

## Department wise Course Outcomes

### 1. Oral Medicine and Radiology - MDS

Sl. No.	Program	Name of the course	Course outcome
1.a	MDS-Oral Medicine and Radiology	Applied Anatomy, Physiology, Pathology and Pharmacology	<p>On completion of the course,</p> <ol style="list-style-type: none"> <li>1. The student would demonstrate sound theoretical knowledge and understanding of basic relevant sciences namely, the applied anatomy of the face and oral cavity, the basic physiologic processes, pathologic processes and the basics of pharmacologic applications</li> <li>2. The student would be proficient in physical examination of the patient, identification of normal and abnormal functioning of the various systems of the body.</li> </ol>
1.b		Diagnosis, diagnostic methods and imageology and Applied Oral Pathology	<p>On completion of the course,</p> <ol style="list-style-type: none"> <li>1. The student would possess ample understanding and knowledge of diagnosis and diagnostic methods, ionizing radiation, its applications in dentistry and its limitations.</li> <li>2. 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.</li> <li>3. Apply high moral and ethical standards while carrying out clinical and radiographic examinations.</li> </ol>

<b>1.c</b>		Oral Medicine, therapeutics and laboratory investigations.	<p>On completion of the course,</p> <ol style="list-style-type: none"> <li>1. The student would be proficient in describing the etiology, pathophysiology, principles of diagnosis and management of common orofacial disorders.</li> <li>2. The student would be proficient in formulating a differential diagnosis and investigations plan and frame the treatment strategy.</li> <li>3. The student would develop communication skills and ability to explain the disease process to the patient and to obtain an informed consent from the patient.</li> </ol>
<b>1.d</b>		Essay	<p>On completion of the course,</p> <ol style="list-style-type: none"> <li>1. The student would be proficient in Effectively and freely analyzing the problem presented by recalling factually.</li> <li>2. The student would be an expert at Synthesizing ideas and rendering a suitable opinion of the problem presented.</li> </ol>

## 2. Oral & Maxillofacial Surgery – MDS

Sl. No.	Name of the programme	Name of the Course	Course outcome
2.a	<b>MDS- Oral &amp; Maxillofacial Surgery</b>	Applied basic sciences	<p>At the end of the course, student should be able to apply clinically the following relevant topics</p> <ol style="list-style-type: none"> <li>1. Development and growth of face, teeth and jaws, Age changes and evaluation of mandible in detail Congenital abnormality of orofacial regions</li> <li>2. Surgical anatomy of scalp, temple and face.</li> <li>3. Anatomy and its applied aspects of triangles of neck and deep structures of neck</li> <li>4. Cranial facial bones and surrounding soft tissues</li> <li>5. Cranial nerves</li> <li>6. Tongue</li> <li>7. Temporal and infra temporal region and Temporomandibular joint in detail.</li> <li>9. Orbits and its contents</li> <li>10. Muscles of face and neck</li> <li>11. General consideration of the structure and function of brain and applied anatomy of intracranial venous sinuses</li> <li>12. Cavernous sinus and superior sagittal sinus</li> <li>13. Brief consideration of autonomous nervous system of head and neck.</li> <li>14. Functional anatomy of mastication, Deglutition and Speech</li> <li>15. Respiration and circulation</li> <li>16. Histology of skin, oral mucosa, connective tissue, bone, cartilage, cellular elements of blood vessels, Lymphatic, Nerves, Muscles</li> <li>17. Tooth and its surrounding structures</li> <li>18. Cross – sectional Anatomy of the head and neck, as applied in CT, MRI Interpretation</li> <li>19. Salivary glands – Anatomy, Embryology and Histology</li> </ol> <p><b>APPLIED PHYSIOLOGY</b></p> <ol style="list-style-type: none"> <li>1. Nervous system – physiology of nerve Conduction, pain pathway, sympathetic And parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature.</li> </ol>

			<p>2. Blood - its composition hemostasis, blood dyscrasias and its management, hemorrhage and its control, blood grouping, cross matching, blood component therapy, complications of blood transfusion, blood substitutes, auto transfusion, cell savers.</p> <p>3. Digestive system - composition and functions of saliva, mastication, deglutition, digestion, assimilation, urine formation, normal and abnormal constituents.</p> <p>4. Respiratory system – respiration control of ventilation, anoxia, asphyxia, artificial respiration, hypoxia – type and management</p> <p>5. CVS - cardiac cycle, shock, heart sounds, blood pressure, hypertension</p> <p>6. Endocrinology - metabolism of calcium , endocranial activity and disorder relating thyroid gland, parathyroid gland, adrenal gland, pituitary gland, pancreas and gonads.</p> <p>7. Nutrition – general principles balanced diet, effect of dietary deficiency, protein energy malnutrition, nutritional assessment, metabolic responses to stress, need for nutritional support, enteral nutrition, routes of access to GIT, parenteral nutrition, access to central veins, nutritional support</p> <p>8. Fluid and electrolytic balance / acid base metabolism – the body fluid compartment, metabolism of water and electrolytes, factors maintaining hemostasis causes for treatment of acidosis and alkalosis.</p> <p><b>APPLIED PATHOLOGY</b></p> <p>1. Inflammation – acute and chronic inflammation, repair and regeneration, necrosis and gangrene and role of component system in acute inflammation, role of arachidonic acid and its metabolites in acute inflammation, growth factors in acute inflammation role of NSAIDS in inflammation, cellular changes in radiation injury and its manifestations.</p>
--	--	--	---

			<ol style="list-style-type: none"> <li>2. Wound management - wound healing Factors influencing healing, properties of suture materials, and appropriate uses of sutures.</li> <li>3. Hemostasis - role of endothelium in Throm biogenesis,arterial and venous thrombi, disseminated intravascular coagulation.</li> <li>4. Hypersensitivity - shock and pulmonary failure, types of shock, diagnosis, resuscitation, pharmacological support, ARDS and its causes and prevention, ventilation and support</li> <li>5. Neoplasia - classification of tumours, carcinogens and carcinogenesis, spread of tumors, characteristics of benign and malignant tumors, grading and staging of tumours various laboratory investigation.</li> <li>6. Chromosomal abnormalities with oro-facialmanifestations.</li> <li>7. Basics of immunology – primary and Acquired immune deficiencies.</li> </ol>
<b>2.b</b>		Minor Oral Surgeryand Trauma	<p>The students would be trained in the assessment andwill manage all cases clinically :</p> <ol style="list-style-type: none"> <li>1. Basic Exodontia</li> <li>2. Complicated Exodontia</li> <li>3. Surgical management of Impacted teeth</li> <li>4. Ectopically positioned and un erupted teeth</li> <li>5. Tooth Re implantation and Transplantation</li> <li>6. Surgical up righting and Repositioning</li> <li>7. Principles of Endodontic Microsurgery</li> <li>8. Periodontal Considerations for Oral Surgery</li> <li>9. Procedures Involving the Dentogingival Junction</li> <li>10. Pediatric Dentoalveolar Surgery</li> <li>11. Lasers in Oral and Maxillofacial Surgery</li> <li>12. Complications of Dentoalveolar Surgery</li> </ol> <p>The students would be able to diagnose and manage Medical emergencies like, prevention and management of altered onsciousness (syncope, orthostatichypotension, seizures, and diabetes mellitus, adrenal nsufficiency),</p>

			<p>hypersensitivity reactions, chestdiscomfort, and respiratory difficulty.</p> <p>The students would gain in depth knowledge of the listed below :</p> <ol style="list-style-type: none"> <li>1. Diagnosis and Perioperative Management of Headand Neck Injuries</li> <li>2. Basic Principles of Treatment: Hard and Soft issue injuries</li> </ol> <p>The students would gain knowledge in clinical skills andmanage.</p> <ol style="list-style-type: none"> <li>1. Dentoalveolar Injuries</li> <li>2. Mandibular Fractures</li> <li>3. Temporomandibular Joint Region Injuries</li> <li>4. Zygomatic Complex Fractures</li> <li>5. Orbital Trauma</li> <li>6. Midface Injuries</li> <li>7. Frontal Sinus</li> <li>8. Fractures andassociated Injuries</li> <li>9. Nasal Injuries</li> <li>10. Soft Tissue Injuries</li> <li>11. Special Soft Tissue Injuries</li> <li>12. Avulsive Hard Tissue Injuries</li> <li>13. Maxillofacial Injuries in Children</li> <li>14. Maxillofacial Injuries in the Elderly</li> </ol> <p>Complex Facial Trauma Patient</p>
2.c		Maxillofacial Surgery	<p>The students would be trained and shall obtain knowledge and clinical skills in the management of</p> <ol style="list-style-type: none"> <li>1. <b>Salivary gland:</b> Sialography, Salivary fistula andmanagement diseases of salivary gland - developmental disturbances,cysts, inflammation and sialolithiasis, Mucocele and Ranula,Tumors of salivary gland and their management,Staging of salivary gland tumors, Parotidectomy</li> <li>2. <b>Temporomandibular Joint:</b> Etiology, history signs, symptoms, examination anddiagnosis of temporomandibular joint disorders, Ankylosis and management of the same with different treatment modalities, MPDS and management, Condylectomy - different procedures,</li> </ol>

			<p>Various approaches to TMJ, Recurrent dislocations - Etiology and Management</p> <ol style="list-style-type: none"> <li>3. <b>Oncology:</b> Biopsy, Management of pre-malignant tumors of head and neck region, Benign and Malignant tumors of Head and Neck region, Staging of oral cancer and tumor markers Management of oral cancer, Radial Neck dissection, Modes of spread of tumors, Diagnosis and management of tumors of nasal, paranasal, neck, tongue, cheek, maxilla and mandible Radiation therapy in maxillofacial regions, Lateral neckswellings</li> <li>4. <b>Orthognathic surgery:</b> Diagnosis and treatment planning, Cephalometric analysis, Model surgery, Maxillary and mandibular repositioning procedures, Segmental osteotomies, Management of apertognathia, Genioplasty, Distraction osteogenesis</li> <li>5. <b>Cysts and tumor of oro facial region:</b> Odontogenic and non-Odontogenic tumors and their management, Giant lesions of jawbone, Fibro osseous lesions of jawbone, Cysts of jaw</li> <li>6. <b>Laser surgery:</b> The application of laser technology in surgical treatment of lesions</li> <li>7. <b>Cryosurgery:</b> Principles, applications of cryosurgery in surgical management</li> <li>8. <b>Cleft lip and palate surgery:</b> Detailed knowledge of the development of the face, head and neck, Diagnosis and treatment planning Current concepts in the management of cleft lip and palate deformity Knowledge of Naso endoscopy and other diagnostic techniques in the evaluation of speech and hearing Concept of multidisciplinary team management</li> <li>9. <b>Aesthetic facial surgery:</b> Detailed knowledge of the structures of the face and neck including skin and underlying soft tissue, Diagnosis and treatment planning of deformities and conditions affecting facial skin, underlying facial muscles, bone. Eyelids external ear Surgical management</li> </ol>
--	--	--	--

			<p>of post acne scarring, facelift, blepharoplasty, otoplasty, facial bone recontouring, etc.</p> <p>10. <b>Craniofacial surgery:</b> Basic knowledge of developmental anomalies of the face, head and neck, Basic concepts in the diagnosis and planning of various head and neck anomalies including facial clefts, raiosynostosis syndromes, etc. Current concept in the management of Craniofacial anomalies</p> <p>11. <b>Implantology:</b> Principles for the Surgical Placement Of Endosseous Implants, Subperiosteal Implants, The Transmandibular Implant Reconstruction System, Single-tooth Replacement in Oral Implantology, Posterior Implant Restorations For Partially Edentulous Patients, Maxillary Sinus Grafts and Implants, Surgical Implant Failures, Soft Tissue Considerations</p>
2.d		Essay	<p>The students would be able to diagnose, plan and clinically manage clinical situations independently and able to assist various conditions in maxillofacial surgery including challenging cases.</p> <p>They would be updated about recent advances in the diagnosis and surgical management of oral and maxillofacial conditions. The students would be well trained in basic surgical techniques and gain in depth knowledge about the advanced skills required in maxillofacial surgery.</p>



### 3. Prosthodontics and Crown & Bridge-MDS

Sl No.	Name of the program	Name of the course	Course out come
3.a	<b>MDS in Prosthodontics and Crown &amp; Bridge</b>	Applied anatomy, Physiology, Pathology and Dental Materials	<p>The objective of the postgraduate course</p> <ul style="list-style-type: none"> <li>• To acquire basic knowledge of anatomy, physiology, pathology and pharmacology.</li> <li>• To develop ethical principles, professional honesty and integrity in all prosthodontics practice</li> <li>• It is desirable to have adequate knowledge in biostatistics and research methodology.</li> </ul>
3.b		Removable Prosthodontics and oral implantology	<ul style="list-style-type: none"> <li>• To achieve knowledge and skills in all the fields of prosthodontics including crown and bridge and implantology.</li> <li>• With the above knowledge the student gains expertise in diagnosing and treatment planning of various diseases leading to edentulism</li> <li>• Communicative skills in understanding the requirements of the society to explain treatment options available and their management.</li> <li>• The students are trained in all aspects of material science, technique and recent advancement in maxillofacial rehabilitation as well as treatment options for removable prosthesis.</li> </ul>
3.c		Fixed Prosthodontics	<ul style="list-style-type: none"> <li>• The students are trained in diagnosis and treatment of fixed prosthesis, with training in tek-scan the students are thus specialized with the use of high- end instruments and its role in diagnosis as well as full mouth rehabilitation. With the state-of-the-art prosthetic-laboratory students are trained to design and fabricate the prosthesis.</li> <li>• All the post graduate students are exclusively trained in diagnosis and treatment options in implantology. Training with different implant systems, surgical procedures and prosthetic options are the main objective in our post graduate course With first hand</li> </ul>

			<p>training in CAD_CAM prosthodontics post graduates are skilled to practice in this digital world</p> <ul style="list-style-type: none"> <li>• Post graduate course also aims in training the students in research, Didactic lectures, and paper presentation .Publications are a part ofthe curriculum</li> <li>• Awareness regarding their service to the society in the form of denture camps is instilled in their minds during their postgraduate course</li> </ul>
--	--	--	---

#### 4. Conservative Dentistry & Endodontics -MDS

Sl. No.	Name of program	Name of course	Course outcome
4.a	MDS- Conservative Dentistry & Endodontics	Applied Basic Sciences	<ol style="list-style-type: none"> <li>1. The student should be competent at applying knowledge and skill of basic sciences in conservative dentistry and endodontic. Should be capable of taking case history, perform diagnostic procedures, interpret relevant tests– both medical and dental and arrive at a diagnosis of the dental condition in Conservative Dentistry and Endodontic.</li> <li>2. In emergency situations the student should be able to provide basic lifesaving support.</li> <li>3. The student should be capable of following all recommended infection control protocols in the dental clinic ad lab.</li> <li>4. The student should exhibit high standard of professional ethical behavior and provide dental care regardless of social status, caste, creed or religion of the patient.</li> <li>5. The student should be capable of motivating the patient on maintenance of oral health, communicate on the various treatment options available and obtain informed consent.</li> <li>6. Student should be adept applying at ethical principles in human and</li> </ol>

			animal research in conservative dentistry and endodontic.
<b>4.b</b>			<ol style="list-style-type: none"> <li>1. Student should be proficient in examination, diagnosis and treatment plan in restorative and esthetic dentistry.</li> <li>2. Should have expertise in performing all kinds of direct and indirect restorations, esthetic restorations, management of non-carious lesions, management of discolored tooth and minimal invasive dentistry.</li> </ol>
<b>4.c</b>			<ol style="list-style-type: none"> <li>1. The student should be qualified on patho-biology of pulp and periapex, oro-facial dental pain emergencies, endodontic diagnosis and management. The student should be competent in management of traumatic injuries, endo-perio lesions, endodontic retreatment, surgeries and challenging clinical cases requiring in comprehensive management.</li> <li>2. Should be capable of differential diagnosis and recognize conditions that require inter-disciplinary approach and refer patient to the appropriate specialist.</li> <li>3. Should be efficient in documenting patient records and monitoring the patient recall.</li> <li>4. To upscale the knowledge and skill in restorative dentistry, esthetic dentistry and endodontics, the student should attend conferences and workshops.</li> <li>5. The student should be able to conduct relevant research in basic science and clinical aspect. The findings should be presented in specialty conferences and publish it.</li> </ol>

## 5. Periodontology – MDS

Sl. No	Name of the program	Name of the course	Course outcome
5.a	MDS Periodontology	Applied Basic Sciences: Applied Anatomy, Physiology & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology & Biostatistics	This module enables students to develop a systematic understanding and knowledge of the subject including relevant basic sciences. It also allows students to develop a comprehensive understanding of fundamental skills in subject areas essential the course
5.b		Normal periodontal structures, etiology & pathogenesis of periodontal diseases, epidemiology as related to Periodontology	This module gives an advanced understanding of periodontal structures, the multifactorial pathogenesis of periodontal disease & epidemiology. The histology, physiology & embryology of the periodontal structures, bone metabolism, inflammation, immunology, periodontal lesions, microbiology and pathology of the periodontium are taught
5.c		Diagnosis, Therapy & an introduction to Oral Implantology	This module teaches students to be competent in periodontal assessment, diagnosis and treatment planning. Students will develop an understanding of management of cases. Clinical examination and documentation, periodontal pocket charting, photography, radiography, diagnostic tools and treatment planning will be taught including the delivery of treatment with dental implants.
5.d		Complex Periodontal Treatment and Multidisciplinary Case Management	This module teaches students to manage complex periodontal cases with a multi-disciplinary approach. Students will be taught the relationship between Periodontology & other dental specialties and the inter link between periodontitis and systemic diseases. At the end of the course, students will be able to perform procedures where there is orthodontic, prosthodontics, endodontic or systemic health considerations, or where advanced dental implant considerations are planned.

## 6. Public Health Dentistry –MDS

Sl. No.	Name of the program	Name of the course	Course outcome
6.a	MDS- Public Health Dentistry	Applied Anatomy, Physiology, General Pathology, and Research Methodology and Biostatistics	<ol style="list-style-type: none"> <li>1. To apply the knowledge of Basic Science subjects about the causation, diagnosis, prevention and treatment of various oral diseases at an individual level and at the population level.</li> <li>2. To take case history, conduct screening clinical examination to identify oral diseases in an individual, and to conduct epidemiological surveys of the community at local, state and national levels of all oral conditions to arrive at community diagnosis and management leading to oral health promotion.</li> <li>3. To exercise ethical and moral standards while carrying out clinical practice and epidemiological research.</li> <li>4. To gain insights into one's shortcomings and accept them with humility and seek other's help when needed so as to be a good team member in the pursuit of optimal oral health of the community.</li> <li>5. To respect patient's rights and privileges that include right to information, and right to seek a second opinion, where ever indicated.</li> </ol>
6.b			<ol style="list-style-type: none"> <li>1. To identify physical, socio-economical, psychological and environmental indicators and determinants in a given individual or a community for the purpose of planning and implementation of Community-based Oral Health Programs like school oral health programs and rural oral health programs.</li> <li>2. To aid in planning with specific objectives, implementing with suitable measures and also evaluating the effectiveness of any Community Oral Health Program.</li> </ol>

			<ol style="list-style-type: none"> <li>3. To develop the blueprint of a program based on the limited resources, determine various strategies for implementation and evaluation and to develop administrative and problem-solving skills to successfully complete the oral health care project.</li> <li>4. To understand and apply moral and ethical duties and standards while carrying out any type of epidemiological research.</li> </ol>
<b>6.c</b>			<ol style="list-style-type: none"> <li>1. To conduct Basic Oral Health Surveys in order to identify the oral health problems affecting the community, their trends and formulate strategies to manage them through multi-sectorial approach.</li> <li>2. To plan and develop suitable resources like manpower, material and time at all levels so as to ensure their utilization towards maximum effectiveness.</li> <li>3. To conduct oral health education programs to impart knowledge, change attitudes and develop good practices for the betterment of oral health of the community.</li> <li>4. To treat every individual with respect and ensure their rights and privileges like right to information and right to seek a second opinion are not violated.</li> </ol>
<b>6.d</b>		Essay	<ol style="list-style-type: none"> <li>1. To identify the risk factors and social determinants of various oral diseases in a community in order to plan and implement community based oral health measures that are appropriate and cost-effective.</li> <li>2. To apply the knowledge of epidemiology to identify the distribution, determinants and magnitude of oral diseases and to plan appropriate preventive and management strategies.</li> <li>3. To develop problem solving skills required for planning, implementation, and evaluation of Community Oral Health Programs.</li> </ol>

## 7. Orthodontics & Dentofacial Orthopedics -MDS

Sl. No.	Name of the Program	Name of the Course	Course Outcome
7.a	MDS-Orthodontics & Dentofacial Orthopedics	Applied Basic Sciences	<p><b>1. Applied Anatomy</b> Under Applied anatomy, the students will be studying the Prenatal and post-natal growth of the body in general, skull, jaw bones and dentition. Also, the growth and development of occlusion and oro-facial musculature.</p> <p><b>2. Applied Physiology</b> The students would have learnt about Endocrinology and its disorders, Calcium and phosphorus metabolism, Nutrition and their effect on oro-facial function, Muscle physiology and associated neuro-muscular disorders, craniofacial biology as affecting the occlusion and para-oral functions and pathways of pain.</p> <p><b>3. Dental Materials</b> Dental Materials orients about Gypsum products, impression materials, acrylic resin material, orthodontic adhesives, bonding agents, banding cements, wrought metal alloys, orthodontic arch wires, elastics, applied physics, specification and tests methods, survey of all contemporary and recent advances in metallurgy and orthodontic adhesives.</p> <p><b>4. Genetics</b> Genetics the post graduate students would have learnt about Cell biology, DNA, RNA, cell division (mitosis and meiosis), Chromosomal disorders, Principles of orofacial genetics, role of Genetics in malocclusion, Molecular basis of genetics, Studies related to malocclusion, Recent advances in genetics related to malocclusion, Genetic counseling, DNA sequencing, stem cells, Bioethics and relationship to Orthodontic management of cranio facial anomalies.</p> <p><b>5. Physical Anthropology</b> Under Physical Anthropology they would have learnt about Evolutionary development of jaws, temporomandibular joint and dentition.</p> <p><b>6. Pathology</b> Under Pathology they would have learnt about inflammation, healing, necrosis and pathological changes due to abnormal orthodontic force.</p>

		<p><b>7. Biostatistics</b> Under Biostatistics they would have learnt about Statistical principles, Sampling and Sampling technique, Experimental models, design and interpretation, Development of skills for preparing a good research module and study the weightage of scientific abstracts and Publication.</p> <p><b>8. Applied research methodology in Orthodontics</b> Under Applied research methodology in Orthodontics the post graduates orient themselves about formulating an Experimental design, conducting Animal experiments, knowledge about the development, execution and interpretation of research methodologies in Orthodontics, appraisal of scientific literature.</p>
7.b	Diagnosis & Treatment planning	<p><b>1. Orthodontic history</b> Under Orthodontic History they would have learnt about Historical perspective, Evolution of orthodontic materials, philosophy and appliances, a brief bio data of stalwarts of Orthodontics, History of evolution of Orthodontic education and practice in India.</p> <p><b>2. Concepts of occlusion and esthetics</b> Under this, the students would learn about Structure and function of all hard and soft tissue components of oro-facial region including the Mechanics of articulation, Recording of masticatory function, Diagnosis of Occlusal dysfunction, Relationship of TMJ anatomy and pathology and related neuromuscular physiology and soft tissue patterns.</p> <p><b>3. Etiology and Classification of malocclusion</b> Under this, the students would learn about, a comprehensive review of the local and systemic factors in the etiology of Malocclusion and Various hard and soft tissue classification of malocclusion and its scoring pattern.</p> <p><b>4. Dentofacial Anomalies</b> Under this, the post graduate students learn about anatomical, physiological and pathological characteristics of developmental anomalies of the orofacial structures.</p> <p><b>5. Child and Adult Psychology</b> Under this, the students would learn about Stages of child development, Theories of psychological development, Management of</p>



		<p>child in orthodontic practice, Management of handicapped child, management of noncompliant patients, Motivation and Psychological problems related to malocclusion / orthodontics, Adolescent psychology, Behavioral psychology and communication, along with an inter disciplinary approach of orthodontic problems.</p> <p><b>6. Diagnostic procedures and treatment planning in orthodontics</b></p> <p>Under this, the students would learn about Stages of child development, Theories of psychological development, Management of child in orthodontic treatment, Management of handicapped child, Motivation and Psychological problems related to malocclusion / orthodontics, Adolescent psychology, Behavioral psychology and communication.</p> <p><b>7. Cephalometrics</b></p> <p>Under this the student would learn about radiographic imaging, Image processing, Tracing and analyzing of various anatomical landmarks and measurement and interpretation of the measured values. Additional to Radiation hygiene, Advanced Cephalometrics techniques, Comprehensive review of literature, Video imaging principles and application.</p> <p><b>8. Practice management in Orthodontics</b></p> <p>Under this the student would learn about Economics and dynamics of specialty and integrated general practices, Personal management, Materials management, Public relations, Professional relationship, Dental ethics and jurisprudence, Office sterilization procedures, Community based Orthodontic practice.</p>
7.c	Clinical Orthodontics	<p><b>1. Myo functional Appliances</b></p> <p>The students will be capable of diagnosing and interpreting the knowledge obtained in intercepting and preventing the developing malocclusion in adolescence and treat in young adults.</p> <p><b>2. Dentofacial Orthopaedics</b></p> <p>The students will develop thorough knowledge to diagnose and deliver treatment regimens using orthopaedic appliances to correct the appropriate malocclusion.</p> <p><b>3. Cleft Lip &amp; Palate Rehabilitation</b></p> <p>The students will be trained to treat the CLP</p>

		<p>patients with empathy starting with feeding plates and Naso-alveolar moulding at the infant stage and then systematically treat the malocclusion using removable / fixed orthodontics during the mixed &amp; permanent dentition by harmonizing the treatment plan with the other members of the multidisciplinary cleft team.</p> <p><b>4. Biology of tooth movement</b> Basic understanding of the applied anatomy &amp; physiology related to orthodontic tooth movement &amp; its effect on surrounding structures will be inculcated into the student, so that the results of application of orthodontic forces can be understood and clinically applied.</p> <p><b>5. Orthodontics/Orthognathic Surgery</b> Students will be thoroughly trained in diagnosing &amp; treatment planning and preparation of cases requiring surgical correction.</p> <p><b>6. Ortho/Perio/Prosthodontics inter relationship</b> Students will be trained in diagnosing and treating complicated cases requiring a multidisciplinary approach in patient management.</p> <p><b>7. Basic Principles of mechano therapy</b> Students will be trained in designing, construction, fabrication and its applied physics &amp; management of cases using both removable &amp; fixed orthodontics.</p> <p><b>8. Applied preventive aspects in Orthodontics</b> A comprehensive view of diagnosing &amp; preventing dento-alveolar infections, deviated milestones, and perverted anatomy to maintain proper inter arch relationship.</p> <p><b>9. Interceptive orthodontics</b> Students will be trained in growth modulation, diagnosing &amp; treatment planning of early malocclusion both at mixed/ permanent dentition.</p> <p><b>10. Retention &amp; relapse</b> Inculcating the acumen to analyze post treatment stability to prevent any Relapse and maintain perfect functional harmony</p>
7.d	Essay	<p><b>1. Recent Advances</b> The Students would be trained in all the above mentioned topics in detail, so that the student would know the recent updates along with the previous available treatment philosophy literature.</p>

## 8. Department of Pediatric and Preventive Dentistry

Sl. No.	Name of Program	Name of the Course	Outcome of Course
8.a	MDS- Pediatric & Preventive Dentistry	Pre-clinical Library orientation  Research methodology Photography	<p><b>Knowledge:</b> Student should understand fundamentals of tooth morphology &amp; histology, dental materials, basic orthodontic appliances, cavity preparation. Student should be able to utilize library and E learning resources Student should understand research methodologies</p> <p><b>Skills:</b> Student should complete Pre-clinical work as applicable. Student should be able to take good intra oral photographs. Student should submit synopsis within 6 months to university and completes library dissertation. Student should be certified in Basic Life Support Student should carry out research work and submit a dissertation.</p>
8.b	MDS- Pediatric & Preventive Dentistry	Applied Basic Sciences including Biostatistics	<p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Student should know and understand applied anatomy, physiology, biochemistry, pathology, oral microbiology, dental pharmacology, nutrition, genetics, craniofacial embryology, growth and development.</li> <li>• Student should understand the biology of tooth movement, TMJ and normal development of occlusion from birth to adolescence.</li> <li>• Student should understand theories and development of child psychology, and importance of Behavior Management of children and adolescents.</li> <li>• Student should know the pharmacological methods for behavior management.</li> <li>• Should know oral manifestations of systemic conditions and congenital anomalies.</li> </ul>

			<p><b>Skills:</b> Student should be able:</p> <ul style="list-style-type: none"> <li>• To record and document a detailed case with complete records, investigations, treatment planning and presentation of cases with chair side discussion.</li> <li>• To recognize deviations from normal growth and development and behavior.</li> <li>• To prescribe medication for children and adolescents.</li> <li>• To carry out investigations including radiographs, study models and cephalometric analysis.</li> <li>• To make appropriate referrals to allied health and other dental specialties.</li> <li>• To participate in interdisciplinary treatment plan.</li> <li>• Student should respect child patient's rights and privileges, including child patient's right to information and right to seek a second opinion.</li> <li>• Students should take prior informed written consent from parents/ guardians</li> </ul>
8.c		Clinical Pediatric dentistry	<p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Student should know the Principles of Operative Dentistry along with past, current &amp; recent advances in techniques and esthetic restorative materials.</li> <li>• Student understands Minimal intervention, modifications required for cavity preparation in primary and young permanent teeth and various Isolation Techniques.</li> <li>• Student understands sequelae of trauma and the management of traumatized teeth with latest concepts.</li> <li>• Student should know prosthetic consideration for children and adolescents.</li> <li>• Student should understand oral health care of children with special needs</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Student must be able to instill a positive attitude and behavior in children and apply behavior management techniques for different age groups of children.</li> </ul>

			<ul style="list-style-type: none"> <li>• Student should be able to recognize signs of child abuse and neglect and document cases.</li> </ul> <p><b>Student should be able:</b></p> <ul style="list-style-type: none"> <li>• To restore carious primary, young permanent and permanent teeth using various esthetic restorative materials (glass Ionomers, composites) and Stainless steel, Polycarbonate, zirconia, resin crowns/ Veneers, other crowns and fibre post systems.</li> <li>• To carry out pulp therapy procedures in primary teeth and root canal treatment in permanent incisors and molars.</li> <li>• To manage young immature permanent teeth (Apexogenesis, apexification, Regenerative endodontics)</li> <li>• To manage patients with traumatized anterior teeth, including splinting.</li> <li>• To implement interceptive orthodontic procedures, myofunctional therapy and interception of oral habits.</li> <li>• To provide oral rehabilitation for children with special health care needs</li> <li>• To carry out minor oral surgical procedures under local anesthesia.</li> <li>• Student should be able to render comprehensive dental treatment under general anesthesia, if indicated.</li> </ul>
8.d		Preventive Dentistry	<p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Student understands concepts and Levels of prevention, and the need for tailor-made preventive protocols.</li> <li>• Student is able to understand the role of diet, plaque and oral microflora in etiology of dental caries and the influence of civilization and environment.</li> <li>• Student understands the mechanism of action of various agents used in the prevention of oral disease, including fluorides and caries vaccine.</li> <li>• Student should be able to understand the need for oral health surveys and the prevalence of dental disease in children and adolescents.</li> </ul>

			<ul style="list-style-type: none"> <li>• Student should know the national &amp; global trends of epidemiology of oral diseases.</li> <li>• Student is able to recognize early developing malocclusions and the rationale for preventive and interceptive orthodontic procedures.</li> <li>• Student is able to understand the need for prevention of dental trauma in children and adolescents.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Student is able to carry out chair side caries risk assessment, for early diagnosis, and recognize clinical features of oral disease.</li> <li>• Student can carry out various preventive measures for dental diseases including pit and fissures sealants, topical fluorides, other remineralizing agents, Oral prophylaxis measures, give instructions in tooth brushing.</li> </ul> <p style="padding-left: 40px;">Student should be able</p> <ul style="list-style-type: none"> <li>• To record diet and do a diet analysis as related to dental caries, followed by diet counseling.</li> <li>• To record, document &amp; evaluate oral hygiene, dental caries and gingival disease.</li> <li>• To deliver appliances in the prevention of oral deleterious habits, and for space management in children.</li> <li>• To impart Dental Health Education and plan for School Dental Health Programs for delivery of oral health and prevention of dental trauma.</li> <li>• Students participate actively in dental camps.</li> <li>• Student should be able to counsel parents and teachers in their role in maintaining good oral health of infants, children and adolescents.</li> <li>• Should be able to recognize, document and appropriate referral for child abuse and neglect.</li> </ul>
8.e		Essay	<p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Should understand comprehensively the role of a pediatric dentist in the community.</li> </ul>

			<ul style="list-style-type: none"> <li>• Student should know about anticipatory guidance, infant oral health care, comprehensive cleft care and dental home concept.</li> <li>• Student should be able to critically analyze and evaluate preventive and therapeutic modalities in pediatric dentistry.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Student should be able to effectively manage child patient in the dental clinic and provide preventive, therapeutic comprehensive dental care to all children and adolescents including those with special health care needs.</li> <li>• Student should be confident to set up an exclusive pediatric dental practice.</li> <li>• Student should be able to answer viva-voce with confidence.</li> <li>• Student should be able to deliver a pedagogy , and able to make an oral presentation.</li> </ul>
--	--	--	---

### 9. Oral Pathology & Microbiology -MDS

SL. No.	Name of the program	Name of the program	Course outcome
9.a	<b>MDS-Oral Pathology&amp; Microbiology</b>	Applied Basic Science	<ol style="list-style-type: none"> <li>1. The students should have basic knowledge of biostatistics and research methodology.</li> <li>2. They would have learnt the anatomy, histology, biochemical and physiology of oral and paraoral structure.</li> <li>3. They would have learnt the basic pathology, microbiology and basic molecular aspects of pathology.</li> <li>4. Students are trained in basic Histo-Techniques and Microscopy.</li> </ol>

<p><b>9.b</b></p>		<p>Oral Pathology, Microbiology, Immunology And Forensic Odontology</p>	<ol style="list-style-type: none"> <li>1. The student should have to understand the pathological processes of oral diseases.</li> <li>2. The student would have to understand the pathological processes of oral diseases compare and diagnose based on clinical, radiographical and histopathological findings which involves the oral and paraoral structures.</li> <li>3. They would have learnt and perform the preparation of ground sections oral smears and histology slides.</li> <li>4. Student would have studied and be able to identify and diagnose the disease based on microscopy rationale.</li> <li>5. Students are trained in recording of Case History and Clinico-Pathological interdepartmental discussions.</li> <li>6. Students gain basic knowledge on Forensic odontology and its clinical applications in dentistry</li> </ol>
-------------------	--	---	--



<p><b>9.c</b></p>		<p>Laboratory Techniques , Diagnosis AndOncology</p>	<ol style="list-style-type: none"> <li>1. The students should have basic knowledge of biopsy procedure andslide preparation.</li> <li>2. They would have the basic knowledgion laboratory chemicals and equipments.</li> <li>3. Student should have learnt to identifyand appreciate the microscopic slide and writing a report on oral diseases/lesion.</li> <li>4. Students are imparted knowledge and training in recent molecular techniques.</li> <li>5. Student should have knowledge on Basic hematological tests, urine analysis and its clinical significance.</li> <li>6. Student is imparted knowledge, rationale and practical skills behind doing special stains and Immunohistochemistry for diagnostically challenging cases.</li> </ol>
<p><b>9.d</b></p>		<p>Essay</p>	<ol style="list-style-type: none"> <li>1. Student should have comprehensiveknowledge on oral and paraoral structures and related pathologies and also on recent advanced methodology / techniques and molecular aspect.</li> <li>2. Student should have critical evaluation skills to differentiate various pathologies using clinical, histopathological and molecular information put together.</li> </ol>

Sl. No.	Name of The program	Name of the course	Course outcome
1.1	BDS - 1 <sup>st</sup> year	General Human Anatomy, Including Embryology, Osteology, Histology & Medical Genetics	<ol style="list-style-type: none"> <li>1. Dental student with knowledge on normal disposition of the structures in the body, microscopic structure of the various tissues, nervous system to locate the site of lesions, sectional anatomy of head, neck and brain.</li> <li>2. Dental student possessing skills to locate various structures of head and neck of the body, identify various tissues under microscope,</li> <li>3. Dental student with an integrated knowledge on basic sciences and clinical Subjects.</li> </ol>
1.2	BDS - 1 <sup>st</sup> year	General Human Physiology	<ol style="list-style-type: none"> <li>1. Dental student with knowledge on normal functioning of all the organ systems and their interactions, relative contribution of each organ system towards the maintenance of total body function, physiological principles underlying the pathogenesis of various diseases and oral and para - oral structures.</li> <li>2. Dental student with basic skill to conduct and interpret experimental and investigative data,</li> </ol>
1.3	BDS - 1 <sup>st</sup> year	Biochemistry	<ol style="list-style-type: none"> <li>1. Dental student with knowledge Bio chemical agents related to dentistry, various micro and macro nutrients.</li> </ol>
1.4	BDS - 1 <sup>st</sup> Year	Dental Anatomy, Embryology And Oral Histology	<ol style="list-style-type: none"> <li>1. Dental graduate with basic knowledge on Morphology of both deciduous and permanent teeth, Methods of identifying the teeth and age of the plaster cast</li> <li>2. Dental graduate with basic skills in Wax carving of teeth, Identifying the basic histology slides by microscopy</li> <li>3. Dental graduate with potential to efficiently communicate physiological development, morphology, structure &amp; functions of teeth and oral &amp; paraoral tissues &amp; its variations.</li> </ol>

2.1	BDS - 2 <sup>nd</sup> Year	General Pathology	<ol style="list-style-type: none"> <li>1. Dental student with knowledge on pathological changes at macroscopic and microscopic levels, capabilities and limitations of morphological Pathology in its contribution to dentistry.</li> <li>2. Dental student with an ability to integrate knowledge from the basic sciences to clinical application in dentistry</li> </ol>
2.2	BDS - 2 <sup>nd</sup> Year	Microbiology	<ol style="list-style-type: none"> <li>1. Dental student with sound understanding of various infectious diseases and lesions in the oral cavity, various methods of Sterilization and disinfection.</li> <li>2. Dental student with basic skills to select, collect and transport clinical specimens to the laboratory and be able to carry out proper aseptic procedures in the dental clinic.</li> </ol>
2.3	BDS - 2 <sup>nd</sup> Year	General an dDental Pharmacology and Therapeutics	<ol style="list-style-type: none"> <li>1. Dental student with knowledge on indications, contraindications; interactions, allergies and adverse reactions of commonly used drugs, use of appropriate drugs in disease with consideration to its efficacy, safety for individual and mass therapy needs.</li> <li>2. Dental student with an ability to advice special care in prescribing common and essential drugs in special medical situations such as pregnancy, lactation, old age, renal, hepatic damage and immune compromised patients.</li> <li>3. Dental student with skills to prescribe drugs for common dental and medical ailments, appreciate adverse reactions and drug interactions of commonly used drugs.</li> </ol>

<b>2.4</b>	BDS - 2 <sup>nd</sup> Year	Dental Materials	<ol style="list-style-type: none"> <li>1. Dental student with knowledge of physical, chemical, mechanical and biological properties of all materials used in dentistry.</li> <li>2. Dental student with an ability to manipulate various dental materials</li> </ol>
<b>2.5</b>	BDS - 2 <sup>nd</sup> Year	Pre-Clinical Prosthodontics	<ol style="list-style-type: none"> <li>1. Dental student with sound knowledge on landmarks in edentulous patients would be able to do all lab procedures to make a conventional complete denture.</li> </ol>
<b>2.6</b>	BDS - 2 <sup>nd</sup> Year	Pre-Clinical Conservative Dentistry	<ol style="list-style-type: none"> <li>1. Dental student will sound knowledge on hand and rotary cutting instruments.</li> <li>2. Dental student with basic skill to prepare cavity designs to receive various restorative materials on typhodont teeth in skill laboratory.</li> </ol>
<b>2.7</b>	BDS - 2 <sup>nd</sup> Year	General Medicine	<ol style="list-style-type: none"> <li>1. Dental student with sound knowledge on oral manifestations of systemic diseases, Medical emergencies in dental practice. Special precautions/ contraindication of anesthesia.</li> <li>2. Dental students with ability to diagnose and manage various common medical problems encountered in general, dental practice and dental emergencies.</li> <li>3. Dental student with basic skill to prevent and manage complications encountered while carrying out various dental surgical and other procedures.</li> </ol>
<b>3.1</b>	BDS – 3 <sup>rd</sup> Year	General Surgery	<ol style="list-style-type: none"> <li>1. Dental student with sound surgical knowledge on anomalies, lesions and diseases of the teeth, mouth and jaws.</li> <li>2. Dental student with an ability to diagnose and manage various common surgical problems encountered in general, dental practice and dental emergencies.</li> </ol>

3.2	BDS – 3 <sup>rd</sup> Year	Oral Pathology	<ol style="list-style-type: none"> <li>1. Dental graduate with basic knowledge on pathogenesis of Oral disease, diagnosis and comparison based on clinical, radiograph and histopathologic features of oral disease</li> <li>2. Dental graduate with basic skills in preparation of ground sections and oral smears, age estimation based on teeth, identifying and diagnosing the pathology based on light microscopy</li> <li>3. Dental graduate with potential to efficiently communicate diagnosis &amp; correlate with other oral disease with their pathological processes.</li> </ol>
4.1	BDS – 4 <sup>th</sup> Year	Oral Medicine and Radiology	<ol style="list-style-type: none"> <li>1. Generate graduates that demonstrate the necessary knowledge, skills and attitude in Oral &amp; Maxillofacial Diagnosis, Diagnostic procedures and medical management of such disorders.</li> <li>2. Create confident and competent Dental professionals who can accomplish and execute clinical deftness in the diagnosis and management of Orofacial disorders</li> </ol>
4.2	BDS – 4 <sup>th</sup> Year	Oral and Maxillofacial Surgery	<ol style="list-style-type: none"> <li>1. Clinical application of theoretical knowledge of related medical subjects in management of patients with oral surgical problem.</li> <li>2. Considerable knowledge to diagnose, manage and treat minor oral surgical procedures.</li> <li>3. Understanding and clinical exposure to the management of major oral surgical problems and principals involved in Inpatient management.</li> </ol>
4.3	BDS – 4 <sup>th</sup> Year	Prosthodontics and crown & bridge	<ul style="list-style-type: none"> <li>• The dental graduate is trained to achieve knowledge and skill in theoretical, clinical and laboratory procedures.</li> <li>• Dental graduates are trained to diagnose and treat patients who are partially and completely edentulous with removable partial dentures and removable complete dentures.</li> <li>• The dental graduates are trained to survey and design casts</li> </ul>

			<p>depicting Kennedys partial edentulous classifications</p> <ul style="list-style-type: none"> <li>• Dental graduates are trained to prepare ivory teeth to receive full and partial veneer crowns.</li> <li>• The young minds of dental graduates are instilled with ethical practice, human values and service to the society</li> </ul>
<b>4.4</b>	BDS - 4 <sup>th</sup> Year	Conservative Dentistry and Endodontic	<ol style="list-style-type: none"> <li>1. The student should be qualified and capable to diagnose carious lesions and skilled to restore teeth with the right restorative material. The student should be able to understand the principles of esthetic dentistry.</li> <li>2. Student should be proficient at pulpal diagnosis and perform vital pulp therapy</li> <li>3. The student should be skilled with endodontic diagnosis; use of diagnostic aids and be capable of performing endodontic treatment to anterior teeth.</li> <li>4. The student should update clinical skills and scientific knowledge by attending CDE programs</li> <li>5. The student should be able to motivate patients on oral hygiene needs, and maintenance visits to the dentist. The student should exhibit high standard of professional ethics</li> </ol>
<b>4.5</b>	BDS (3 <sup>rd</sup> & 4 <sup>th</sup> year)	Periodontology	<p>At the end of the course the student should:</p> <ol style="list-style-type: none"> <li>1. Be able to record a detailed case history and diagnose the patient's problem, plan and perform appropriate periodontal treatment</li> <li>2. Be competent to educate and motivate the patient</li> <li>3. Be competent to perform thorough oral prophylaxis and minor periodontal surgical procedures</li> <li>4. Give proper oral hygiene instructions Recall, re-evaluate &amp; reinforce OHI</li> <li>5. Have a basic idea about osseo integration and oral implantology</li> </ol>

4.6	BDS – 4 <sup>th</sup> Year	Public Health Dentistry	<ol style="list-style-type: none"> <li>1. Dental graduate with basic knowledge on oral and general health problems prevailing in India, survey methods to collect data on these problems, methods to identify, prevent and control these diseases at individual and community levels.</li> <li>2. Dental graduate with basic skills in identifying oral health problems at community level by epidemiological methods and developing strategies through health education, preventive and rehabilitative measures.</li> <li>3. Dental graduate with an aptitude to effectively identify, measure and communicate felt needs of the community and formulate self-care measures to preserve and promote oral health of population.</li> </ol>
4.7	BDS – 4 <sup>th</sup> Year	Orthodontics and Dento facial Orthopedics	<ol style="list-style-type: none"> <li>1. Graduates emerging from this institute are excelling in academics &amp; clinical Practice.</li> <li>2. Many undergraduates from our institutes have and are still pursuing post-graduation in our specialty.</li> </ol>
4.8	BDS- 3 <sup>rd</sup> and 4 <sup>th</sup> year	Pediatric & Preventive Dentistry	<p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Student should understand the scope, objectives and importance of pediatric dentistry.</li> <li>• Should understand the oral diseases in children including early childhood caries, gingival diseases, oral habits, space considerations, preventive and restorative procedures, children with special health care needs, and dental trauma.</li> <li>• Should understand importance of school dental health education.</li> </ul>

			<b>Skills:</b> <ul style="list-style-type: none"> <li>• Should be able to record case history, diagnose and plan treatment.</li> <li>• Should be able to carry out oral prophylaxis, restorations on primary teeth, apply topical fluoride, and simple extractions.</li> <li>• Should educate and motivate patients</li> </ul>
	Interns		<b>Knowledge:</b> Should present posters/ project; seminars and participate in quiz, table clinics, debates. <b>Skills:</b> <ul style="list-style-type: none"> <li>• Should attend school dental health camps</li> <li>• Should apply topical fluorides, restore carious primary teeth, and perform pulp therapy in primary teeth.</li> <li>• Should fabricate space maintainer &amp; habit breaking appliance</li> </ul>
4.9	BDS - 1 <sup>st</sup> Year	Oral Pathology Dental Anatomy including Embryology and Oral Histology	1. Dental graduate with a composite knowledge, understanding of normal structure, development, function of oral and paraoral structures & their clinical applications. 2. Dental graduate with basic skills in preparation of ground sections of teeth, identification of microscopic slides related to teeth and soft tissues of oral cavity under light microscopy 3. Dental graduate with basic skills in dental tooth morphology which helps in restorative techniques.
	BDS - 3 <sup>rd</sup> Year	Oral Pathology	1. Dental graduate with basic knowledge on pathologic basis of Oral disease, diagnosis and comparison based on clinical, radiograph and histopathology features of oral disease. 2. The student should understand the underlying biological principles governing treatment of oral diseases. 3. Dental graduate with basic skills in preparation of ground sections and oral smears, age estimation based on teeth, identifying and diagnosing the pathology based on light microscopy



			4. Dental graduate with potential to efficiently communicate diagnosis & correlate with other oral disease with their pathological processes.
--	--	--	---