

10.8.2 Candidates who obtain minimum of seventy five percent marks in any paper under examination and passes in all three subjects in first attempt shall be declared to have passed with distinction in a particular subject/s.

10.8.3 Candidates who do not pass in all the papers in the first attempt and later obtains the distinction marks shall be declared as passed but without distinction.

10.8.4 As soon as possible after the examination, the board of examiners shall publish a list of the candidates who have passed.

10.8.5 Each successful candidate for Final Examination shall be granted a DIPLOMA IN DENTAL MECHANIC.

10.8.6 There shall not be a gap of more than two academic years between Primary and Final Diploma Exams.

10.8.7 The candidate, who has passed all subjects of first/primary year of Dental Mechanic Course, shall only be allowed to appear for the final year of Dental Mechanic Course, University Examinations.

10.8.8 The Unsuccessful Candidate shall compulsorily appear in both- Theory as well as Practical / Clinical examination irrespective to the failing in either of them.

#### **10.9 DECLARATION OF THE RESULT**

10.9.1 The results will be compiled and presented to review board of the University.

10.9.2 The review board consists of the Vice-Chancellor, Registrar, Dean of Dental Faculty, Controller of Examination and the nominated Moderator.

10.9.3 Review board will decide whether the results are fair and just or needs to be evaluated by the Examination Reforms Cell.

10.9.4 Results after review will be declared within 15 days of the last Practical Examinations.

10.9.5 Results will be displayed on the University Notice Board and on the Web-site.

#### **10.10 RE-EVALUATION AND RE-TOTALING OF ANSWER BOOKS:**

10.10.1 Re-evaluation of answer books is not permitted.

10.10.2 Re-totaling of answer books means repeat calculation or totaling of marks allotted by the Paper assessor to each answer.

10.10.3 Re-totaling shall be conducted in any subject irrespective for passed or failed subjects.

10.10.4 The Re-totaling of answer book shall be conducted only Once.

10.10.5 The Application for Re-totaling of answer books shall be made by the candidate within seven working days from the declaration of Result.

10.10.6 The candidate shall not be considered as Passed in the failed subject till the result of re-totaling is declared.

10.10.7 Variation of marks in the Re-totaling of answer books shall be considered as the marks obtained by the candidate. The previous obtained marks of the respective subject shall be considered null and void.

#### **10.11 AWARD OF DISTINCTION AND UNIVERSITY RANKS:**

10.11.1 Distinction will be awarded to successful candidates who secure 75% marks or more as a course aggregate in the concerned subject without any failure.

10.11.2 The names of First rank holders at the end of the course without any failure shall be published in the University Gazette and shall be displayed on the University website.

## **PRIMARY DENTAL MECHANIC (1<sup>ST</sup> YEAR)**

### **1. APPLIED PHYSICS:**

- 1.1** Specific gravity, density, properties of matter, including cohesion, capillarity, surface tension viscosity, elasticity, diffusion and osmosis
- 1.2** 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 melting point.
- 1.3** Properties of vapors, conduction, convection and radiation
- 1.4** Principles of electro-technology applied to dental work room small motors, constructional features and characteristics, electric furnaces, thermostats, pyrometers, spot welders, electroplating, electroforming, and anodizing, wiring regulations relating to low voltage supplies.
- 1.5** Exercises/Demonstrations:
  - 1.5.1** Balance – weighing correct to a milligram
  - 1.5.2** Determination of specific gravity by the principle of Archimedes (solids and liquids)
  - 1.5.3** Determination of surface tension of a liquid by capillary rise
  - 1.5.4** Determination of linear expansion of solids (level method)
  - 1.5.5** Determination of the specific heats of solids and liquids by the method of mixtures
  - 1.5.6** Small motors constructional features and characteristics (demonstration only)
  - 1.5.7** Determination of the electro-chemical – equivalent of copper

### **2. APPLIED MECHANIC :**

- 2.1** Forces, Parallelogram and triangle of forces.
- 2.2** Moments,
- 2.3** Couples,
- 2.4** Centre of gravity principles of lever and cantilever work,
- 2.5** Energy, power, friction, inclined plane, screw stress, strain, shearing strain, torsion, bending movements, strength and stiffness of materials.
- 2.6** Exercises / Demonstration:
  - 2.6.1** Verification of the parallelogram and triangle laws of forces.
  - 2.6.2** Inclined plane determination of mechanical advantage.
  - 2.6.3** Determination of young's Modulus by bending of beams.

### **3. APPLIED CHEMISTRY :**

- 3.1** Distinction between physical and chemical change; elements, mixtures, and compounds composition of the atmosphere;
- 3.2** 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 valancy; simple chemical equations; acids, bases and salts.
- 3.3** 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.
- 3.4** Alcohol, ethers, aldehydes and ketones, fatty acids and their more important derivatives, amines.
- 3.5** Simple treatment of carbohydrates, fats and proteins, Benzene and its homologues.
- 3.6** General characteristics of aromatic substances.
- 3.7** Synthetic resins and plastics used in dentistry
- 3.8** EXERCISE/DEMONSTRATIONS:
  - 3.8.1** Tests for acids and alkalis radicals.
  - 3.8.2** Acid-base titration –Neutralization of acids with alkalis.
  - 3.8.3** Titration of N/10 NaOH with N/10 H<sub>2</sub>SO<sub>4</sub>, Phenolphthalein or methyl red as indicator  
24.
  - 3.8.4** Total nitrogen determination in in-organic (ammoniacal) solutions (or salts) by direct distillation with Mg.
  - 3.8.5** Determination of phosphorus in in-organic materials by precipitation.
  - 3.8.6** Determination of potassium in aqueous solution by per chlorate method.
  - 3.8.7** Electrolytic deposition (electrolysis and electroplating of metals):
    - 3.8.7.1** Deposition of Copper by electrolysis of copper Sulphate solution.
    - 3.8.7.2** Calculation of E.C.E.

**COURSE OUTCOME:** At the end of the course the students shall be able to understand the application of principles of Physics, Chemistry and mechanics to Dental biomechanics, apply the principles of Physics to procedures involved in fabrication of dental appliances and functioning of dental equipment, apply the principles of Chemistry to Dental materials involved in fabrication of dental appliances.

#### **4. APPLIED ORAL ANATOMY**

- 4.1 Elementary anatomy and structure of denture/bearing area.
- 4.2 Human dentition and occlusion.
- 4.3 Functions of teeth and morphology of crowns of teeth.



- 4.4 Muscles of mastication and facial expression.
- 4.5 Mastication deglutition and phonation.
- 4.6 Movements of temporo-mandibular joint.
- 4.7 Exercise/Demonstration.
- 4.8 Tooth carving in wax and plaster. (crown and root, scale and enlarged models)

**COURSE OUTCOME:** At the end of the course the students shall be able to have basic knowledge on Morphology of both deciduous and permanent teeth with thorough understanding of methods of identifying the teeth and age of the plaster cast and principles of Occlusion and possess basic skills in Wax carving of teeth and identify the basic histology slides by microscopy

## **5. DENTAL MECHANIC (PRIMARY)**

- 5.1 Infection control measures for impressions and models
- 5.2 Impression preservation and Boxing-in
- 5.3 Cast: preparation, trimming, including Orthodontic casts
- 5.4 Cast duplication –various methods
- 5.5 Construction of special trays-spacers
- 5.6 Bite blocks - plates and wax rims
- 5.7 Articulators: Classification, daily uses, and care of articulators
- 5.8 Adjustments, mounting of casts
- 5.9 Articulation, occlusal plane, protrusive balance, working bite, balancing bite, curve of spee, compensating curve, lateral curve
- 5.10 Principles of selection of teeth
- 5.11 Setting of teeth, wax-up finishing and polishing
  - 5.12 Flasking, Dewaxing, Paking, Curing, Deflasking, Finishing and Polishing
- 5.13 Additions, repairs, Relining and rebasing of dentures
- 5.14 Immediate denture construction
- 5.15 Making of acrylic teeth
- 5.16 Kennedy's classification of partial dentures
- 5.17 Principles of partial denture, design, clasp surveyor, surveying, path of insertion and removal. Establishment of clasp seat. Clasp's parts, classification function and reciprocation
- 5.18 Principles of wire bending, Preparation of wrought clasps occlusal rests and lingual bar
- 5.19 Flexible Denture
- 5.20 CAD-CAM Dentures
- 5.21 Components of Dental Implants"
  - 1. KMSDCH/BOS/06/2022 dated 24/05/2022
  - 2. SVDU/RV3921 -B,12021 -22 dated July 30,2022

**COURSE OUTCOME:** At the end of the course the students shall be able to have basic knowledge of fabrication of models, related to complete denture and Removable Partial Prosthodontics and Orthodontics and demonstrate the skill to perform all steps involved in the fabrication of removable appliances.

## **FINAL YEAR DENTAL MECHANIC (2<sup>ND</sup> YEAR)**

### **1. DENTAL MECHANIC (FINAL)**

- 1.1 Furnaces,
  - 1.2 Principles of casting
  - 1.3 Casting machines: Centrifugal and pressure casting machines
  - 1.4 Casting techniques of partial denture (skeletal) Clasps, bars, occlusal rest
  - 1.5 Setting of teeth and completion of dentures on metal skeletons
  - 1.6 Mechanical principles of Orthodontic appliances, anchorage, force, tissue changes and retention
  - 1.7 Stainless steel wire preparation of clasps, springs and Arch wires for Orthodontic appliances
  - 1.8 Use of various types of expansion screws
  - 1.9 Designing – Implant supported prosthesis of facilities available for dental implants
  - 1.10 Ceramic, laminates and Veneers
  - 1.11 Fabricating – Maxillofacial prosthesis such as eye, nose ear, cheek, obturator and splint
  - 1.12 Indirect Resin Restoration preparation techniques
  - 1.13 Porcelain firing techniques
  - 1.14 Preparation of Removable Orthodontic appliances, activators, Retention appliances and Oral screen
  - 1.15 Construction of fixed Orthodontic appliances, bands, rules and arches
  - 1.16 Soldering and spot welding-soldering of clasps, tags, strengtheners and lingual bars
  - 1.17 Inlays and Crowns – classification and construction facing & backings
  - 1.18 Casting Procedures
  - 1.19 Principles of bridge work-types of abutments – abutments and pontics
  - 1.20 Fabrication of bridges using porcelain and acrylic pontics
  - 1.21 CAD-CAM methods
  - 1.22 3-D Printing
  - 1.23 Innovation and Intellectual and Property Rights., legal basis of intellectual property protection, need for protecting IPR, major IP laws in india, types of IPR.- patent –copyright.
1. KMSDCH/BOS/33/2020-21 dated 03-08-2021  
2SVDU/Ry3051 -212020-21 dated July 29,2021. .

**COURSE OUCOME:** At the end of the course the students shall be able to understand the basics of principles and techniques involved in fabrication of Fixed

partial, implant and maxillofacial prosthodontics and possess skills to fabricate Fixed partial, implant and maxillofacial prosthesis.

## **2. DENTAL MATERIALS AND DENTAL METALLURGY**

### **DENTAL MATERIALS:**

- 2.1 Composition, properties, uses, advantages and disadvantages of the following materials.
- 2.2 Plaster of Paris, Dental stone, die stone
- 2.3 Investment materials
- 2.4 All impression materials
- 2.5 Tray materials
- 2.6 Denture base materials both for cold curing and heat, Tooth Materials waxes
- 2.7 Base plates
- 2.8 Zinc oxide
- 2.9 Dental Luting cements
- 2.10 Dental ceramics and indirect resin restoration materials
- 2.11 Zirconia
- 2.12 PEEK
- 2.13 Indirect composites

**COURSE OUTCOME:** At the end of the course the students shall be able to understand the Principles and application of dental materials and metallurgy and possess the skills related to manipulation of Dental materials involved in Dental laboratory and Metallurgy

### **DENTAL METALLURGY:**

- 2.14 Metallurgical Terms
- 2.15 Study of Metal used in Dentistry particularly Gold silver, Copper, Zinc, Tin, Lead and Aluminum
- 2.16 Study of Alloys used in Dentistry particularly, Casting gold wrought gold silver alloys, stainless steel, Chrome cobalt Alloys
- 2.17 Heat treatment annealing and tempering
- 2.18 Solders, Fluxes, Anti fluxes
- 2.19 Tarnish and corrosion
- 2.20 Electric deposition
- 2.21 Dental implant materials

**COURSE OUTCOME:** At the end of the Dental Materials and Metallurgy course the students shall be able to understand the Principles and application of dental materials and metallurgy and possess the skills related to manipulation of Dental materials involved in Dental laboratory and Metallurgy

### **3. BASIC KNOWLEDGE OF COMPUTERS & MEDICAL RECORDS MANAGEMENT:**

- 3.1** General office routine economics, record-keeping services, professional referrals and computing skill;
- 3.2** Record keeping of materials indented and audit of use
- 3.3** Receipt and dispatch of work from clinicians
- 3.4 Work Authorization
- 3.5 Laboratory Management Software
- 3.6 Use of Internet to enhance Laboratory work flow

**COURSE OUTCOME:** At the end of the course the students shall be able to have the knowledge of means and use of record keeping, lab economics and lab audits be able to give lab prescriptions and communicate effectively to dentists.

#### **ANNEXURE-I: FORMAT OF QUESTION PAPER**

**SUMANDEEP VIDYAPEETH**

**K. M. SHAH DENTAL COLLEGE AND HOSPITAL**

**DENTAL MECHANIC DIPLOMA**

\_\_\_\_\_ YEAR      SUBJECT: \_\_\_\_\_

**Date:**

**Time:**

**3**

**hours**

**Total Marks: 70**

**Instructions:**

1. Write Answer of each section in separate answer book
2. Draw figure whenever necessary

3. Write legibly

**Section-I**

Que-1 Long Question 10 Marks

Que-2 Long Question 10 Marks

OR

Que-2 Long Question 10 Marks

Que-3 Short Notes [Any 3 out of 4] 15 Marks

Que-4 Short Questions [Any 5 out of 7] 05 Marks

**Section-II**

Que-5 Long Question 10 Marks

Que-5 Long Question 10 Marks

OR

Que-5 Long Question 10 Marks

Que-6 Short Notes [Any 2 out of 3] 10 Marks

Que-7 Short Questions [Any 5 out of 7] 05 Marks

**MARK SHEET**

**PRIMARY UNIVERSITY PRACTICAL EXAMINATION**

**MONTH & YEAR** \_\_\_\_\_ **DATE** \_\_\_\_\_

**SUBJECT- DENTAL MECHANICS-PRIMARY**

<b>Exam No</b>	<b>Class I Teeth Setting &amp; Waxing- Carving Or Acrylization 50marks</b>	<b>Spotters Of Dental Materials- (10x2) 20 Marks</b>	<b>Manipulation Of Dental Materials 10 Marks</b>	<b>RPD Surveying &amp; Wax Pattern OR Beading- Boxing &amp; Impression pouring 20 Marks</b>	<b>Total 100 Marks</b>

**Name & Signature of Internal Examiner**  
**External Examiner**

**Name & Signature of**

**MARK SHEET**

**PRIMARY UNIVERSITY ORAL/ VICE-VOCE EXAMINATION**

**MONTH & YEAR\_\_\_\_\_DATE\_\_\_\_\_**

**SUBJECT- APPLIED PHYSICS, CHEMISTRY AND MECHANICS**

<b>EXAM NO</b>	<b>ORAL/ VIVA- VOCE (25)</b>

**Name & Signature of Internal Examiner**  
**External Examiner**

**Name & Signature of**



**MARK SHEET**

**PRIMARY UNIVERSITY ORAL/ VIVA-VOCE EXAMINATION**

**MONTH & YEAR**\_\_\_\_\_

**DATE**\_\_\_\_\_

**SUBJECT- DENTAL MECHANICS-PRIMARY**

<b>EXAM NO</b>	<b>ORAL/ VIVA- VOCE</b>  <b>(25)</b>

**Name & Sign of Internal Examiner      Name & Sign of External Examiner**

**MARK SHEET**

**PRIMARY UNIVERSITY ORAL/ VIVA-VOCE EXAMINATION**

**MONTH & YEAR**\_\_\_\_\_ **DATE**\_\_\_\_\_

**SUBJECT- APPLIED ORAL ANATOMY**

<b>EXAM NO</b>	<b>VIVA- VOCE (25)</b>

**Name & Sign of Internal Examiner    Name & Sign of External Examiner**

**MARK SHEET**

**PRIMARY UNIVERSITY PRACTICAL EXAMINATION**

**MONTH & YEAR** \_\_\_\_\_ **DATE** \_\_\_\_\_

**SUBJECT- APPLIED ORAL ANATOMY**

<b>Exam No</b>	<b>Anterior Tooth Carving 30 Marks</b>	<b>Posterior Tooth Carving 40 Marks</b>	<b>Spotters (10X3) 30 Marks</b>	<b>Total 100 Marks</b>

**Name & Sign of Internal Examiner      Name & Sign of External Examiner**

**K. M. SHAH DENTAL COLLEGE AND HOSPITAL**

**DENTAL MECHANIC DIPLOMA COURSE**

**MARK SHEET**

**FINAL YEAR UNIVERSITY PRACTICAL EXAMINATION**

**MONTH & YEAR**\_\_\_\_\_ **DATE**\_\_\_\_\_

**SUBJECT- DENTAL MECHANICS-FINAL**

	Three unit FPD (60 marks)						RPD (40 marks)		Total
No	Model pouring	Die	Ditching	Spacer application	Wax pattern	Casting	Designing	Wax pattern	100 Marks

**Name & Sign of Internal Examiner**

**Name & Sign of External Examiner**

**MARK SHEET**

**FINAL YEAR UNIVERSITY ORAL/VIVA-VOCE EXAMINATION**

**MONTH & YEAR** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**SUBJECT: DENTAL MECHANICS-FINAL**

<b>EXAM NO</b>	<b>VIVA- VOCE (25)</b>

**Name & Sign of Internal Examiner**

**Name & Sign of External Examiner**

**MARK SHEET**

**FINAL YEAR UNIVERSITY ORAL/VIVA-VOCE EXAMINATION**

**MONTH & YEAR\_\_\_\_\_**

**SUBJECT- BASIC KNOWLEDGE OF COMPUTER & MEDICAL RECORDS  
MANAGEMENT**

**DATE: \_\_\_\_\_**

<b>EXAM NO</b>	<b>VIVA- VOCE (25)</b>

**Name & Sign of Internal Examiner**

**Name & Sign of External Examiner**

**MARK SHEET**

**FINAL YEAR UNIVERSITY ORAL/VIVA-VOCE EXAMINATION**

**MONTH & YEAR** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**SUBJECT- DENTAL MATERIALS & METALLURGY**

<b>EXAM NO</b>	<b>VIVA- VOCE</b> <b>(25)</b>

**Name & Sign of Internal Examiner      Name & Sign of External Examiner**

