BDS PROGRAM COURSE OUTCOMES

1. HUMAN ANATOMY, EMBRYOLOGY, HISTOLOGY & MEDICAL GENETICS

K1 KNOWLEDGE AND UNDERSTANDING :

- At the end of the 1st year BDS Course in Anatomical Sciences the undergraduate student is Expected to :
- Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
- Know the anatomical basis of disease and injury.
- Know the microscopic structure of the various tissues, a pre requisite for understanding of the disease processes.
- Know the nervous system to locate the site of lesions according to the sensory and or motor deficits encountered.
- Have an idea about the basis of abnormal development critical stages of development, effect of teratogens, genetic mutations and environmental hazards.
- Know the sectional anatomy of head neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.
- Know the anatomy of cardio-pulmonary resuscitation.

S1 SKILLS

- To locate various structures of the body and to mark the topography of the living anatomy. To identify various tissues under microscope.
- To identify the features in radiographs and modern imaging techniques. To detect various congenital abnormalities.

2. HUMAN PHYSIOLOGY

K2 KNOWLEDGE : At the end of the course, the student will be able to:

- Explain the normal functioning of all the organ systems and their interactions for well coordinated total body function.
- Assess the relative contribution of each organ systems towards the maintenance of the milieu interior. List the physiological principles underlying the pathogenesis and treatment of disease.

S2 SKILLS : At the end of the course, the student shall be above to :

- Conduct experiments designed for the study of physiological phenomena. Interpret experimental and investigative data.
- Distinguish between normal and abnormal data derived as a result of tests which he / she has performed and observed in the laboratory.

3. BIOCHEMISTRY

K3 KNOWLEDGE:

- To provide a sound but crisp knowledge on the biochemical basis of the life processes relevant to the human system and to dental / medical practice.
- The contents should be organized to build on the already existing information available to the students in the pre university stage and reorienting.
- providing information on the functional groups, hydrophobic and hydrophilic moieties and weak valence forces that organize macromolecules.
- Discussion on metabolic processes should put emphasis on the overall change, interdependence and molecular turnover.
- An introduction to biochemical genetics and molecular biology
- The exposure to antivitamins, antimetabolites and enzyme inhibitors
- An overview of metabolic regulation is to be taught by covering hormonal action, second messengers and regulation of enzyme activities.
- At the end of the course of the students would be able to acquire a useful core of information which can be retained for a long time.

S3 SKILLS

- Perform basic laboratory tests

4. DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY

K4 KNOWLEDGE:

- The student is expected to appreciate the normal development, morphology, structure and functions of oral tissues and variations in different pathological / non pathological states
- The student should understand the histological basis of various dental treatment procedures and physiologic ageing process in the dental tissues.
- The students must know the basic knowledge of various research methodologies

S4 SKILLS

- The student should acquire basic skills in :
- Carving of crowns of permanent teeth in wax.
- Microscopic study of Oral tissues.
- Identification of Deciduous & Permanent teeth
- Age estimation by patterns of teeth eruption from plaster casts of different age groups.

5. GENERAL PATHOLOGY

K5 KNOWLEDGE

- To demonstrate and apply basic facts, concepts and theories in the field of Pathology.
- To recognize and analyze pathological changes at macroscopically and microscopical levels and explain their observations in terms of disease processes.
- To integrate knowledge from the basic sciences, clinical medicine and dentistry in the study of pathology.
- To demonstrate understanding of the capabilities and limitations of morphological Pathology in its contribution to medicine, dentistry and biological research.
- To demonstrate ability to consult resource materials outside lectures, laboratory and tutorial Classes

S5 SKILLS

- 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.

6. MICROBIOLOGY

K6 KNOWLEDGE AND UNDERSTANDING: At the end of the Microbiology course the student is expected to:

- Understand the basics of various branches of microbiology and able to apply the knowledge relevantly
- 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.
- Understand and practice various methods of sterilization and disinfection in dental clinics.
- Have a sound understanding of various infectious diseases and lesions in the Oral Cavity.

S6 SKILLS

- Student should have acquired the skill to diagnose, differentiate various oral lesions.
- Should be above to select, collect and transport clinical specimens to the laboratory.

- Should be able to carry out proper aseptic procedures in the dental clinic

7. GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS

K7 KNOWLEDGE: At the end of the course the student shall be able to :

- Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs in general and in dentistry in particular
- List the indications, contraindications; interactions, and adverse reactions of commonly used drugs with reason.
- Tailor the use of appropriate drugs in disease with consideration to its cost, efficacy safety for individual and mass therapy needs.
- Indicate special care in prescribing, common and essential drugs in special medical situations such as pregnancy, lactation, old age, renal, hepatic damage and immuno compromised patients.
- Integrate the rational drug therapy in clinical pharmacology
- Indicate the principles underlying the concepts of Essential Drugs .

S7 SKILLS : At the end of the course the student shall be able to:

- Prescribe drugs for common dental and medical ailments
- To appreciate adverse reactions and drug interactions of commonly used drugs.
- Observe experiments designed for study of effects of drugs
- Critically evaluate drug formulations and be able to interpret the clinical pharmacology of marketed preparations commonly used in dentistry.

8. DENTAL MATERIALS

K8 KNOWLEDGE :

- To understand the evolution and development of science of dental material
- To explain purpose of course in dental materials to personnel concerned with the profession of dentistry. Knowledge of properties. Knowledge of physical, chemical and 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 manufactures 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.

S8 SKILLS

- Manipulation of dental material used for restorations, laboratory procedures etc.
- Recognise and apply different materials and armamentaria in suitable situations

9. ORAL PATHOLOGY & ORAL MICROBIOLOGY

K9 KNOWLEDGE: At the end of Oral pathology and Oral Microbiology course, the student should be able to

- Comprehend the different types of pathological processes, that involve the oral cavity.
- The manifestation of common diseases, their diagnosis and correlation with clinical pathological processes.
- An understanding of the oral manifestations of systemic disease should help in correlating with the systemic physical signs and laboratory findings.
- The student should understand the underlying biological principles governing treatment of oral disease.
- The principles of certain basic aspects of Forensic Odontology.

S9 SKILLS:

- Microscopic study of common lesions affecting oral tissues through microscopic slides & projection slides.
- Study of the disease process by surgical specimen
- Study of teeth anomalies / polymorphisms through tooth specimens & plaster casts.
- Microscopic study of plaque pathogens.
- Study of haematological preparations (blood films) of anaemias & leukemias.
- Basic exercises in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries

10. GENERAL MEDICINE

K10 KNOWLEDGE:

- Special emphasis should be given throughout on the importance of various disease as applicable to dentistry.
- Special precautions / contraindication of anaesthesia and various dental procedures in different systemic diseases.
- Oral manifestations of systemic diseases.
- Medical emergencies in dental practice.

- 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 - disease of the heart, lungs, kidneys, blood etc.

S10 SKILLS:

- 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.

11. GENERAL SURGERY

K11 KNOWLEDGE:

- 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.
- At the end of one year of study the student should have a good theoretical knowledge of various ailments,

S11 SKILLS

- be practically trained to differentiate benign and malignant diseases and be able to decided which patient requires further evaluation

12. ORAL MEDICINE & RADIOLOGY

K12 KNOWLEDGE

- Should have an adequate knowledge about common laboratory investigations and interpretation of their results.
- Should have adequate knowledge about medical complications that can arise while treating
- systemically compromised patients and take prior precautions/ consent from the concerned medical specialist.
- Have adequate knowledge about radiation health hazards, radiations safety and protection.
- Gain adequate knowledge of various extra-oral radiographic procedures, TMJ radiography and sialography.
- Be aware of the importance of intra- and extra-oral radiographs in forensic identification and age estimation

- Should be familiar with jurisprudence, ethics and understand the significance of dental records with respect to law

S12 SKILLS

- Competent to take intra-oral radiographs and interpret the radiographic findings
- Able to identify all lesions, especially precancerous and cancerous lesions of the oral cavity and refer to the concerned speciality for their management

13. PAEDIATRIC & PREVENTIVE DENTISTRY

K13 KNOWLEDGE

- Understand the pathophysiology of dental caries, its presentation, causes and treatment
- Understand the principles of prevention and prevention dentistry right from birth to adolescence
- Basic idea regarding behavior management and conscious sedation

S13 SKILLS

- Able to instill a positive attitude and behaviour in children towards oral health and understand the principles of prevention and preventive dentistry right from birth to adolescence.
- Able to guide and counsel the parents in regards to various treatment modalities including different facets of preventive dentistry.
- Able to treat dental diseases occurring in child patient.
- Able to manage the physically and mentally challenged disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.

14. ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

K14 KNOWLEDGE

- diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures.
- Understand about normal growth and development of facial skeleton and dentition.
- Pinpoint oberrations in growth process both dental and skeletal and plan necessary treatment
- Diagnose the various malocclusion categories
- Diagnose and appropriately refer patients with complex malocclusion to the specialist

S14 SKILLS

- Able to motivate and explain to the patient (and parent) about the necessity of treatment
- Plan and execute preventive orthodontics (space maintainces or space regaines)
- Plan and execute interceptive orthodontics (habit breaking appliances)

- Manage treatment of simple malocclusion such as anterior spacing using removable appliances
- Handle delivery and activation of removable orthodontic appliances

15. PERIODONTOLOGY

K15 KNOWLEDGE

- Diagnose the patients periodontal problem, plan and perform appropriate periodontal treatment
- Competent to educate and motivate the patient
- Competent to perform thorough oral prophylaxis, subgingival scaling, root planning and minor periodontal surgical procedures
- Give proper post treatment instructions and do periodic recall and evaluation
- Familiar with concepts of osseointegration and basic surgical aspects of implantology

S15 SKILLS

- Perform dental scaling, diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.
- 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 care.

16. PROSTHODONTICS AND CROWN & BRIDGE

K16 KNOWLEDGE

- The candidate should possess knowledge of applied basic and systemic medical sciences, on human anatomy, embryology, histology, applied in general and particularly to head and neck, Physiology & Biochemistry, Pathology and Microbiology, virology, health and diseases of various systems of the body (systemic) principles in surgery and medicine, pharmacology, nutrition, behavioral science, age changes, genetics , Immunology, Congenital defects and syndrome and Anthropology, Bioengineering, Bio-medical and Biological Principle and applications to Dental material science.
- Ability to diagnose and planned treatment for patients requiring a Prosthodontic therapy.
- Ability to read and interpret a radiograph and other investigations for the purpose of diagnosis and treatment plan.

- Tooth and tooth surface restorations, Complete denture Prosthodontics, removable partial denture Prosthodontics, fixed Prosthodontics and maxillofacial and Craniofacial Prosthodontics, implant and implant supported Prosthodontics, T.M.J. and occlusion, craniofacial esthetic and biomaterials, craniofacial disorders, problems of psychogenic origin.

S16 SKILLS

- Able to understand and use various dental materials
- Competent to carry out treatment of conventional complete and partial removable dentures and fabricate fixed partial dentures
- Able to carry out treatment of routine prosthodontic procedures.
- Familiar with the concept of osseointegration and the value of implant-supported Prosthodontic procedures

17. CONSERVATIVE DENTISTRY AND ENDODONTICS

K17. KNOWLEDGE

- To diagnose and treat simple restorative work for teeth.
- To gain knowledge about aesthetic restorative material and to translate the same to patients' needs.
- To gain the knowledge about endodontic treatment on the basis of scientific foundations.
- To carry out simple endodontic treatment.
- To carry out simple luxation of tooth and its treatment and to provide emergency endodontic treatment.

S17. SKILLS :

- Competent to diagnose all carious lesions
- Competent to perform Class I and Class II cavities and their restoration with amalgam
- Restore class V and Class III cavities with glass ionomer cement
- Able to diagnose and appropriately treat pulpally involved teeth (pulp capping procedures)
- Able to perform RCT for anterior teeth
- Competent to carry out small composite restorations
- Understand the principles of aesthetic dental procedures
- To use medium and high speed hand pieces to carry out restorative work.
- Possess the skills to use and familiarize endodontic instruments and materials needed for carrying out simple endodontic treatment.
- To achieve the skills to translate patients esthetic needs along with function.

18. ORAL & MAXILLOFACIAL SURGERY

K18. KNOWLEDGE:

- 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.
- Able to diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.
- Knowledge of range of surgical treatments.
- Ability to decide the requirement of a patient to have oral surgical specialist opinion or treatment.
- Understand the principles of in patient management.
- Understanding of the management of major oral surgical procedures and principles involved in patient management.
- Should know ethical issues and communication ability.

S18. SKILLS :

- 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.
- Should be competent in the extraction of teeth under both local and general anesthesia.
- Should be able to carry out certain minor oral surgical procedures under L.A. like frenectomy, alveolar procedures and biopsy etc.
- Ability to assess, prevent and manage various complications during and after surgery.
- Able to provide primary care and manage medical emergencies in the dental office.
- Understanding of the management of major oral surgical problems and principles involved in inpatient management.

19. PUBLIC HEALTH DENTISTRY

K19. KNOWLEDGE

- Apply the principles of health promotion and disease prevention
- Have knowledge of the organization and provision of health care in community and in the hospital service
- Have knowledge of the prevalence of common dental conditions in India.
- Have knowledge of community based preventive measures

- Have knowledge of the social, cultural and env. Factors which contribute to health or illness.

S19. SKILLS

- Administer and hygiene instructions, topical fluoride therapy and fissure sealing.
- Educate patients concerning the aetiology and prevention of oral disease and encourage them to
- assure responsibility for their oral health.

AESTHETIC DENTISTRY

KNOWLEDGE

- Introduction and scope of esthetic dentistry
- Anatomy & physiology of smile
- Role of the colour in esthetic dentistry
- Simple procedures (roundering of central incisors to enhance
- esthetics appearance)
- Bleaching of teeth
- Veneers with various materials
- Preventive and interceptive esthetics
- Ceramics
- Simple gingival contouring to enhance the appearance
- Simple clinical procedures for BDS students

FORENSIC ODONTOLOGY

KNOWLEDGE

- Have sound knowledge of the theorectial and practical aspects of forensic odontology.
- Have an awareness of ethical obligations and legal responsibilities in routine practice and forensic casework.
- Be competent to recognize forensic cases with dental applications when consulted by the police, forensic pathologists, lawyers and associated professionals.
- Be competent in proper collection of dental evidence related to cases of identification, ethnic and sex differentiaton, age estimation and bite marks.
- Be able to assist in analysis, evaluation, and presentation of dental facts within the realm of law.

ORAL IMPLANTOLOGY

KNOWLEDGE

- basic knowledge of Oral Implantology to undergraduates and enable them to diagnose, plan the treatment and to carry out the needed pre surgical mouth preparations and treat or refer them to speciality centres.

BEHAVIOURAL SCIENCES

KNOWLEDGE & UNDERSTANDING:

- Comprehend different aspects of normal behaviour like learning, memory, motivation, personality & intelligence.
- Recognise difference between normal and abnormal behaviour.
- Classify psychiatric disorders in dentistry.
- Recognise clinical manifestations of dental phobia, dental anxiety, facial pain orofacial manifestations of psychiatric disorders, and behavioural problems in children. Addictive disorders, psychological disorders in various dental departments.
- Should have understanding of stress in dentistry and knowledge of simple counseling techniques.
- Have some background knowledge of interpersonal, managerial and problem solving skills which are an integral part of modern dental practice.
- Have knowledge of social context of dental care.

SKILLS

- Interview the patient and understand different methods of communication skills in dentist - patient relationship.
- Improve patients' compliance behaviour.
- Develop better interpersonal, managerial and problem solving skills.
- Diagnose and manage minor psychological problems while treating dental patients.

ETHICS

KNOWLEDGE

- To accomplish this and develop human values Council desires that all the trainees undergo ethical sensitization by lectures or discussion on ethical issues, discussion of cases with an important ethical component