



# MAHE INSTITUTE OF DENTAL SCIENCES & HOSPITAL

Affiliated to Pondicherry Central University,  
Recognized by Dental Council of India  
Chalakkara, P.O. Pallor, Mahe-673 310  
U.T. of Puducherry. Ph : 0490 2337765

2.6.3: The teaching learning and assessment processes of the Institution are aligned with the stated learning outcomes.

## INDEX SHEET

SL.NO	DESCRIPTION	PAGE NO
1.	Certificate of the Head of the Institution	2
2.	Programme-specific learning outcomes BDS &MDS	4
3.	Program specific learning outcomes For bds	5
4.	PROGRAM SPECIFIC LEARNING OUTCOMES FOR MDS	27



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**CERTIFICATE OF THE HEAD OF THE INSTITUTION**



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Dr. ANIL MELATH, MDS.,  
PRINCIPAL

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that the teaching learning and assessment processes of the Institution are aligned with the stated learning outcomes. , details are given:



PRINCIPAL

Dr. Anil Melath, MDS  
Principal  
Mahe Institute of Dental Sciences & Hospital  
Chalakkara, P.O. Pallor, Mahe -673310  
UT of Puducherry





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## **PROGRAMME-SPECIFIC LEARNING OUTCOMES**

### **BDS & MDS**



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## **PROGRAM SPECIFIC LEARNING OUTCOMES FOR BDS**



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The student after the completion higher secondary education joins the dental undergraduate curriculum with basic knowledge are subjected to dental curriculum in a step wise approach starting from introductory phase with basic preclinical dental and medical training and transformed into a advanced dental training to face the challenge in a phasic manner.

It transforms the knowledge component gained in the introductory phase into cognitive and psychomotor skills and achieving excellence in clinical skill.

The curriculum is structured to converge the program outcome to coincide with the course outcome measured with key performance indicators to assess the competency of practical skills and theory component using essay and short notes with execution of item analysis after the completion of examination.

**PO1:** To identify, describe, and apply the anatomical structures and relation to the nerve and muscle component related to head and neck of human body.

**PO2:** To identify, describe and apply the physiology of stomatognathic general systems of human body.

**PO3:** To identify, describe the various biochemical pathway /cycles of stomatognathic and general systems of human body.

**PO4:** To identify, describe and apply the etiopathology of various diseases affecting the general systems of human body.

**PO5:** To identify, describe and apply the selection/prescription of pharmaceutical drugs related to the general human body.

**PO6;** To identify, describe and apply the causes of microbial pathogens affecting the general and stomatognathic system.

**PO7:** To diagnose, interpret, analyze the clinical features of diseases affecting the oral cavity and to differentiate it from other closely related disease.

**PO8:** To process X rays without any distortion and interpret the radiological features of oral diseases without any error.

**PO9:** To diagnose the carious and non-carious diseases affecting the tooth and supporting structures.

**P10:** To restore the diseased tooth structure and aid in maintenance of the integrity of tooth/supporting structure without any pain and discomfort.

**PO11:** To diagnose the causes of malalignment of tooth structure and technique to manage it without any relapse.

**PO12:** To diagnose the causes of diseases affecting the periodontal structure and maintenance of health of supporting structures surrounding the natural dentition.

**PO 13:** To plan the treatment for replacement of missing tooth structure using different strategies



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and protocols.

**PO 14:** To identify, select and perform different indices to assess the progress of diseases and promote awareness from the preventive aspects of diseases in the society.

**PO 15:** To identify, diagnose and differentiate different types of lesions affecting the soft and hard tissues of the oral cavity utilizing the histological aspects employing microscope.

**PO 16:** To diagnose and manage through the surgical aspects of oral diseases, tumors and traumatic injuries of the intra and extra oral structure with appropriate suturing techniques.

**PO17:** To diagnose, interpret and correlate the basic anatomical, physiological biochemical and pathological aspects different cardio vascular, Central nervous system.

**PO18:** To diagnose, interpret and correlate the knowledge basic of medical and surgical aspects of cardio vascular and central nervous system.

The above program outcome measures for the Undergraduate curriculum should be achieved using the course outcome framed by course directors with the guidance and monitoring of the dental education department.

Course Code	Subject	Course outcome
ANA12	ANATOMICAL SCIENCE	<p><b>A) KNOWLEDGE &amp; UNDERSTANDING</b></p> <ol style="list-style-type: none"> <li>1. Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.</li> <li>2. Know the anatomical basis of disease and injury.</li> <li>3. Know the microscopic structure of the various tissues, a pre-requisite for understanding of the disease processes.</li> <li>4. Know the nervous system to locate the site of lesions according to the sensory and or motor deficits encountered.</li> <li>5. Have an idea about the basis of abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards.</li> <li>6. Know the sectional anatomy of head neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.</li> <li>7. Know the anatomy of cardio-pulmonary resuscitation</li> </ol> <p><b>B) SKILLS</b></p> <ol style="list-style-type: none"> <li>1. To locate various structures of the body and to mark the topography of the living anatomy.</li> <li>2. To identify various tissues under microscope.</li> <li>3. To identify the features in radiographs and modern</li> </ol>



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		<p>imaging techniques.</p> <p>4. To detect various congenital abnormalities.</p> <p style="text-align: center;">C) INTEGRATION</p> <p>By emphasizing on the relevant information and avoiding unwanted details, the anatomy taught integrally with other basic sciences &amp; clinical subjects not only keeps the curiosity alive in the learner but also lays down the scientific foundation for making a better doctor, a benefit to the society.</p> <p style="text-align: center;">D) ATTITUDE</p> <p>To have the knowledge about oral structures and give proper treatment on patient based</p>
<b>PHY12</b>	<b>PHYSIOLOGY</b>	<p>A) KNOWLEDGE &amp; UNDERSTANDING</p> <p>At the end of the course, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. Explain the normal functioning of all the organ systems and their interactions for well co-ordinated total body function.</li> <li>2. Assess the relative contribution of each organ system towards the maintenance of the milieu interior.</li> <li>3. List the physiological principles underlying the pathogenesis and treatment of disease.</li> </ol> <p>B) SKILLS</p> <p>At the end of the course, the student shall be able to :</p> <ol style="list-style-type: none"> <li>1. Conduct experiments designed for the study of physiological phenomena.</li> <li>2. Interpret experimental and investigative data</li> <li>3. Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.</li> </ol> <p>C) INTEGRATION</p> <p>At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.</p> <p>D) ATTITUDE:</p> <p>To develop attitude in treating patients in various Community</p>





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<b>BIO12</b>	<b>BIOCHEMISTRY</b>	<p>A) KNOWLEDGE &amp; UNDERSTANDING</p> <ol style="list-style-type: none"><li>1. Need not know the structure of cholesterol. Should know why it cannot be carried free in plasma.</li><li>2. . Student should know why amylase will not hydrolyse cellulose.</li><li>3. Need to know the details of alpha - helix and beta - pleats in proteins. Should know why haemoglobin is globular and keratin is fibrous.</li><li>4. Need to know mechanism of oxidative phosphorylation. Should know more than 90 % of ATP is formed by this process.</li><li>5. Need to know details of the conversion of pepsinogen to pepsin. Should know hydrochloric acid cannot break a peptide bond at room temperature.</li><li>6. Need not remember the steps of glycogenesis. Should know that excess intake of carbohydrate will not increase glycogen level in liver or muscle.</li></ol>
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	<p>7. Need to know about urea or creatinine clearance tests. Should know the basis of increase of urea and creatinine in blood in renal insufficiency.</p> <p>8. Need to know the structure of insulin. Should know why insulin level in circulation is normal in most cases of maturity onset diabetes.</p> <p>9. Need to know the structural details of ATP. Should know why about 10 g of ATP in the body at any given time meets all the energy needs.</p> <p>10. Need to know the mechanism of action of prolyhydroxylase. Should know why the gum bleeds in scurvy.</p> <p>11. Need to know the structure of Vitamin K. Should know the basis of internal bleeding arising due to its deficiency.</p> <p>12. Need to remember the structure of HMGCoA. Should know why it does not lead to increased cholesterol synthesis in starvation</p> <p><b>B) SKILLS</b> To know about Qualitative analysis of carbohydrates, Color reactions of proteins and amino acids, Identification of nonprotein nitrogen substance, Normal constituents of urine, Abnormal constituents of urine, Analysis of saliva including amylase, Analysis of milk Quantitative estimations, Titrable acidity and ammonia in urine, Free and total acidity in gastric juice, Blood glucose estimation, Serum total protein estimation, Urine creatinine estimation Demonstration, Paper electrophoresis charts/clinical data evaluation, Glucose tolerance test profiles, Serum lipid profiles, Profiles of hypothyroidism and hyperthyroidism, Profiles of hyper and hypoparathyroidism, Profiles of liver function, Urea, uric acid creatinine profile in kidney disorders, Blood gas profile in acidosis/ alkalosis</p> <p><b>C) INTERGRATION</b> At the end of the course the student would be able to acquire a useful core of information, which can be retained for a long time. Typical acid tests can be used to determine what is to be taught or what is to be learnt.</p> <p><b>D) ATTITUDE</b> All kinds of laboratory tests to be known and to give correct test to the proper patients in need</p>
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<b>DAOH12</b>	<b>DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY</b>	<p><b>A) KNOWLEDGE &amp; UNDERSTANDING</b> To know about the dental apparatus completely , its growth, formation and development. To know about the various layers of the teeth and associated structures of oral cavity Dental Anatomy including Embryology and Oral Histology – a composite of basic Dental Sciences &amp; their clinical applications.</p> <p><b>B) SKILLS</b> The student should acquire basic skills in :</p> <ol style="list-style-type: none"><li>1. Carving of crowns of permanent teeth in wax.</li><li>2. Microscopic study of Oral tissues.</li><li>3. Identification of Deciduous &amp; Permanent teeth.</li><li>4. Age estimation by patterns of teeth eruption from plaster casts of different age groups.</li></ol> <p><b>C) INTERGRATION</b> 1. The student is expected to appreciate the normal development, morphology, structure &amp; functions of oral tissues &amp; variations in different pathological/non- pathological states. 2. The student should understand the histological basis of various dental treatment procedures and physiologic ageing process in the dental tissues. 3. The students must know the basic knowledge of various research methodologies</p> <p><b>D) ATTITUDE</b> To find and differntiate between noraml of infected oral environment and treat according to need</p>
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<b>GPA22</b>	<b>GENERAL PATHOLOGY</b>	<p><b>A) KNOWLEDGE &amp; UNDERSTANDING</b></p> <ol style="list-style-type: none"><li>1. To demonstrate and apply basic facts, concepts and theories in the field of Pathology.</li><li>2. To recognize and analyze pathological changes at macroscopically and microscopical levels and explain their observations in terms of disease processes.</li><li>3. To Integrate knowledge from the basic sciences, clinical medicine and dentistry in the study of Pathology.</li><li>4. To demonstrate understanding of the capabilities and limitations of morphological Pathology in its contribution to medicine, dentistry and biological research.</li><li>5. To demonstrate ability to consult resource materials outside lectures, laboratory and tutorial classes.</li></ol> <p><b>B) SKILLS</b></p> <p>Graduate should be able to identify abnormal diseases like tumor, non tumor and also to arrive what are the investigations needed for the diagnosis of the diseases. To carry out certain investigations and ability to interpret lab findings.</p> <p><b>C) INTERGRATION</b></p> <p>Apply the scientific study of disease processes, which result in morphological and functional alterations in cells, tissues and organs to the study of pathology and the practice of dentistry</p> <p><b>D)ATTITUDE</b></p> <p>To have comprehensive treatment out come for the patient, to decide treatment in need</p>
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<p><b>MIC22</b></p>	<p><b>MICROBIOLOGY</b></p>	<p><b>A. KNOWLEDGE AND UNDERSTANDING</b>          At the end of the Microbiology course the student is expected to :</p> <ol style="list-style-type: none"> <li>1. Understand the basics of various branches of microbiology and able to apply the knowledge relevantly.</li> <li>2. Apply the knowledge gained in related medical subjects like General Medicine and General Surgery and Dental subjects like Oral Pathology, Community Dentistry, Periodontics, Oral Surgery, Pedodontics, Conservative Dentistry and Oral medicine in higher classes.</li> <li>3. Understand and practice various methods of Sterilisation and disinfection in dental clinics.</li> <li>4. Have a sound understanding of various infectious diseases and lesions in the oral cavity.</li> </ol> <p><b>B) SKILLS</b></p> <ol style="list-style-type: none"> <li>1. Student should have acquired the skill to diagnose, differentiate various oral lesions.</li> <li>2. Should be able to select, collect and transport clinical specimens to the laboratory.</li> <li>3. Should be able to carry out proper aseptic procedures in the dental clinic.</li> </ol> <p><b>C) INTERGRATION</b>          To introduce the students to the exciting world of microbes. To make the students aware of various branches of microbiology, importance, significance and contribution of each branch to mankind and other fields of medicine</p> <p><b>D)ATTITUDE</b>          To know about varoius infection causing micro organisms and treat accordingly</p>
<p><b>DMA22</b></p>	<p><b>DENTAL MATERIALS</b></p>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b>          To understand the evolution and development of science of dental material. To explain purpose of course in dental materials to personnels concerned with the profession of the dentistry. Knowledge of physical and chemical properties. Knowledge of biomechanical requirements of particular restorative procedure. An intelligent compromise of the conflicting as well as co-ordinating factors into the desired Ernest. Laying down standards or specifications of various materials to guide to manufacturers as well as to help professionals.          Search for newer and better materials which may answer our requirements with greater satisfaction. To understand and evaluate the claims made by manufactures of dental materials</p>



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		<p><b>B) SKILLS</b>          The profession has to rise from an art to a science, , the need for the dentist to possess adequate knowledge of materials to exercises his best through knowledge of properties of different types of materials. The growing concern of health hazards due to mercury toxicity, inhalation of certain vapors or dust materials, irritations and allergic reaction to skin due to contact of materials. Materials causing irritation of oral tissues, pH of restorative materials causing inflammation and necrosis of pulp which is a cause for the dentist to possess wider knowledge of physical, chemical and biological properties of materials being used. For the protection for the patient and his own protection certain criteria of selection are provided that will enable the dentist to discriminate between facts and propaganda, which will make a material biologically accept.</p> <p><b>C) INTERGARTION</b>          The dental materials is employed in mechanical procedures including restorative dentistry such as Prosthodontics, endodontics, periodontal, orthodontics and restorative materials. There is scarcely a dental procedure that does not make use of dental materials in one form or another and therefore the application of dental material is not limited to any one branch of dentistry. Branches such as minor surgery and periodontics require less use of materials but the physical and chemical characters of materials are important in these fields</p> <p><b>D) ATTITUDE</b>          To select the particular type of material needed for restoration or replacement on the tooth for the patient</p>
<p><b>PCD22</b></p>	<p><b>PRE CLINICAL CONSERVATIVE DENTISTRY</b></p>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b>          Identification and study of handcutting instruments chisles, gingival margin trimmers,excavators and hatchet. Identification and use of rotary cutting instruments in contra angle hand pieces burs (Micromotor). Preparation class I and extended class I and class II and MOD's and class V amounting to 10 exercises in plaster models.</p> <p><b>B) SKILLS</b>          10 exercises in mounted extracted teeth of following class I, 4 in number class I extended cavities 2, class II 4 in number and Class V 2 in number. Cavity preparation base application matrix and wedge placement restoration with amalgam. Exercises on phantom head models which includes cavity preparation base and varnish application matrix and wedge placement followed by amalgam</p>



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		<p>restoration.          Class I - 5          Class I with extension - 2          Class II - 10          Class II Mods - 2          Class V and III for glass ionomers - 4          Class V for amalgam - 2  <b>C) INTERGRATION</b>          Demonstration of Class III and Class V cavity preparation. For composites on extracted tooth completing the restoration.          Polishing and finishing of the restoration of composites.          Identification and manipulation of varnish bases like Zinc Phosphate, Poly carboxylate, Glass Ionomers, Zinc Oxide, Eugenol cements.          Identification and manipulation of various matrices, tooth separators and materials like composites and modified glass ionomer cements.  <b>D) ATTITUDE</b>          To remove the decay from dental hard structure and give a necessary filling as permanent solution</p>
<p><b>PCP22</b></p>	<p><b>PRE CLINICAL PROSTHODONTICS</b></p>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b> Knowledge of scientific foundations, principles of biological functions, ability to analyse scientifically Adequate knowledge of development, structure &amp; function of the teeth, mouth and jaws and associated tissues          To understand the normal working of dental apparatus and organs surrounding it</p> <p><b>B) SKILLS</b>          To diagnose the need for functional rehabilitation of oral structures through dentures like Complete Dentures, Fixed partial dentures.          To Support the oral tissues with rehabilitation modality          To maintain Vertical Dimension at rest and at occlusion          To prepare the denture processing units to cast a denture for the patient</p> <p><b>C) INTERGRATION</b>          Intergrated knowledge on all divisions of prosthodontics (CD, RPD, FPD, implants etc.)</p>



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<p><b>OPM32</b></p>	<p><b>ORAL PATHOLOGY &amp; ORAL MICROBIOLOGY</b></p>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b>  A bird's eye view of the different pathological processes involving the oral cavity &amp; oral cavity involvement in systemic diseases to be brought out. Interrelationship between General Medicine &amp; General Surgery &amp; Oral pathology to be emphasized. Developmental disturbances of teeth, jaws and soft tissues of oral &amp; paraoral region</p> <p><b>B) SKILLS</b></p> <ol style="list-style-type: none"> <li>1. Microscopic study of common lesions affecting oral tissues through microscopic slides &amp; projection slides.</li> <li>2. Study of the disease process by surgical specimens.</li> <li>3. Study of teeth anomalies/polymorphisms through tooth specimens &amp; plaster casts.</li> <li>4. Microscopic study of plaque pathogens.</li> <li>5. Study of haematological preparations (blood films) of anaemias &amp; leukemias.</li> <li>6. Basic exercises in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries.</li> </ol> <p><b>C) INTERGRATION</b></p> <ol style="list-style-type: none"> <li>1. The different types of pathological processes, that involve the oral cavity.</li> <li>2. The manifestations of common diseases, their diagnosis &amp; correlation with clinical pathological processes.</li> <li>3. An understanding of the oral manifestations of systemic diseases should help in correlating with the systemic physical signs &amp; laboratory findings.</li> <li>4. The student should understand the underlying biological principles governing treatment of oral diseases.</li> <li>5. The principles of certain basic aspects of Forensic Odontology</li> </ol> <p><b>A) ATTITUDE</b></p> <p>To diagnose oral and related tissue, bone diseases and pathologies and give appropriate treatment follow up and protocol</p>
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<b>GME32</b>	<b>GENERAL MEDICINE</b>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b> Special emphasis should be given throughout on the importance of various diseases as applicable to dentistry.</p> <ol style="list-style-type: none"><li>1. Special precautions/ contraindication of anaesthesia and various dental procedures in different systemic diseases.</li><li>2. Oral manifestations of systemic diseases.</li><li>3. Medical emergencies in dental practice</li></ol> <p><b>B) SKILLS</b> A dental student should be taught in such a manner he/she is able to record the arterial pulse, blood pressure and be capable of suspecting by sight and superficial examination of the body – diseases of the heart, lungs, kidneys, blood etc. He should be capable of handling medical emergencies encountered in dental practice</p> <p><b>B) INTERGRATION</b> Aims of medicine Definitions of signs, symptoms, diagnosis, differential diagnosis treatment &amp; prognosis. Enteric fever, AIDS, herpes simplex, herpes zoster, syphilis diphtheria, Acute rheumatic fever rheumatic valvular heart disease, hypertension, ischemic heart disease, infective endocarditis, common arrhythmias, congenital heart disease, congestive cardiac failure. Anemias, bleeding &amp; clotting disorders, leukemias, lymphomas, agranulocytosis, splenomegaly, oral manifestations of hematologic disorders, generalized Lymphadenopathy. Facial palsy, facial pain including trigeminal neuralgia, epilepsy, headache including migraine</p> <p><b>D)ATTITUDE</b> The student must be able to take history, do general physical examination (including build, nourishment, pulse, BP, respiration, clubbing, cyanosis, jaundice, lymphadenopathy, oral cavity) and be able to examine CVS, RS and abdomen and facial nerve</p>
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<p><b>GSU32</b></p>	<p><b>GENERAL SURGERY</b></p>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b>            To acquaint the student with various diseases, which may require surgical expertise and to train the student to analyze the history and be able to do a thorough physical examination of the patient. The diseases as related to head and neck region are to be given due importance, at the same time other relevant surgical problems are also to be addressed</p> <p><b>B) SKILLS</b>            Introduction to various aspects of surgical principles as related to orodental diseases. Classification of diseases in general. This will help the student to understand the various diseases, their relevance to routine dental practice. To know about management of Wounds, Inflammation, infections, Shock, hemorrhage, Tumors, ulcers, diseases of nervous system, fractures, swellings of jaws, biopsy and etc.</p> <p><b>C) INTERGRATION</b>            At the end of one year of study the student should            have a good theoretical knowledge of various ailments, and be practically trained to differentiate benign            and malignant diseases and be able to decide which patient requires further evaluation.</p> <p><b>D) ATTITUDE</b>            To know various aspects of diseases and treatment modalities for general body as a overview apart from dental diseases</p>
<p><b>CON42</b></p>	<p><b>CONSERVATIVE DENTISTRY &amp; ENDODONTICS</b></p>	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b>            The graduate should acquire the following knowledge during the period of training.</p> <ol style="list-style-type: none"> <li>i. To diagnose and treat simple restorative work for teeth.</li> <li>ii. To gain knowledge about aesthetic restorative material and to translate the same to patients needs.</li> <li>iii. To gain the knowledge about endodontic treatment on the basis of scientific foundation.</li> <li>iv. To carry out simple endodontic treatment.</li> <li>v. To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.</li> </ol> <p><b>B) SKILLS:</b>            He should attain following skills necessary for practice of dentistry</p> <ol style="list-style-type: none"> <li>i) To use medium and high speed hand pieces to</li> </ol>



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		<p>carry out restorative work.          ii) Poses the skills to use and familiarise endodontic instruments and materials needed for carrying out simple endodontic treatment.          iii) To achieve the skills to translate patients esthetic needs along with function.</p> <p>C)INTERGRATION:          Evaluation, clinical application and adverse effects of the following materials. Dental cements, Zinc oxide euginol cements zinc phosphate cements, polycarboxylates glass ionomer cements, silicate cement calcium hydroxides varnishes.          Dental amalgam, technical considerations mercury toxicity mercury hygiene.          Composite, Dentine bonding agents, chemical and light curing composites          Rubber base Imp. Materials, Nobel metal alloys &amp; non noble metal alloys, Investment and die materials, Inlay casting waxes, Dental porcelain and Aesthetic Dentistry</p> <p>D)ATTITUDE          i). Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.          ii). Willingness to participate in CDE programme to update the knowledge and professional skill from time to time.          iii). To help and participate in the implementation of the national oral health policy.          iv). He should be able to motivate the patient for proper dental treatment at the same time proper maintenance of oral hygiene should be emphasise which will help to maintain the restorative work and prevent future damage.</p>
OMF42	ORAL & MAXILLOFACIAL SURGERY	<p>A) KNOWLEDGE AND UNDERSTANDING          At the end of the course and the clinical training the graduate is expected to -          1. Able to apply the knowledge gained in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problem.          2. Able to diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.          3. Knowledge of range of surgical treatments.          4. Ability to decide the requirement of a patient to have oral surgical specialist opinion or treatment.</p>



# MAHE INSTITUTE OF DENTAL SCIENCES & HOSPITAL

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Chalakkara, P.O. Pallor, Mahe-673 310  
U.T. of Puducherry. Ph : 0490 2337765

		<p>5. Understand the principles of in-patient management.</p> <p>6. Understanding of the management of major oral surgical procedures and principles involved in patient management.</p> <p>7. Should know ethical issues and communication ability</p> <p><b>B) SKILLS</b></p> <p>1. A graduate should have acquired the skill to examine any patient with an oral surgical problem in an orderly manner. Be able to understand requisition of various clinical and laboratory investigations and is capable of formulating differential diagnosis.</p> <p>2. Should be competent in the extraction of teeth under both local and general anaesthesia.</p> <p>3. Should be able to carry out certain minor oral surgical procedures under L.A. like frenectomy, alveolar procedures &amp; biopsy etc.</p> <p>4. Ability to assess, prevent and manage various complications during and after surgery.</p> <p>5. Able to provide primary care and manage medical emergencies in the dental office.</p> <p>6. Understanding of the management of major oral surgical problems and principles involved in inpatient management</p> <p><b>C) INTERGRATION</b></p> <p>Management and Introduction, concept of L.A., classification of local anaesthetic agents, ideal requirements, mode of action, types of local anaesthesia, complications, Jaw deformities, Cleft Lip and Palate, Fractures of the jaws, Pre-prosthetic Surgery, Diseases of the maxillary sinus, Impacted teeth, Exodontia: General considerations</p> <p><b>D) ATTITUDE</b></p> <p>To produce a graduate who is competent in performing extraction of teeth under both local and general anaesthesia, prevent and manage related complications, acquire a reasonable knowledge and understanding of the various diseases, injuries, infections occurring in the Oral &amp; Maxillofacial region and offer solutions to such of those common conditions and has an exposure in to the in-patient management of maxillofacial problems</p>
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Chalakkara, P.O. Pallor, Mahe-673 310

U.T. of Puducherry. Ph : 0490 2337765

OMR42	ORAL MEDICINE & RADIOLOGY	<p>A) KNOWLEDGE AND UNDERSTANDING</p> <p>1) Emphasis should be laid on oral manifestations of systemic diseases and ill-effects of oral sepsis on general health.</p> <p>(2) To avoid confusion regarding which lesion and to what extent the student should learn and know, this elaborate syllabus is prepared. As certain lesions come under more than one group, there is repetition</p> <p>B) SKILLS</p> <p>(1) To train the students to diagnose the common disorders of Orofacial region by clinical examination and with the help of such investigations as may be required and medical management of oro-facial disorders with drugs and physical agents.</p> <p>(2) To train the students about the importance, role, use and techniques of radiographs/digital radiograph and other imaging methods in diagnosis.</p> <p>(3) The principles of the clinical and radiographic aspects of Forensic Odontology. The syllabus in ORAL MEDICINE &amp; RADIOLOGY is divided into two main parts.</p> <p>(I) Diagnosis, Diagnostic methods and Oral Medicine (II) Oral Radiology. Again the part ONE is subdivided into three sections. (A) Diagnostic methods (B) Diagnosis and differential diagnosis (C) Oral Medicine &amp; Therapeutics.</p> <p>C) INTERGRATION</p> <p>1) Emphasis should be laid on oral manifestations of systemic diseases and ill-effects of oral sepsis on general health.</p> <p>(2) To avoid confusion regarding which lesion and to what extent the student should learn and know, this elaborate syllabus is prepared. As certain lesions come under more than one group, there is repetition.</p> <p>D) ATTITUDE</p> <p>E</p> <p>Student is trained to arrive at proper diagnosis by following a scientific and systematic procedure of history taking and examination of the orofacial region.</p> <p>Training is also imparted in management wherever possible. Training also shall be imparted on saliva diagnostic procedures. Training also shall be imparted in various radiographic procedures and interpretation of radiographs. In view of the above each student shall maintain a record of</p>
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 U.T. of Puducherry. Ph : 0490 2337765

		<p>work done, which shall be evaluated for marks at the time of university examination. The following is the minimum of prescribed work for recording</p> <p>(a) Recording of detailed case histories of interesting cases</p> <p>(b) Intra-oral radiographs (Periapical, bitewing, occlusal)</p> <p>Saliva diagnostic check as routine procedure</p>
ORT42	ORTHODONTICS & DENTAL ORTHOPAEDICS	<p>A) KNOWLEDGE AND UNDERSTANDING</p> <p>Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures.</p> <p>B) SKILLS</p> <p>Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And Need For Orthodontics Care.</p> <p>Growth And Development: In General</p> <p>Morphologic Development Of Craniofacial Structures Functional Development Of Dental Arches And Occlusion</p> <p>Malocclusion - In General</p> <p>Normal And Abnormal Function Of Stomatognathic System</p> <p>Biomechanical Principles In Orthodontic Tooth Movement</p> <p>Ethics</p> <p>Orthodontic Appliances: General</p> <p>Preventive, interceptive and corrective Orthodontics</p> <p>C) INTERGRATION</p> <p>To able to do Adam's Clasp on Anterior teeth Gauge 0.7mm. Modified Adam's Clasp on upper arch Gauge 0.7mm. High Labial bow with Apron spring on upper arch (Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm). Coffin spring on upper arch Gauge 1mm.</p> <p>Appliance Construction in Acrylic</p> <ol style="list-style-type: none"> <li>1. Upper &amp; Lower Hawley's Appliance</li> <li>2. Upper Hawley's with Anterior bite plane</li> <li>3. Upper Habit breaking Appliance</li> <li>4. Upper Hawley's with Posterior bite plane with 'Z' Spring</li> <li>5. Construction of Activator</li> <li>6. Lower inclined plane/Catalan's Appliance</li> <li>7. Upper Expansion plate with Expansion Screw</li> </ol> <p>D) ATTITUDE</p>



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 U.T. of Puducherry. Ph : 0490 2337765

		To maintain patients profile, aesthetic concern, do the needful based on patient requirement
PAP42	PAEDIATRIC & PREVENTIVE DENTISTRY	<p>A) KNOWLEDGE AND UNDERSTANDING          Definition, Scope, Objectives and Importance. Importance of study of growth and development in Pedodontics. Prenatal and Postnatal factors in growth &amp; development. Theories of growth &amp; development. Indications and contraindications of extractions of primary and permanent teeth in children. Knowledge of Local and General Anesthesia. Historical background.</p> <ul style="list-style-type: none"> <li>- Definition, aetiology &amp; pathogenesis.</li> <li>- Caries pattern in primary, young permanent and permanent teeth in children.</li> <li>- Rampant caries, early childhood caries and extensive caries: Definition, aetiology, Pathogenesis, Clinical features, Complications &amp; Management</li> <li>- Role of diet and nutrition in Dental Caries.</li> <li>- Dietary modifications &amp; Diet counseling.</li> <li>- Caries activity, tests, caries prediction, caries susceptibility &amp; their clinical application.</li> </ul> <p>B) SKILLS          Following is the recommended clinical quota for under- graduate students in the subject of pediatric &amp; preventive dentistry.</p> <ol style="list-style-type: none"> <li>1. Restorations – Class I &amp; II only</li> <li>2. Preventive measures e.g. Oral Prophylaxis</li> <li>3. Fluoride applications</li> <li>4. Extractions</li> <li>5. Case History Recording &amp; Treatment Planning</li> <li>6. Education &amp; motivation of the patients using disclosing agents. Educating patients about oral hygiene measures like tooth brushing, flossing etc.</li> </ol> <p>INTERGRATION          To give comprehensive care to pediatric group how a re sensitive to difficult to manage. To Outline of principles of examination, diagnosis &amp; treatment planning</p> <p>D) ATTITUDE</p>



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U.T. of Puducherry. Ph : 0490 2337765

		Setting up of pedodontic clinic, ETHICAL practicing . Education & motivation of the patients using disclosing agents. Educating patients about oral hygiene measures like tooth brushing, flossing etc
PHD42	PUBLIC HEALTH DENTISTRY	<p><b>A) KNOWLEDGE AND UNDERSTANDING</b> At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.</p> <p><b>B) SKILLS</b> At the conclusion of the course the students shall have require at the skill of identifying health problems affecting the society, conducting health surveys, conducting health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health</p> <p><b>C) INTERGRATION</b> Total oral health care approach- in order to prepare the new graduates in their approach to diagnosis, treatment planning, cost of treatment, prevention of treatment on schedule, recall maintenance of records etc. at least 10 patients (both children and adults of all types posting for at least one month).</p> <p>(b) The practice of chair side preventive dentistry including oral health education</p> <p><b>AT THE COMMUNITY ORAL HEALTH CARE CENTRE (ADOPTED BY THE DENTAL COLLEGE IN RURAL AREAS)</b></p> <p>Graduates posted for at least on month to familiarize in:</p> <p>(a) Survey methods, analysis and presentation of oral health assessment of school children and community independently using WHO basic oral health survey methods.</p> <p>(b) Participation in rural oral health education programmes</p> <p>(c) Stay in the village to understand the problems and life in rural areas</p>





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		<p>DESIRABLE: Learning use of computers-at least basic programme.</p> <p>D) ATTITUDE</p> <p>1. Understand the community aspects of dentistry (b) To take up leadership role in solving community oral health programme</p>
PER42	PERIODONTOLOGY	<p>A) KNOWLEDGE AND UNDERSTANDING The student shall acquire the skill to perform dental scaling, diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same. The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease. The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist's care</p> <p>B) SKILLS History taking and clinical examination of the patients</p> <ol style="list-style-type: none"> <li>2. Recording different indices</li> <li>3. Methods of using various scaling and surgical instruments</li> <li>4. Polishing the teeth</li> <li>5. Bacterial smear taking</li> <li>6. Demonstration to patients about different oral hygiene aids</li> <li>7. Surgical procedures- gingivectomy, gingivoplasty, and flap operations</li> <li>8. Follow up procedures, post operative care and supervision</li> </ol> <p>C) INTERGATION</p> <ol style="list-style-type: none"> <li>1. Diagnosis, treatment planning and discussion and total periodontal treatment</li> <li>2. Dental scaling, oral hygiene instructions – 50 complete cases/ equivalent</li> <li>3. Assistance in periodontal surgery</li> <li>4. A work record should be maintained by all the students and should be submitted at the time of examination after due certification from the head of the department.</li> </ol>



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		<p>D) ATTITUDE</p> <p>4. Students should be able to record a detailed periodontal case history, determine diagnosis, prognosis and plan treatment. Student should perform scaling, root planning local drug delivery and SPT. Shall be given demonstration of all periodontal surgical procedures</p>
<p>PRO42</p>	<p>PROSTHODONTICS AND CROWN &amp; BRIDGE</p>	<p>A) KNOWLEDGE AND UNDERSTANDING</p> <p>Introduction, Fundamentals of occlusion – in brief, Articulators – in brief, Treatment planning for single tooth restorations, Treatment planning for the replacement of missing teeth including selection and choice of abutment teeth, Fixed partial denture configurations, Principles of tooth preparation, Preparations for full veneer crowns – in detail, Preparations for partial veneer crowns – in brief, Provisional Restorations, Fluid Control and Soft Tissue Management, Impressions, Working Casts and Dies, Wax Patterns, Pontics and Edentulous Ridges, Esthetic Considerations, Finishing and Cementation.</p> <p>B) SKILLS</p> <p>Treating problems with associated denture use – discuss in brief (tabulation/flow-chart form).S. Treating abused tissues - discuss in brief. T. Relining and rebasing of dentures- discuss in brief. Immediate complete dentures construction procedure- discuss in brief. The single complete denture- discuss in brief. Overdentures denture- discuss in brief. Dental implants in complete denture - discuss in brief.</p> <p>C) INTERGRATION</p> <p>Diagnosis (of the particular situation/patient selection/treatment planning), Types / Classification, Materials, Methodology – Lab /Clinical, Advantages &amp; disadvantages, Indications, contraindications, Maintenance Phase, Oral Implantology, Ethics</p> <p>D) ATTITUDE</p> <p>To treat patients according to their requirement, to give various treatment options and do an aesthetically fair job</p>



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## **PROGRAM SPECIFIC LEARNING OUTCOMES FOR MDS**



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## PROSTHODONTICS

1. Making primary impression of completely edentulous condition with Impression compound and fabrication of special tray
2. Able to perform removable partial and complete denture laboratory works.
3. Able to perform teeth setting for removable partial and complete denture prostheses.
4. Elicit case history for partially and completely edentulous Patients
5. Clinical procedures involving impressions, maxillomandibular relationships, wax trials, denture insertions and recall visits for removable prosthesis and for Fixed Prosthesis
6. Understanding the patients, mental attitude. Instructing the Patient
7. Knowledge on chair and operator position for practical and clinical procedures
8. Treatment planning and evaluation of diagnostic data.
9. Knowledge on objectives of impression making, materials, techniques & armamentarium
10. Tooth preparation for different restorations on Mannequin
11. Laboratory skills for fabrication of removable prosthesis
12. Knowledge about recent dental materials and rehabilitation techniques

## PERIODONTOLOGY

1. Ability to identify the normal structures of the oral cavity
2. Competent to diagnose the common dental and oral diseases
3. Competent in interpreting the radiographic findings
4. Ability to use the proper instruments for a given condition
5. Providing preventive dental care and dental care for medically compromised patients
6. Knowledge about recent advances in dentistry
7. Communication, interpersonal and managerial skills
8. Skills of oral health promotion including Primary and Secondary Prevention
9. The ability to respect community values, including an appreciation of a diversity of backgrounds and cultural values.



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U.T. of Puducherry. Ph : 0490 2337765

## ORAL MEDICINE AND RADIOLOGY

1. Diagnosis of pre-malignant and malignant disorders
2. Able to execute various diagnostic procedures and medications
3. Case history taking and clinical examination
4. Able to diagnose tobacco induced oral lesions and conduct tobacco cessation counselling for needy patients
5. Provide treatment for dental patients with systemic diseases
6. Formulation of treatment protocol and writing a prescription for dental diseases
7. Diagnosing and managing bacterial, viral, and fungal oral lesions
8. Demonstration of techniques of intra oral radiography (IOPA, Occlusal, and bitewing)  
Interpretation of normal radiographic anatomy and the pathology
9. Diagnosing muco-cutaneous lesions.
10. The student would possess ample understanding and knowledge of diagnosis and diagnostic methods, ionizing radiation, its applications in dentistry and its limitations.
11. The student would be proficient in detailed physical examination of the oral and paraoral structures, identification of pathologies and techniques involved in conventional and advanced diagnostic radiographic examination.
12. Apply high moral and ethical standards while carrying out clinical and radiographic examinations.

## PEDIATRIC AND PREVENTIVE DENTISTRY

1. Effective implementation of "Psychological ownership" Clinics
2. Provide age appropriate Anticipatory guidance
3. Preventive measures for caries-topical fluoride application, pit and fissure sealants and preventive resin
4. Class I Restorations with GIC and composites
5. Minimally invasive procedures
6. Basic extractions
7. Total rehabilitation of early childhood caries in children
8. Art of case history recording.



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**U.T. of Puducherry. Ph : 0490 2337765**

9. Student should be competent to treat dental diseases which are occurring in child patient.  
Student should be able to manage to repair and restore the lost / tooth structure to maintain harmony between both hard and soft tissues of the oral cavity.
10. Student should be able to manage the disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.
11. Student should be able to acquire skills in managing efficiency life threatening condition with emphasis on basic life support measure.
12. Student should be able to develop an attitude to adopt ethical principles in all aspects of Paediatric dental practice along with professional honesty and integrity.
13. Student should be able to create a good oral health in the child with installing a positive attitude and behavior in children
14. Student should be able to understand the principles of prevention and preventive dentistry right from birth to adolescence
15. Student should be able to guide and counsel the parents in regards to various treatment modalities including different facets of preventive dentistry
16. Student should be able to deliver care irrespective of the social status, cast, creed, and religion of the patients.
17. Student should be able to share the knowledge and clinical experience with professional colleagues with own willingness

### **ORAL AND MAXILLOFACIAL SURGERY**

1. Student should be able to identify the tooth indicated for extraction
2. Student should be able to differentiate the primary and permanent teeth
3. Student should be able to interpret the IOPA and OPG radiograph to facilitate diagnosis and treatment planning
4. Student should be able to identify various dental extraction forceps and elevators used for extractions, minor oral surgical procedures
5. Student should be able to select the appropriate quantity of local anaesthetic agents and perform the appropriate technique of administration of LA and also able to prescribe post op medications,
6. Should be able to perform various types of suturing techniques and dental wiring on models
7. Student should be able to perform total extraction procedures and manage complications
8. Student will be able to perform extraction for special children and medically compromised patients
9. Student will be able to discuss about the various advanced oral surgical procedures



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10. Student should be able to display effective interpersonal communication and managerial skills on patient care
11. Student should be able to identify the tooth indicated for extraction
12. Student should be able to differentiate the primary and permanent teeth  
CO1- Student should be able to identify the tooth indicated for extraction
13. Student should be able to interpret the IOPA and OPG radiograph to facilitate diagnosis and treatment planning
14. Student should be able to identify various dental extraction forceps and elevators used for extractions, minor oral surgical procedures

### **ORAL PATHOLOGY**

1. Should have the ability to understand the manifestations of common lesions affecting the oral and para-oral structures
2. Should be able to understand the basic aspects of Forensic Odontology
3. Should be able to identify the microscopic slides of the diseases of oral cavity.
4. To train a post graduate dental surgeon so as to ensure higher competence in both general and special pathology dealing with the nature of oral diseases, their causes, processes and effects.
5. An oral pathologist is expected to perform routine histopathological evaluation of specimens relating to oral and perioral tissues, to carry out routine diagnostic procedures including hematological, cytological, microbiological, Immunological and ultra-structural investigations.
6. He/she is expected to have an understanding of current research methodology, collection and interpretation of data, ability to carry out research projects on clinical and or epidemiological aspects, a working knowledge on current databases, automated data retrieval systems, referencing and skill in writing scientific papers.
7. He/she is expected to present scientific data pertaining to the field, in conferences both as poster and verbal presentations and to take part in group discussions.
8. The students should have basic knowledge of biopsy procedure and slide preparation.
9. They would have the basic knowledge on laboratory chemicals and equipment.
10. Student should have learnt to identify and appreciate the microscopic slide and writing a report on oral diseases/lesion.
11. Student should have knowledge on Basic hematological tests, urine analysis and its clinical significance.

### **ORTHODONTICS AND DENTOFACIAL ORTHOPAEDEICS**

1. Able to list the indications and components, comprehend the mechanism of action and select appropriate removable orthodontic appliance in any given clinical



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scenario

2. Able to recall the steps, fabricate the components of Hawley's removable orthodontic appliance and also acrylicize Hawley's and habit breaking appliance accurately in a preclinical condition
3. Able to recall the steps, fabricate and insert the appliance, give instructions and follow up in a clinical condition
4. Able to describe the functional development of dental arches and occlusion, growth & development of the jaws
5. Able to classify malocclusion and diagnose using an appropriate classification system
6. Able to elicit history, perform a clinical examination and diagnose the malocclusion in a clinical scenario
7. Able to explain the uses of IOPA, OPG and lateral cephalogram pertaining to orthodontic diagnosis
8. Able to interpret IOPA, OPG and trace / interpret lateral cephalogram pertaining to orthodontic diagnosis
9. Able to select and use appropriate instruments for fabrication of removable orthodontic appliances
10. Able to recall the composition and properties of alginate, dental stone, heat cure & self cure acrylic and commonly used orthodontic wires
11. Able to demonstrate manipulation of alginate and impression making for a patient
12. Able to manipulate dental stone & self cure acrylic and perform necessary wire bending
13. Able to explain the malocclusion & treatment plan and give post appliance insertion instructions to patients.

## CONSERVATIVE DENTISTRY AND ENDODONTICS

1. Competent to diagnose all carious lesions
2. Adjust patients chair position in relevance to different procedures. Maintain appropriate posture and position during interaction with the patient and performing procedures
3. Demonstrate recommended hand washing techniques and placement of personal protective barriers
4. Provide restorative management for all types of carious lesion with no pulpal involvement with restorative materials such as silver amalgam, glass ionomer cement and composite resins





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U.T. of Puducherry. Ph : 0490 2337765

5. Placement of intermediate restoration at recommended conditions
6. Perform clinical evaluation for deep carious lesions by adopting direct and indirect pulp capping procedure
7. Perform direct midline diastema closure with composite resin layering procedure.
8. Understand the principles of aesthetic dental procedures.
9. Competent to perform restorative management for all types of carious lesion in phantom head models.
10. Competent to manipulate different dental materials.
11. Competent to identify and use dental restorative instruments
12. Competent to perform preclinical root canal treatment in single rooted extracted tooth

### **PUBLIC HEALTH DENTISTRY**

1. Knowledge about various commonly used dental indices
2. Knowledge about various instruments used for recording the indices
3. Recording a comprehensive case history
4. Accurate recordings of the scores of the various indices
5. Diagnosis of common oral findings
6. Formulation of treatment plan based on various levels of prevention.
7. Identify social, economic, environmental and emotional determinants in a given individual patient or a community for the purpose of planning and execution of Community Oral Health Program.
8. Planning appropriate Community Oral Health Program conduct the program and evaluate at the community level.
9. Develop the planning, implementation, evaluation and administrative skills to carry out successful community Oral Health Programs.
10. To apply ethical and moral standards while carrying out epidemiological researches.