**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**Proposed 30% Addition to the CCMAS Course Structure/Summary**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Level 400 | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| **BUK-BDS 401** | **Dental Cariology** | 3 | C | 45 |  |
| **BUK-BDS 402** | **Oral Microbiology** | 3 | C | 30 | 45 |
| **BUK-BDS 403** | **Dental Therapeutics** | 2 | C | 30 | 45 |
|  | **Total** | **8** |  |  |  |
|  | | | | | |
| **Level 500** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| **BUK-BDS 501** | **Comprehensive Dental Clinical Practice** | 2 | C |  | 90 |
| **BUK-BDS 502** | **Molecular Mechanisms in Health and Disease** | 2 | C | 30 | 45 |
| **BUK- BDS 503** | **Dental Practicum Extramural** | 2 | C |  | 90 |
|  | **Total** | **6** |  |  |  |
|  | | | | | |
| **Level 600** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| **BUK-BDS 601** | **Practice Management** | 2 | C | 30 |  |
| **BUK-BDS 602** | **Dental Implantology** | 3 | C | 30 | 45 |
| **BUK-BDS 603** | **Digital Dentistry** | 2 | C | 15 | 45 |
|  | **Total** | 7 |  |  |  |
|  | **Grand Total** | **21** |  |  |  |

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 401 Dental Cariology (3 Units; CORE; L = 45)**

**Senate-approved relevance**

Worldwide, the prevalence of dental caries amongst adults is high as the disease affects nearly 100% of the adult population in the majority of countries. It is thus imperative to train high-quality dental graduates who competent at applying knowledge and understanding of the biological, medical, basic and applied clinical sciences in order to recognize caries and other dental hard tissue disorders and make decisions about their prevention and management in individuals and populations. The aim thus must be from a preventive perspective and not strictly from a curative mentality as espoused in the Bayero University mission which aims to impart and engender community participation and beneficence. The role of environmental factors, drugs and systemic diseases related to caries and other dental hard tissue disorders have been elucidated in documented studies; a contemporary dentist must thus be familiar with the role of oral biofilms, diet and nutrition, saliva and other host factors, fluoride and behavioral/social factors related to caries and other dental hard tissue disorders. This helps to further achieve good health and well-being of our immediate community, a laudable SDG

**Overview**

Dental caries has multifactorial causation, with environmental risk factors, individual risk factors, and behavioral and dietary influences as well as the biofilm component. In addition, other factors have been reported and studied with regard to their role in the disease process. Today dental caries necessitates a caries risk assessment with a validated questionnaire to evaluate and correct the modifiable risk factors for an individual patient. It necessitates diagnosis of the bacterial infection using bacterial metric testing or culture.

Finally, it necessitates specific targeted antimicrobial therapy of the biofilm infection to predictably and effectively treat the disease. Simply drilling and filling cavities, a surgical approach to treating a bacterial infection, does not diagnose or treat the disease and is no longer acceptable as a standard of care. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. Describe the classification of dental caries
2. Discuss the etiology of dental caries
3. Discuss the microbiology of dental caries
4. Describe the epidemiology of dental caries
5. Explain the role of diet and nutrition in dental caries
6. List types of sugar substitutes
7. Explain the role of saliva in dental caries
8. Describe time determinants of dental caries
9. Discuss the implications of secular trends in dental caries
10. Explain the association between plaque and dental caries
11. List the factors associated with root caries
12. Discuss the various diagnostic tools for dental caries

**Learning outcomes**

On completion of the course, students should be able to:

1. Describe the classification of dental caries
2. Discuss the etiology of dental caries
3. Discuss the microbiology of dental caries
4. Discuss the epidemiology of dental caries
5. Explain the role of diet and nutrients in dental caries
6. List the different type of sugar substitutes
7. Explain the role of saliva in dental caries
8. Discuss the time determinants of dental caries
9. Discuss implications of current trends in dental caries
10. Describe the association between dental plaque and dental caries
11. List the factors associated with root caries
12. Discuss the various diagnostic tools for dental caries

**Course contents**

Introduction to dental caries. Etiology of dental caries. Classification of dental caries. Microbiology of dental caries. Epidemiology of dental caries. Predisposing factors to dental caries. Diet, nutrients and dental caries. Histopathology of dental caries. Dental plaque. Sequelae of dental caries. Root caries. Saliva and dental caries. Sugars substitutes. Time determinants of dental caries. Introduction to diagnosis of dental caries. Caries Risk Assessment. CAMBRA.

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 402**, **Oral Microbiology** (3 Units; Core; L = 30; P = 45)

**Senate-approved relevance**

Oral medicine and oral pathology are practical and operational subjects with its inherent principles and specific characteristics. Oral microbiology is a subject that combines microbiology and the study of these two courses. Additionally, oral microbiology involves oral clinical, microbiology, dental caries, endodontics, and periodontics as the human oral microbiology contains oral ecosystem and its influencing factors, dental plaque and biofilm, and methods of oral examination. It is ineffective to continue the old teaching approach, which is unable to satisfy and adapt to the demands of modern dental education. Based on this, the development of oral microbiology and its characteristic laboratory teaching method, it should be an important part of higher dental education to strengthen understanding of theoretical concepts and to cultivate students’ research interest, practice, innovation, and comprehensive abilities. This is in tandem with BUK’s commitment to training high quality graduates and engagement in cutting edge knowledge

**Overview**

This subject introduces micro-organisms, their characteristics and how they affect humans. Cultivation, enumeration, identification and control of micro-organisms are emphasised. Mechanisms by which medically important micro-organisms cause disease are introduced. The concepts of infection, inflammation and immunology are introduced in this subject. Infection control procedures are discussed in theory and applied in laboratory classes.

An understanding of normal oral flora is developed in the subject. Hypotheses of oral disease aetiology, including specific, non-specific and ecological plaque hypotheses, are critically evaluated with respect to current peer-reviewed research findings. Practical skills developed in laboratory classes are used to solve dentistry-related case-based problems in a way that encourages independent, critical and reflective thinking respectively. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:  
1. Describe the diagnosis and management of infectious disease from a clinical and laboratory perspective

2. Describe the diagnostic techniques required in the practice of oral microbiology

3. Discuss the applications of clinical oral microbiology in contemporary dental practice

4. Describe infection control practices,

5. Explain the etiopathogenesis of common microorganisms in dental conditions

6. Explain the association between these microorganisms, oral diseases and public health   
7. List crucial management skills required in the running of the microbiology laboratory  
8. Discuss the health protection aspects of oral microbiology.  
9. Assess published works in oral microbiology for robust introduction into research development

**Learning outcomes**

On completion of the course, students should be able to:

1. describe the structure and function of micro-organisms;
2. demonstrate practical skills in microscopy, enumeration, isolation and culture of micro-organisms;
3. demonstrate how micro-organisms can be identified by biochemical and molecular methods;
4. demonstrate knowledge of the growth of micro-organisms, including management of the spread of infection in dental clinical practice;
5. demonstrate a good understanding of the interactions of micro-organisms with humans with particular emphasis on the micro-organisms of importance to dental clinical practice; and
6. discuss current hypotheses of oral disease, including the specific, non-specific and ecological plaque hypotheses.

**Course contents**

Basic principles of oral infections and defense mechanisms of the mouth, oral ecology and oral microflora, dental plaque formation, anaerobic infections, oral candidosis, viral infections relevant to dentistry, i.e., herpes, hepatitis, and AIDS, systemic disease manifestations of oral bacteria, microbiology and immunology of dental caries, periodontal disease, pulp and periapical infections, laboratory techniques used in identification of oral pathogens. Classification and basic characteristics of microorganisms e.g., bacteria, viruses, fungi, rickettsia, chlamydia, mycoplasma, L-form bacteria, protozoa and helminths, microbial growth and physiology studying pathogenic microorganisms of medical importance focusing on pathogenesis of generalized and systemic infectious diseases. Body defense mechanisms and reactions against foreign bodies, humoral immunity, cell-mediated immunity, mucosal immunity, antigen-antibody reactions, hypersensitivity reactions, autoimmunity, tissue and organ transplantation, clinical applications of immunology. Oral microflora and ecology, dental plaque formation and its pathogenesis roles, occupation related infections, oral and systemic infections caused by oral microflora, immunity and defense mechanisms against oral infections, infection control in dentistry, molecular biological techniques in oral microbiology and immunology

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 403** **Dental Therapeutics,** (2 Units; Core; L = 30; P = 45)

**Senate-approved relevance**

Pharmacology course(s) is(are) indispensable in any health profession education curriculum, including dentistry, as sufficient coverage of pharmacology is necessary to enable student to assess benefits and potential risks of drug administration, drug interactions and individual variability in drug responses in relevant clinical settings. In dental programs curricula, pharmacology courses are usually designed to cover the basic principles of pharmacology with lectures on specific drug classes with discussion of their importance to the dental practice. The ultimate objectives of these courses are to provide dental students with knowledge of essential aspects of pharmacology. Additionally, some courses introduce the student to drug related regulations, drug approval processes as well as prescription writing protocols. It also includes management of chronic pain and anxiety disorders and the pharmacology of local anesthesia

**Overview**

This involves systematic approach to general principles of pharmacology. Study of commonly used agents in dentistry, drugs used in specific medical conditions, and drugs used in management of medical emergencies. Introduction to newer drugs and new effects of old drugs. Brief discussion on controlled drugs and drug abuse. Emphasis will be on evaluation and dental management of medically compromised patients with special attention to their medications and drug interactions.

It also prepares the student for the clinical administration of local anesthetic drugs. Course reviews the neurophysiology of local anesthetic action, and the pharmacology of commonly used anesthetic medications. Introduces students to the armamentarium used to deliver local anesthetic, and the techniques of maxillary, mandibular and supplemental injections and presents local and systemic complications and the management of those complications.

**Objectives**

The objectives of the course are to:

1. Demonstrate an understanding for the therapeutic applications of drugs, based on their pharmacokinetics and pharmacodynamics
2. Explore the physicochemical and molecular properties underlying drug action, drug metabolism, bio-activation and inactivation within the scope of clinical therapeutics governing dental prescribing;
3. Describe the design, formulation and manufacture of various pharmaceutical dosage forms within the scope of dental prescribing;
4. Review the legal prescribing rights of dentists, correct prescription writing protocols, clinical effects of changing formulations, therapeutic dosage regimens, drug scheduling and the prescribing of NAFDAC approved medications;
5. Discuss drug monographs, clinical indications/contra- indications, precautions, mechanisms of action, side effect profiles, brand names, product lines and brand substitution, including specific patient counseling points and treatment considerations within the dental context;
6. Describe the effects of disease, other drugs, and the genetic variations with respect to drug responses and clinical outcomes;
7. List drug information centers and clinical reference texts for daily practice use;
8. Discuss specific drug interactions in dental prescribing and what action(s) to take.
9. Indications for systemic pain management protocols
10. Explain modalities for patient selection and evaluation for sedative technique, especially oral inhalation and parenteral methodologies
11. Identify and manage patient fear and anxiety, as well as understand the application of available management techniques.

**Learning Outcomes**  
1. Identify basic pharmacological terminology.   
2. Describe the general principles of pharmacology.   
3. Identify drug classifications.   
4. Describe the effects of drugs in terms of their actions or impact   
5. Discuss the effect of clients’ medical conditions on drug usage.   
6. Describe the principle of recommendation for antibiotic premedication.   
7. Describe various drugs utilized during medical emergencies in the dental office.   
8. Explain common drug interactions and precautions.

9. List the drugs used in the treatment of patients with selected systemic diseases such as asthma, bleeding disorders, cardiovascular diseases or epilepsy.   
10. Describe the dental management of patients with compromised medical conditions, including guidelines and precautions.   
11. List specific drug interactions such as drugs used in dentistry and drugs used in medically compromised patients.   
12. List drugs and other agents used in dentistry that are contraindicated in certain medically compromised patients.

13. Explain neurophysiology of local anesthetic action, and the pharmacology of commonly used anesthetic medications.

14. List the armamentarium used to deliver local anesthetic, and the techniques of maxillary, mandibular and supplemental injections.

15. Discuss local and systemic complications of local anaesthetic agents and the management of those complications.

**Course contents**

Principles of prescribing in dentistry. Medicinal pharmacology in dentistry. Pharmacogenetics and Pharmacogenomics. Pharmacokinetics and pharmacodynamics of drugs. Clinical pharmacotherapeutics in dentistry. Drug interactions and drug substitutions

Patient medical history analysis. Special patient groups - (Children, geriatrics, pregnant and breastfeeding, hepatic and renal impairment). OTC (over-the-counter) and herbal remedies. Drugs for your dental practice. Future drugs in dentistry. Drug information centers and reference texts for dental practice. Indications for systemic pain management protocols. Sedative technique, especially oral inhalation and parenteral methodologies. Patient management and emergency intervention. Local anesthesia in Dentistry. Neurophysiology of pain perception. Pharmacology of amide and ester local anesthetics and vasoconstrictors. Relevant maxillomandibular anatomy and its relation to orofacial pain and anesthesia. Prevention and management of complications associated with the use of local anesthetics. Techniques of local anesthetics administration

**Minimum Academic Standards**

**BUK-BDS 501 Comprehensive Dental Clinical Practice, (2 Units; Core; P = 90**)

**Senate-approved relevance**

Dental education is compartmentalized into a plethora of sections from the predominantly medical and basic sciences courses in preclinical to predominantly laboratory courses in the pre-phase dental year. Even the clinical years are segmentalized into dental diagnostic courses prior to the surgical, preventive and restorative clinical courses. This compartmentalization may not afford the dental students the platform or opportunities to visualize a patient as just a functional unit and the management of their presenting complaints as a comprehensive continuum and not as a convergence of different clinical incursion. Hence, the Comprehensive dental clinical practice course will encourage the dental students to apply Clinical clerkships and the subjects learnt in all medical courses and behavioral science courses to sharpens skills such as patient history collection and making a diagnosis, wellness counseling, nutritional assessment, and comprehensive management of a patient that presents in any of its clinic.

**Overview**

Comprehensive Dental Clinical Practice consist of student driven, case-based presentations that are both multidisciplinary and clinically relevant. Students relate concepts learned in the basic sciences, oral medicine and pathology, general pathology and physiology to clinical dental correlates and comprehensive treatment planning.

Comprehensive Dental Clinical Practice provides an opportunity for students to develop critical thinking and problem-solving skills while expanding their dental knowledge base. Students are responsible for an assigned pathology aspect of the case and work as a member of the integrated clinical team.

**Objectives**

The objectives of the course are to:

1. Discuss treatment planning with moderate or complex cases which have been approved by the group leader.
2. Discuss individual patient’s treatment planning following comprehensive examination.
3. Demonstrate knowledge of study models, oral medicine clearance and radiographic survey in addition to a preliminary treatment plan.
4. Discuss each patient diagnosis for each round and ensure students will be present for observation and questions or suggestions and assist team leader with presentation of the case.
5. Demonstrate critical thinking and problem-solving skills while expanding dental knowledge base.
6. Discuss assigned oral pathology aspect of the case and work as a member of the integrated oral diagnostic team.

**Learning outcomes**

Upon successful completion of this subject, students should be able to:

1. demonstrate skills and knowledge required for the examination, diagnosis, treatment planning and management of prosthodontic, endodontic, advanced restorative, advanced periodontic and exodontia cases
2. demonstrate the ability to perform laboratory procedures required at various stages in the fabrication of the prostheses for patient work
3. demonstrate practice time management skills in the clinical environment and operate ethically and professionally when delivering patient care
4. analyze patients' expectations, desires and attitudes when planning and delivering treatment, and propose the least invasive therapy, based on sound evidence-based principles, necessary to gain a successful outcome for the patient
5. identify the scope of oral/dental health needs of different societal and cultural groups within rural and regional communities
6. demonstrate competent comprehensive treatment planning
7. demonstrate competence in the provision of treatment for patients with multidisciplinary needs
8. manage the decision-making and provision of acute-care treatment as required in a clinical setting

**Course contents**

Treatment planning and evidence-based practice. Periodontics. Non-complex restorative dentistry. Uncomplicated removable prosthodontics. The administration of local anesthetics Relief of pain. Simple endodontic procedures. Infection control. Occupational health and safety Ethical and professional behavior. The interpretation of panoramic and intraoral radiographs Periodontics. Complex restorative dentistry. Local anesthetics. Simple pain relief procedures. Clinical endodontics. Exodontia. Clinical Removable prosthodontics. Applied dental materials Ethics and professionalism. Infection control. Occupational health and safety. Simple clinical fixed prosthodontics. Introduction to periodontic and surgical procedures. Caries management Occlusion. Clinical oral dental public health. Clinical delivery of oral health care to regional, rural and remote communities. Comprehensive treatment planning. Ethics and jurisprudence

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 502 Molecular Mechanisms in Health and Disease (2 Units; Core; L = 30; P = 45)**

**Senate-approved relevance**

Genes are what constitute the human genome. They determine the characteristics of individuals and are transferred from one generation to the next. The human genome project, published in 2001, is considered the most important scientific accomplishment in history. The information emanating from this project led to an understanding of the role of genetics in the aetiology of several diseases and disorders. Likewise, the effects of genetic diseases on oral structures are becoming evident. In order to discuss the genetic factors and the impact of genetic disorders in oral health care and to manage and treat patients appropriately, it is important for dental clinicians to have a comprehensive knowledge of genetics. A sound understanding of genetic susceptibility, lifestyle, and oral health risk factors allows the dentist to offer effective preventive and treatment strategies for oral diseases. An understanding of the molecular biology of bone, periodontal structures, salivary gland, and tooth development could lead to innovative treatment approaches that may differ from dentistry's current surgically based techniques.

**Overview**

This course covers the basic terminology to get started with -Omics data. It describes the way DNA stores information, and how it gets transcribed and then translated into functional molecules. There are also sections dedicated to specific ways we can use technology to understand various types of multi-omics by sequencing, annotating, analyzing patterns in complex data.

This is intended for understanding how the current revolution in biomedical data impacts biomedical research and human health. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. Describe the components of a stereotypical cell, including its chemical components, some of its critical metabolic pathways, and its subcellular compartments, the organelles, and their membranes.
2. Describe populations of cells of similar types that form communities by using cellular adhesion or other coupling mechanisms.
3. Describe the molecular pathogenesis of disease
4. Explain the mechanisms of drug delivery to tissues and the mechanisms by which the drugs interact with the tissues’ signal transduction mechanisms.
5. Describe cell-to-cell signaling mechanisms that generate the body plan and its tissues.
6. Describe the basic architecture of the genome, the mechanisms of disease related to mutations, translocations, copy number variations, and aspects of gene therapy.

**Learning outcomes**

On completion of the course, students should be able to:

1. Explain terms and definitions within cell and molecular biology to such an extent that these can be related to and applied in the future dental studies.

2. Describe the reactions and processes in the organelles of the cell and how these are interconnected.

3. Explain the dynamics in the flow of genetic information and the consequences of disturbances to this flow

4. Identify common laboratory techniques in cell and molecular biology to understand cell functionality, gene expression and their potential diagnostic capabilities.

5. Discuss the importance of cell and molecular biology in dental and medical research

**Course contents**

Eukaryotic and prokaryotic cell organization and organelles. The flow of genetic information from DNA organization and replication. Gene expression, transcription and translation.

Intracellular protein sorting and transportation to reach their destination in or out of the cell, including vesicle transportation. Cell cycle and its regulation and control of cell division, and cell death. Eukaryotic cell adhesion, cell junctions and communication with its environment, other cells and extracellular matrix. Cell signaling via signal molecules and receptors, and signaling pathways. Basic cell and molecular biology methods, including microscopy and molecular methods from DNA and RNA to protein detection. Introduction to Big Data in Bioinformatics

Basic Understanding Biomolecular Data: Basics of Bioinformatics. Basic Data Analysis in Bioinformatics: Basic data analysis in computational biology

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK- BDS 503** **Dental Practicum Extramural**, (2 Units; Core; P = 90)

**Senate-approved relevance**

The primary goal of the Dental Practice Extramural course is to supplement and enhance the practice management aspect of the curriculum by placing clinical dental students in the private practice environment where they can observe, be instructed and participate in office management activities. It will also provide an opportunity for students to explore future private practice opportunities. It will also offer the dental insights into dental entrepreneurship and the peculiar challenges of their immediate environment and how the private dental practice can augment public state and tertiary dental institutions. This aligns with BUK’s strategic goal in taking the university to the community and influencing development

**Overview**

Provides the student with an understanding of the dynamics of patient management and clinical practice systems that will allows them to effectively manage the practice environment. Provides the students with the background to be successful practitioner. The practicum experience is a type of experiential learning that includes hands on practice, reflection, abstraction and application of the new experience.

Experiential learning helps students connect theory to practice. Students may encounter experiential learning in a school's clinic or lab setting, but the situation may not be practical due to the academic environment. It provides students with an opportunity to apply what they have learned in school to practical situations in a variety of community-based settings

**Objectives**

The objectives of the course are to:

1. Evaluate the business and patient management utilized by the practice they visited.
2. Analyze the degree to which the practice could meet community dental health needs.
3. Demonstrate appropriate patient management skills.
4. Identify the role of the dentist in a community beyond the practice of dentistry.
5. Identify the kinds of problems faced by a dentist in rural private practice, the public health dentist and dentists serving the institutionalized population.
6. Identify the relationship of dentist to the community from a social, professional, cultural and family aspect.
7. Observe the practice as an entry point into the dental care system.
8. Observe the comprehensive range of clinical services, including prevention, which are provided to patients to minimize need for patient referrals.
9. Observe the continuity of care provided by the practice.
10. Observe the coordination of the patient’s dental care with his or her medical stalus when needed.
11. Observe the management of dental emergencies.
12. Observe the protocols of office management where appropriate, including appointment scheduling, third party payment, management of time and motion, patient records, recall systems and financing health care.
13. Identify type of equipment and office design within the framework of the “sit-down four- handed dentistry.”

**Learning outcomes**

Upon successful completion of this subject, students should:

1. Describe the principles of community dentistry, management, interpersonal relations, communications, prevention, professionalism and decision making in the clinical care of patients at extramural sites.
2. Demonstrate the integration of knowledge and skills necessary to practice dentistry efficiently and effectively in a real-world setting.
3. Recognize common and important dental ailments.
4. Identify methods used in patient education and motivation.
5. Discuss assigned treatment to patients as directed by the preceptor/instructor.
6. Identify the financial and social issues of the practice they visited.
7. Recognize the degree to which health care needs are met by the practice in which they are assigned.
8. Describe patient management skills to patients outside the Faculty of Dentistry.
9. Identify the coordination of dental specialty case where needed.
10. Determine the quality of care provided within the context of a family, nursing home, tribe or community.

**Course contents**

Treatment planning and evidence-based practice. Infection control. Occupational health and safety. Ethical and professional behavior. Clinical oral dental public health. Clinical delivery of oral health care to regional, rural and remote communities. Comprehensive treatment planning. Ethics and jurisprudence. Clinical competence. Child patient management. The psychology of the clinic patient, Effective appointment strategies. Attracting clinic patients. Creating ideal systems for the private practice. Creating a compelling philosophy of care. Preparing for financial viability. Leadership and change. The future of dental practice. Developing the practice environment.

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 601** **Practice Management** (2 Units; Core; L = 30)

**Senate-approved relevance**

Establishing and managing a dental clinic is essentially an entrepreneurial venture and requires a multitude of competencies that go beyond the scientific and clinical aspects of dentistry. However, the dental curriculum does not have a separate practice management subject included in the curriculum. Avenues for assessing the competency in this domain are hence missing from the existing curriculum. Dental practice management education is one of the most challenging aspects of dental education, as many of the competencies required for successful practice management like business management, leadership, human resource management, legal aspects, and clinic design extend far beyond the clinical aspects of dentistry. It also offers the challenges of creating an environment resembling a vocational situation within the protected confines of an academic setting. This is partly due to the positioning of the academic environment in our dental schools within a system of fragmented patient management rather than comprehensive care, resulting in a compromise in authentic practice management work experience for a dental student. Therefore, thus, developing a dental practice management education module within the existing curriculum is expedient to accommodate deficiencies in our curriculum in training a modern renaissance dentist

**Overview**

The purpose of the Practice Management course is to introduce dental students to the principles and philosophy of practice management including essential financial concepts, employment options, a variety of practice models, and to provide an opportunity for identifying those business skills which will enable them to become functional practitioners in their chosen practice setting.

This course offers an overview of the practice choices available to you after clinical training. In one sense, this course is about transitions after clinical training; it strengthens your ability to make decisions regarding money management, insurance needs, career options, and the selection of advisers.

**Objectives**

The objectives of the course are to:

1. Discuss the importance of credit scores and their relation to your future finances by viewing the information on future loans/credit ratings and interest rates charged.
2. Calculate your current and total educational debt.
3. Analyze barriers to wealth accumulation and summarizing strategies for successful financial planning through the use of materials, resources, and tools provided.
4. Develop a personal budget through the use of contemporary or traditional budgeting tools supplied.
5. Demonstrate your individual net worth through interpretation of your personal budgets.
6. Develop a positive Professional Identity through self-analysis, an illustration of individual strengths and competitive advantages highlighted in sample CV and a Cover Letter
7. Discuss leadership opportunities for the dentist in a healthcare team
8. Analyze the anticipated compensation packages associated with different career

options

1. Assess the cost estimation of choosing different types of individual insurance

policies for a dentist

1. Compare and contrast the different contracting options for insurances to accept

within a dental practice

1. Analyze the pros and cons of the reimbursement structure of each insurance type

**Learning outcomes**

Upon successful completion of this subject, students should be able to:

1. Construct Personal Finance Activity of a Personal Debt Profile and Financial Assignment (Summative Assessment)
2. Construct total debt at conclusion of all dental education Monthly loan repayment amount(s)
3. Describe future strategies for maintaining healthy credit scores, an accurate credit report, a positive financial plan, & increasing net worth
4. Discuss principles of ethical decision making and professional responsibility.
5. Discuss legal and regulatory concepts related to the provision and/or support of oral health care services.
6. Demonstrate the basic principles and philosophies of practice management, models of oral health care delivery and how to function successfully as the leader of the oral health care team

**Course contents**

Personal Finance-Debt. Credit Scores & Impact. Professional Identity & Reputation Management. Dental Practice Act, Laws & Rules. Dental Career Models & Legal Entity Choices. Disaster Preparedness Planning. Transition to Practice Guest Speaker Series. Dental Leadership. Insurance (Personal & Professional) and Practice Models. Buying, Building, or Renovating a Dental Practice. Associateships. Dental Practice Marketing. Human Resources and Staffing. Practice Financials & Operational Overhead. Employment Law for Dentists. Dentist in a healthcare team. Increasing networth.

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 602** **Dental Implantology** (3 Units; Core; L = 30; P = 45)

**Senate-approved relevance**

Dentistry is constantly evolving in Nigeria and abroad; included in these scientific and technological advances are changes in the traditional treatment plans. Implantology thus appears as a reflection of this reality, because the urgency to improve the quality and quantity of life led man to hone and develop more efficient systems. Treatment with fixed and removable partial dentures has been the traditional method for addressing the replacement of teeth in Dental education. However, current realities require the inclusion of dental implants as another treatment option for patients. This new determination was expected due to the success of implant treatment, as demonstrated in the literature. As a result, patients using dental implants are more satisfied with the rehabilitation when compared to patients with conventional dentures and still found is a high level of satisfaction with treatment, with a consequent improvement in the self-image and self-confidence of patients. Therefore, it is high time dental implantology course in included in a revised dental curriculum.

**Overview**

Commencing with an overview of the history and development of implant dentistry, students are then introduced to the foundations of contemporary implant practice. The design of implant components and associated nomenclature will be discussed. Students will gain an understanding of osseointegration as it applies to modern implant practice, and relevant hard and soft tissue anatomy.

The processes and steps of case selection and treatment planning are discussed, including the importance of patient-centred care, sound patient assessment, appropriate radiographic imaging and gathering other diagnostic information. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. Discuss implant treatments with patients in the context of patient education and gaining informed consent.
2. Discuss digital and analogue techniques for recording the positions of implants in simulated clinical scenarios
3. List appropriate abutments and materials for the fabrication of prostheses.
4. Describe techniques for managing single missing teeth, and longer edentulous spaces
5. Discuss the utilization of implants to stabilize and support lower complete overdentures
6. Describe common complications of implant treatments along with techniques to manage these issues.

**Learning outcomes**

On completion of the course, students should be able to:

1. analyze the literature regarding dental implants and dental implant treatment;
2. identify the components of dental implants;
3. discuss the theoretical and clinical advantages and limitations of implant supported prostheses;
4. evaluate radiographs suitable for treatment planning a patient for the provision of implant supported prostheses;
5. discuss principles of patient-centered care to discuss implant treatment with patients and in clinical decision making;
6. design and construct surgical and radiographic templates
7. discuss implant maintenance protocols.
8. record the positions of implants and other surrounding oral structures using appropriate conventional and digital impression techniques;
9. design implant prostheses (including abutment selection);
10. identify appropriate dental laboratory partners and communicate prosthesis design details to them;
11. construct a full-lower implant-supported and/or retained overdenture;
12. design multi-unit implant-supported and/or retained restorations;
13. discuss the role and indications for removable versus fixed implant-supported and/or retained prostheses;
14. discuss the complications which are to be expected in the provision of implant-supported and/or retained prostheses

**Course contents**

History and development of dental implants. Nomenclature of implant components. Design of implants and abutments. Clinical decision making. Radiographic use and interpretation in implant dentistry. Patient-centered care in implant dentistry. Selection and use of implant abutments. The use of dental implants in the treatment of the edentulous mandible. Advanced impression techniques in implant dentistry. Patient care prior to implant placement. Materials for implant supported retained prostheses. Multi-unit implant supported retained restorations. Prosthesis design in multi-unit implant supported / retained prostheses. Removable and fixed implant supported and / or retained prostheses. Prosthetic complications and management. Surgical and radiological templates. Post-operative management.

**Minimum Academic Standards**

**Bayero University, Kano (BUK)**

**Faculty of Dentistry**

**B. Dental Surgery (BDS)**

**BUK-BDS 603** **Digital Dentistry** (2 Units; Core; L = 15; P = 45)

**Senate-approved relevance**

Digital technology has revolutionized the clinical practice of dentistry, making its inclusion within the curriculum of dental schools essential. According to Commission on Dental Accreditation, a dental school must have an ongoing curriculum management plan that includes elimination of unnecessary repetition of material, and also includes the incorporation of emerging information and technology. The integration of digital technology into the dental curriculum will have several prongs such as, its clinical application in assessment and diagnosis, radiology, treatment planning, digital impression, digital designing of restorations, and manufacturing technology. Course integration with digital technology and the clinical workflow will provide graduates with the knowledge, skills, and experiences to become competentin providing patient care.

**Overview**

Consists of a series of lectures and laboratory projects and it presents various aspects of digital dentistry including intraoral/laboratory scanning, computer-aided design of dental restorations. It consists of a series of lectures and advanced hands-on scanning exercises and covers various aspects of digital dentistry including advanced intraoral/laboratory scanning, manufacturing of dental restorations and clinical applications of CAD/CAM technology.

The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. Identify the fundamentals, advantages, and disadvantages of digital technology.
2. Identify indications and contraindications of digital technologies and dental materials based on the best evidence available.
3. Describe the principles of preparation and design for digital restorations (e.g., all-ceramic).
4. List the steps of complete digital workflow for patient care in the clinic.
5. Describe the cementation process for dental materials available for digitally fabricated restorations.
6. Identify patients requiring prosthodontics rehabilitations utilizing advanced digital dentistry that is beyond the scope of the didactic and clinical competency of the newly graduating general practitioner.

**Learning outcomes**

On completion of the course, students should be able to:

1. Demonstrate digital technologies to assessment, diagnosis, and treatment planning (e.g., CBCT, digital photos).
2. Identify indications and limitations of digitally designed and fabricated single-unit restorations.
3. Assess digitally scanned and designed single-unit restorations for dentate and partially edentulous patients.
4. Demonstrate appropriate tooth preparation for digitally scanned and designed (e.g., all-ceramic) restorations.
5. Demonstrate self-assessment using digital technology to evaluate wax-ups, preparations, and provisional restorations.
6. Perform intraoral and lab-based scanning for tooth- and implant-supported restorations.
7. Evaluate digital models and proposed digital designs for single-unit restorations.
8. Identify appropriate restorative materials for digitally designed and fabricated restorations.
9. Perform self-assessment and make appropriate adjustments to the digital designs and preparations.
10. Assess the esthetic and functional outcomes of the restorations. Select and utilize proper cementation procedures.

**Course contents**

Dental Anatomy. Operative Dentistry. Preclinical Fixed Prosthodontics. Digital Fixed Prosthodontics. Radiographic Interpretation Cone Beam Computed Tomography (CBCT), Digital Dentistry and Implants. Prosthodontic Driven Implant. Guided Surgery Digital Single-Unit Implant Restorations. Implant digital restorative. Workflow Digital Removable Partial Dentures. Digital Complete Dentures. Clinical Digital Dentistry. Single-unit fixed dental prosthesis. Clinical workflow. Diagnosis and Treatment Planning. Referral for Digital Dentistry. Shade Selection. Tooth Preparation Principles, Margin. Design, and Selection of Restorative Materials for CAD/CAM. Preparation Designs. Provisionalization. Impression Making and Tissue Retraction for Conventional Final Impressions

Digital Impression Making, Tissue Retraction, and Scanning Protocol

**Minimum Academic Standards**