STUDY GUIDE	
PROGRAM	**BDS**
COURSE TITLE	**Pathology (General Pathology, Microbiology& Clinical Pathology)**
ACADEMIC YEAR	**2nd Year BDS**
INTRODUCTION	Pathology is the systematic study of diseases, their causes, symptoms and treatments, broadly speaking this subject deals with derangement of tissue structure and function in disease, related with clinical signs and symptoms. Pathology has been divided in to General Pathology and Special pathology; - General pathology deals with general reaction and response of a cell and tissue to abnormal stimuli causing disease. - Special pathology deals with specific reactions and changes seen in specific disease. Laboratory and museum have been developed extensively for teaching pathology, microbiology and clinical Haematology. Thirty three specimens are available in Museum, which constitutes integral parts for better understanding of pathology Microbiology is a broad term that encompasses the study of different types of micro-organisms or microbes. The word 'Micro' means small and 'biology' refers to the study of living things. As the foundation of the biosphere and major determinates of human health, microbes claim a primary, fundamental role in left on earth. Hence, the study of microbes is pivotal to the study of all living things and microbiology is essential for the study and understanding of all life on this planet. Thus one of the most active and important fields is medical microbiology which deals with diseases of humans and animals. It has great impact on genetics, biochemistry, immunology, medicine and many other disciplines.
COURSE CONTENTS	
GENERAL PATHOLOGY	
Cellular Response To Stress, Adaptation, Injury & Death	• Introduction to Pathology & cell response • Causes of cell injury. • Mechanism of cell injury • Necrosis • Apoptosis • Morphological Alteration in Cell Injury • Cellular Adaptations • Metaplasia • Intracellular accumulation • Pathologic calcification
Inflammation & Repair	• Inflammation and its Causes

	• Vascular events of Acute inflammation • Cellular Events of Acute Inflammation • Phagocytosis & clearance of offending agents • Mediators of inflammation • Morphological Patterns of Inflammation • Chronic Inflammation • Chronic granulomatous inflammation • Systemic Effects of Inflammation • Regeneration and Repair • Factors affecting tissue repair • Aberrations of Wound healing
Fluid and Hemodynamics	• Edema, • Congestion & hyperplasia • Hemorrhage • Thrombosis • Embolism • Infarction • Shock
Neoplasia	• Neoplasia: Nomenclature • Characteristics of tumors • Cancer Epidemiology • Molecular basis of caner • Carcinogens • Clinical aspects of Neoplasia • Laboratory Diagnosis of Cancer
Genetic Diseases	• Mutations • Mendelian disorders Autosomal dominant and autosomal recessive inheritance • Chromosomal disorders
Special Pathology	• Leukoplakia, Pre-disposing factors of leukoplakia • Risk factors for oral cancer & clinical and morphological features of oral cancer • Benign and malignant tumours of salivary glands & clinical and morphological features of Pleomorphic Adenoma
MICROBIOLOGY	
General Bacteriology	• Introduction to Microbiology • Structure of Bacterial Cells • Growth curve & cultivation • Genetic material& Mutation Transfer of DNA & Recombination • Classification of bacteria • Normal Flora • Pathogenesis • Laboratory Diagnosis • Culture Media • Host Parasite Relationship

	• Antimicrobial Drugs • Antimicrobial Drugs Resistance • Bacterial Vaccines • Sterilization And Disinfection
Special Bacteriology	• Staphylococcus • Streptococcus • Neisseria • Bacillus • Clostridium • Corynebacterium • Causes of UTI / E.coli / Proteus • Salmonella • Mycobacterium • Klebsiella • Haemophilus • Pseudomonas • Shigella • Vibrio • Helicobacter pylori • Campylobacter • Actinomyces • Nocardia • Bacteroides Culture of Anaerobes
Virology	• General aspects and classification & Laboratory Diagnosis of virology • Herpes Family • MMR • Polio virus • Rabies virus • Influenza virus • Hepatitis Viruses • Dengue Virus • Corona virus • Chikungunya
Mycology	• Structure and growth of fungi • Classification and lab diagnosis of fungi • Superficial & Cutaneous mycoses • Subcutaneous mycoses • Systemic Mycosis • Opportunistic Mycoses
Parasitology	• Introduction & classification of Parasitology • Intestinal Protozoa • Blood & Tissue Protozoa • Cestodes • Trematodes

	• Nematodes
Immunology	• Introduction to immunology • Innate & Acquired immunity • Cells of immune response • Antibodies & Serological Tests • Humoral Immunity & Cell Mediated Immunity • Major Histocompatibility Complex & Complement • Antigen • Hypersensitivity • HLA+ Tolerance autoimmunity + transplantation • Immunodeficiency states • Tumor immunity
CLINICAL PATHOLOGY	
Introduction To Clinical Pathology	• Estimation of Hemoglobin concentration • Determination of bleeding time • Determination of clotting time • Total leukocyte count by Neubauer's chamber • Differential Leukocyte count • Malaria parasite Diagnostic, Specimen Identification & ICT method • Examination of sample of stool • Giardia lamblia • Entamoeba histolytica • Enterobius vermicularis • Trichuris truchiura • Ascaris lumbricoides • Ancylostoma duodenale • Schistosoma (japonicum & mansoni) • Tenia saginata • H. nana • Examination of sample of CSF • Hepatitis serology and Genetics principal of ELISA • (A,B,C,D,E,G) Methods + chart
TEACHING METHODOLOGIES	**Interactive lectures** In large group, the lecturer introduces a topic which explains the underlying phenomena through questions, pictures, exercise, etc. Students are actively involved in the learning process. **Small group discussions** This format helps students to clarify concepts and acquire skills and attitudes. Students exchange opinions and apply knowledge gained from lectures and self-study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

	Practicals In practical sessions students observe histological slides under microscope or on multimedia for better understanding of the subject. They are also required to maintain practical manuals in which they draw and label histological diagrams and different aspects/views of teeth for better understanding. **Assignments** Students are given written formative assignments on designated topics.
Assessment Plan	
Internal Assessment	Internal assessment will be according to institution policy.
Annual Examination	**Theory:** Annual exam will consist of MCQs (one best answer)& EMQs (Extended Multiple Questions) **Practical:** OSPE (observed and un observed stations) + Viva+ Practical Internal Evaluation carries 10% weightage in summative examination.