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Ministry of Higher Education & Scientific Research

General Administration of Private and Foreign Higher Education

Alfajr College for Science and Technology

(ACST)

Curriculum of Dentistry Program

2015

INTRODUCTION

The curriculum has passed through tow developmental milestones:

First milestone

A committee of dental educators was entrusted with the task of designing a dental curriculum for Alfajr College for Science and Technology (ACST). The committee had a diverse selection of members representing the various schools, specialties, experiences & approaches. The members communicated in meetings & electronically. They conducted a situational analysis and a desktop review of a multitude of documents guided by the community needs & the philosophy and values of (ACST) conveyed to them by the founders. The proposed curriculum is the result of the study & deliberations.

Rationale & Approach

Despite the fact that there are a number of schools of dentistry & oral medicine in Sudan graduating a reasonable number of dentists annually, there is still need for new schools to contribute towards the filling of the huge gap that exists between the number of doctors needed & the numbers that graduate especially that the process of brain drain is continuing. Moreover, the establishment of new schools that offer programs & opportunities that produce high quality competent dentists is still a necessity.

The (ACST) curriculum has been designed to meet the challenges of educating competent dentists for the twenty-first century, including:

- Changes in delivery of healthcare. Services are being moved away from in-patient hospital care towards day-care, out-patient clinics and community settings. Improved diagnostic techniques and treatment methods, enhanced community services and government policy have all contributed to this trend
- Changes to the public's expectations of a doctor
- Exciting developments in the methods of teaching and learning and in approaches to assessment
- The expectations set out in dental education documents issued by major professional regulatory bodies & dental education organizations (e.g. Profile and Competences for the European Dentist of the Association for Dental Education in Europe, Standards for dental professionals of the General Dental Council of UK, Competency Standards for Dental Technology – of the National Association of Dental Laboratories, Compendium of curriculum guidelines of the American Dental Education Association)

In summary, the international documents recommend a curriculum which:-

- ensures all graduates meet the recommended outcomes
- comprises a core, complemented by opportunities for students to exercise choice
- integrates basic and clinical sciences to link theory with practice
- prepares graduates for their responsibilities as provisionally registered doctors
- takes into account modern educational theory and current research
- provides students with a balance of learning opportunities
- takes advantage of new technologies to deliver teaching
- allows students to revisit topics at different stages and levels
- includes early and continuing contact with patients

Key features of the (ACST) curriculum are:-

- an explicit statement of the outcomes expected of students at each stage
- a core curriculum with student-selected components
- the spiral nature of the curriculum, with its three interlocking phases, allowing topics to be revisited in more depth
- an integrated approach, providing a focus for students' learning
- a framework of a number of core clinical problems to develop reflective practice
- a range of educational strategies, including elements of task-based and problem-oriented learning, community-based learning, and approaches to teaching and learning that encourage the students to take increasingly more responsibility for their own learning
- an 'assessment to a standard' approach which emphasizes the overall outcomes of the curriculum and which uses a range of methods including computer-based & online examinations, OSCEs (Objective Structured Clinical Examination) and portfolio assessment
- Students are encouraged to develop a partnership approach to their learning for professional practice. Students and staff, as active stakeholders, have an important role to play in the continuing development of the curriculum.

Section 1: educational approach

About the Curriculum

The Spiral Curriculum

The (ACST) curriculum draws on constructivist learning theory, where students gain new knowledge and ideas by expanding and developing what they already know. The 'spiral curriculum' means that students are given opportunities to revisit aspects of learning, making links between concepts and deepening understanding. The course is split into three phases; as the student progresses to each new phase in the spiral, new information and skills are introduced that build on the information and skills from the previous phase.

The Learning Outcomes

Outcome-based Education

Learning outcomes are increasingly used as a focus for curriculum planning. Identifying, defining and communicating the knowledge, skills, attitudes and professional behaviours doctors should have is fundamentally important for the curriculum. Staff and students need to be clear what our medical school training programme is for, and on which issues it will be judged. What sort of doctors are staff aiming to produce and students aiming to become? What are the expected learning outcomes for the curriculum? Doctors have a unique blend of different kinds of abilities that are applied to the practice of medicine. What is needed or valued at any time depends on the context - at times it may be a practical intervention, at other times, diagnostic abilities and at other times a caring attitude and understanding.

The intended learning outcomes

The curriculum of the Medical program, (ACST) is an outcome-based curriculum employing the prescriptive model of curriculum design.
(ACST) has developed and will implement a Dental curriculum that will lead to the graduation of doctors with the competences grouped in four thematic attributes. The graduate is expected to be competences grouped in a number of domains as recommended by the Association for Dental Education in Europe.

Competences

The competences, at the graduation, are the basic level of professional behaviour, knowledge and skills necessary for a graduating dentist to respond to the full range of circumstances encountered in general professional practice. This level of performance requires some degree of speed and accuracy consistent with patient wellbeing. It also

requires an awareness of what constitutes acceptable performance under changing circumstances and a desire for self-improvement. Competences should support integration and merging of all disciplines, which should benefit dentists in training and also patients who are receiving treatment.

The graduating dentist should learn to undertake a holistic approach to the management of their patients. They should have knowledge of and adhere to the concept of dental team working in their approach to patient management; all this should be supported by an ethos of achieving continuing professional development (CPD) and promoting life-long learning to achieve a continuum of education from undergraduate to retirement.

Domains

The present document is structured from the general to the more specific for every section.

Seven domains (listed below) have been identified that represent the broad categories of professional activity and concerns that occur in the general practice of dentistry. The domains are interdisciplinary in orientation and must embrace an element of critical thinking; they may apply in differing ways to patients of all ages, including children, adolescents, adults and the elderly within a given population:

I Professionalism
II Interpersonal, Communication and Social Skills
III Knowledge Base, Information and Information literacy
IV Clinical Information Gathering
V Diagnosis and Treatment Planning
VI Therapy: Establishing and Maintaining Oral Health
VII Prevention and Health Promotion

Major competences

Within each domain, at least one ‘major competence’ is identified as relating to that domain’s activity. A major competence is the ability of a dentist on graduation to perform or provide a particular, but complex, service or task. Its complexity suggests that multiple and more specific abilities are required to support the performance of any major competence.

In this document the following definitions have been applied to the competences:

Be competent at: a dentist should on graduation demonstrate a sound theoretical knowledge and understanding of the subject together with an adequate clinical experience to be able to resolve clinical problems encountered independently or without assistance.

Have knowledge of: a dentist should on graduation demonstrate a sound theoretical knowledge and understanding of the subject, but may have only limited clinical/practical experience.

Be familiar with: a dentist should on graduation demonstrate a basic understanding of the subject but need not have clinical experience or be expected to carry out procedures independently.

Domain I: professionalism

Major competence: professional attitude and behaviour

On graduation, a dentist must be competent in a wide range of skills, including investigative, analytical, problem solving, planning, communication, and presentation skills and should demonstrate a contemporary knowledge and understanding of the broader issues of dental practice. The dentist should understand the relevance of these issues, including research, team building and leadership skills in clinical dental practice.

Major competence: ethics and jurisprudence

On graduation a dentist must display knowledge of the content and have a thorough understanding of the moral and ethical responsibilities involved in the provision of care to individual patients, to populations and communities. The dentist must demonstrate knowledge of contemporary laws applicable to the practice of dentistry.

Domain II: interpersonal, communication and social skills

Major competence: communication

On graduation a dentist must be competent to communicate effectively, interactively and reflectively with patients, their families, relatives and carers and with other health professionals involved in their care, irrespective of age, social and cultural background.

Domain III: knowledge base, information and information literacy

Major competence: application of basic biological, medical, technical and clinical sciences

On graduation a dentist must be competent to apply knowledge and understanding of the basic biological, medical, technical and clinical sciences to recognise the difference between normal and pathological conditions/disorders relevant to clinical dental practice and understand the bases of these.

Major competence: acquiring and using information

On graduation, the dentist must be competent at demonstrating appropriate information literacy to acquire and use information from library and other databases and display the ability to use this information in a critical, scientific and effective manner. A dentist should demonstrate an ability to maintain their professional knowledge and understanding throughout their professional life.

Domain IV: clinical information gathering

Major competence: obtaining and recording a complete history of the patient's medical, oral and dental state

On graduation, a dentist must be competent at obtaining and recording a complete history of the patient's medical, oral and dental state. This will include biological, medical, psychological and social information to evaluate the oral and dental condition in patients. In addition, the dentist will be competent at performing an appropriate physical examination; interpreting the findings and organising further investigations when necessary to arrive at an appropriate diagnosis.

Domain V: diagnosis and treatment planning

Major competence: decision-making, clinical reasoning and judgement

On graduation, a dentist must be competent in decision-making, clinical reasoning and judgement to develop a differential, provisional or definitive diagnosis by interpreting and correlating findings from the history, clinical and radiographic examination and other diagnostic tests, taking into account the social and cultural background of the patient. A dentist must be competent at formulating and recording a diagnosis and treatment plan which meets the needs and demands of patients. For treatments that are beyond their skills, a dentist should be competent to be able to refer on for an appropriate specialist opinion a treatment.

Domain VI: therapy: establishing and maintaining oral health

This domain provides a broad range of major and supporting competences on establishing and maintaining oral health. In areas where specific competencies or learning outcomes are not available it is hoped that this PCD will encourage specialist educators to produce this information. This domain may relate to patients from different age groups (children, adolescents, adults and the elderly) or specifically to one particular age group and to those patients with special needs and requirements. On graduation the dentist should be aware of their limitations and know when to refer a patient for specialist dental or medical care.

Major competence: establishing and maintaining oral health

On graduation, the dentist must be competent at:

6.1. Educating patients and managing primary oral health care for patients at all stages in their life (including children, adolescents, adults and the ageing population/elderly) appropriately, effectively and safely, emphasising current concepts of prevention, risk assessment and treatment of oral disease which supports the maintenance of systemic and oral health and improves the quality of life for the individual.

6.2. Treating patients whose special needs, desires and requirements (eg children) may influence their dental care and know when to refer.

6.3. Employing appropriate techniques to manage oro-facial pain, including TMJ disorders, discomfort and psychological distress.

6.4. Managing periodontal disease.

6.5. Managing caries and other hard tissue tooth loss.

6.6. Managing pulpal and peri-radicular disease and disorders.

6.7. Restoring defective, non-defective and/or missing teeth to acceptable form, function and aesthetics.

6.8. Planning and performing all common prosthetic procedures, including tooth preparation and impression taking.

6.9. Understanding and applying the biomechanical principles of fixed and removable prostheses commonly used to replace missing teeth.

6.10. Treating and managing conditions requiring minor surgical procedures of the hard and soft tissues, and to apply and/or prescribe appropriate pharmaceutical agents to support treatment.

6.11. Managing common oral mucosal diseases and disorders.

6.12.Managing minor developmental or acquired dentoalveolar, growth-related and functional abnormalities of the primary, mixed and permanent dentition.

6.13. Preventing and managing the majority of medical and dental emergency situations encountered in clinical dental practice.

Domain VII: prevention and health promotion

Major competence: improving oral health of individuals, families and groups in the community.

On graduation a dentist must be competent at promoting and improving the oral health of individuals, families and groups in the community.

Aim (s)

At graduation students should be able to demonstrate the necessary knowledge, understanding, competencies, skills and attitudes that will enable them to make a safe, caring and continuing contribution towards the preservation and maintenance of oral health based on an appreciation of the need to keep up to date and to apply relevant advances in oral health care.

The aim of the Dental program is to graduate a Dental Practitioner who should:

1. Be the custodian of oral health
2. Be competent in the diagnosis and treatment of patients and should understand the need for referral to a specialist when so required
3. Practice the principles of risks management and maintain the highest professional ethical and legal standard in the delivery of health care
4. Foster improvement in oral health (mainly dental care) through research and use of new advances in health sciences and technology
5. Have a social responsibility to the community and profession and try for improvement in oral health through patient and community education
6. Be able to address and respond to the changing needs of the community using

trans-disciplinary approach when necessary

7. Be able to use information and communication technology in improving practice and oral health program management
8. Have the attributes for analytical and critical thinking, creativity and innovation
9. Subscribe to life-long learning as a professional obligation
10. Promote the art and science of dentistry as a noble profession

Objectives

A. Knowledge and Understanding:-

At the end of the undergraduate course a student should be able to demonstrate knowledge and understanding of:

1. The process of scientific enquiry.
2. Applications, integration and relevance of the general principles of medical and allied sciences, including mental illness and behavioral sciences, to dentistry.
3. Current terminology used in dentistry and related subjects.
4. Features of common oral disorders and diseases and of those which may be less common but have potentially serious consequences, including the underlying processes that may be involved such as genetic and developmental disorders, degeneration, metabolic disturbances, inflammation, immunity, infection and neoplasia.
5. Features of oral disorders and diseases which may be relevant to specific types of dental practice because of their relationship to age, gender, ethnicity, geography or social factors.
6. Inter-relationships between oral disorders and diseases and those affecting other parts of the body.
7. Inter-relationships between the effects of medical and dental treatment.
8. The main ways in which medical, dental and technical specialties are applied to oral health care.
9. The medico-legal and ethical considerations affecting the roles of dental and related health care personnel and their responsibilities in respect of health and safety legislation.
10. The main principles underlying health promotion and the prevention, treatment and management of oral disease.
11. The ways in which preventive, operative and therapeutic methods are organized

and applied to oral diseases in the community and in hospitals.

12. The relevance of social, environmental, economic and health policies for oral health and the importance of business and risk management in the delivery of health care.

B. Skills/ Competencies

At graduation a student should be able to demonstrate the skills necessary to:-

13. Identify individual patients and groups in the population with oral disorders and diseases through effective history taking, data recording and the interpretation of clinical findings.

14. Make suitable and effective arrangements and plans for the investigation, treatment and management of patients.

15. Carry out investigative and operative procedures to the highest possible standard within his or her competence for the prevention and treatment of oral disorders and diseases.

16. Promote oral health and prevent oral disorders and diseases.

17. Communicate and work effectively with patients, their families and caregivers, the dental team, other health professionals and any other relevant person or group.

18. Obtain reliable information efficiently, assess it objectively, adopt a problem-solving approach, set priorities and plan effective solutions.

19. Analyze and interpret the results of experimental and clinical research in relation to oral health.

20. Adopt practices that are safe for the patient, the dental team and others who might be affected.

C. Attitudes

At graduation a student should have been stimulated to:-

21. Apply current knowledge of dentistry and related topics in the best interests of patients and of the community.

22. Participate in continuing professional development, adapt practice to changing patterns of knowledge possess a capacity for self-audit, be involved in the peer-review process and maintain an open-minded but critical approach to new information.

23. Play a part in the scientific investigation of oral health and disease and be prepared to apply the results of research to health care.

24. Work effectively as a member of the dental team.

25. Seek to improve awareness of, and provide solutions for, general and oral health problems and needs throughout the community without prejudice to diversities of background, opportunity, language and culture.

26. Maintain high standards of ethics and conduct in all aspects of professional life recognize patients' rights and observe the courtesies of confidentiality and informed consent.

27. Be aware of the dentist's role in society and take personal responsibility for that role.

28. Recognize his or her own limitations, be ready to seek help as necessary and develop the capacity to cope with stress, uncertainty and setback.

Learning and Teaching Strategies

Educational Philosophy:

The curriculum has been designed to give students increasing responsibility for their own learning. It has been recommended by many decision makers that learning through curiosity, the exploration of knowledge, and the critical evaluation of evidence should be promoted and should ensure a capacity for self-education. This approach to learning is reflected in the ACST's learning outcomes and in the courses.

To assist students in the curriculum's move from teacher-centred to student-centred, extensive use has been made of study guides. The study guides for each course play a crucial role in informing students of the available educational opportunities and helping them to identify those appropriate for their individual approach to their studies.

People learn best in different ways. Some students may prefer small group discussions; some prefer individual study using books in the library whilst others prefer online learning (e-learning) methods.

To accommodate various learning preferences a wide range of teaching and learning situations has been provided throughout the course. These situations include: small group discussions, clinical teaching, lectures, e-learning, clinical skills sessions, text books and journal articles, integrated teaching sessions, laboratory work and practical sessions.

The Educational Approach

The Faculty decided to move up the spectrum of the SPICES model of medical education (RM Harden, Susette Sowden, and DR Dunn. 1984. ASME Medical Education Booklet No. 18) & therefore make its learning activities more Student-centered, more Problem-based, more Integrated, more Community-based, & with a more Structured & Systematic approach.

The learning approaches should be based on the trend stated in the philosophy. It is expected to reflect the move up the spectrum of the SPICES model. The main approaches are:

1. Student-centeredness: because general education in Sudan does not prepare students satisfactorily for lifelong learning, it is well-documented that this

approach is recommended both as a required competence and as an approach which was proven to be better for learning and retention. It will, however, be introduced gradually employing the directed self-learning (DSL) rather than the self-directed learning (SDL) used in developed societies. Approaches that facilitate this type of learning like guided discovery, cooperative & collaborative learning will all be used.

2. Problem-based learning (case-based learning) this is expected to be used for knowledge-acquisition as well as knowledge re-enforcement through comprehension, application & analysis. It is also expected to help in the development of cognitive skills like critical thinking, decision making & problem solving.
3. There is recognition that integration improves learning & retention. Examples of this are the integration occurring between pre-clinical studies and clinical experience, the integration between hospital specialties; and between hospital medicine and general practice. Therefore, learning on the various disciplines of medicine is expected to be done in an integrated fashion as far as possible. This approach will be encouraged & monitored.
4. Community-based learning will be utilized as much as possible so that students learns in real life situations & will therefore learn better & appreciate the relevance of what they learn to their future practice. In addition to the teaching hospitals, some learning will be done through site visits, attachments to primary health care providing facilities & rural residence programmes.

(1) Student-centeredness

This is going to be achieved through the introduction of flexible teaching and learning approaches that are:

- Learner-centered
- Less time and place dependent than the traditional forms of teaching
- Expected to increase learners' responsibility for their own learning.
- Self-directed learning and small group learning will be introduced as the main formats for teaching and learning, supported by lectures as appropriate.

Private Independent Study (DSL)

At least one afternoon and two hours during the morning sessions per week are allocated to private independent study. This encourages students to develop their time management skills and priorities their life / work deadlines.

This is time for students, either alone or in small groups, to consider the course material, prepare for a tutorial or simply to do some background reading and reflect on the course. This time is for learning and should be used constructively - it is not time off. It is

envisaged that by having study time in the working day students will have more time in the evenings and at weekends to enjoy university life in its widest aspects.

Facilities to help students make the most of private study include the library, the computer suites and the Integrated Teaching Area which are available out with designated sessions. Small rooms used for tutorials may be used for individual impromptu group work. The Clinical Skills Centre is also open, allowing students to book self-revision areas and keep up-to-date with their skills

(2) Problem-Oriented Learning

There has been a lot of interest in the problem-based style of learning in undergraduate medical education in recent years. In problem-oriented learning students are presented with a problem or problems and, usually working in small groups facilitated by a tutor, work to address the problem and identify any future learning needs.

As students progress through the curriculum they are given opportunities which focus on integrating clinical experience with their new-found knowledge, and are expected to take increasing responsibility for their own learning in relation to the learning outcomes. NIC has developed a systematic approach to clinical practice to try to ensure that students gain the necessary breadth and depth of clinical experience in order to practice as a junior doctor.

(3) Integrated Teaching & learning

In the past few decades new medical education trends have emphasized a move towards integrated teaching, stating that the structure and content of courses and clinical attachments should integrate learning about basic medical sciences and clinical sciences. Students should, wherever possible, learn in a context relevant to medical practice, and revisit topics at different stages and levels to reinforce understanding and develop skills and behaviours. Integrated learning is usually provided in the early phases of the medical curriculum through a system-based approach and in clinical practice using a task-based approach around a framework of core clinical problems. The advantage of this type of approach is that it enables students to develop and build a flexible professional knowledge base for practice.

The teaching approaches adopted, the study guides for each course and the support facilities such as the Clinical Skills Centres and the Integrated Teaching Areas, reflect both the vertical and horizontal nature of the curriculum.

As students progress through the curriculum these approaches help them access the right knowledge in the right context and promote reflective practice.

(4) Community-based learning

Community-based learning contributes to teaching throughout all phases of the curriculum. This includes a range of public health, primary care and other objectives as well as primary care attachments in both years 4 and 5.

In recognition of the changes in healthcare practices with the increasing use of the outpatient or ambulatory clinic to both diagnose and deliver care and treatment, learning

in the ambulatory care setting will be utilized. This is closely aligned with learning in the Clinical Skills Centres, and provides a key opportunity for students to rehearse, putting together their knowledge and skills with real patients.

(5) Structured learning

All activities should be based on documents (study guides) outlining the objectives, rationale, procedures & processes of learning & assessment. Activities are also expected to be monitored, documented, continuously evaluated & reviewed.

Use of Study Guides

Study guides play an important role in facilitating the students' learning (Phase 2 and Phase 3).

These, together with the curriculum documents, provide for staff and students a full description of the course including the learning outcomes, the course content, the learning opportunities available, the timetable and the assessment procedures.

The guides are designed to encourage independent learning. Some are problem-based. The guides vary in their style and format for different parts of the course, and are available electronically.

The guides in general:

Provide some key content information help students to manage their learning by indicating what they should be learning and the opportunities available direct the student to meaningful activities through which they can understand and apply what they have learned.

Throughout the study guide are key issues which are related to the learning outcomes. A glossary of terms is listed to cover any new terminology which is to be mastered. A self-assessment section exists to allow students to assess progress.

Learning Opportunities & situations

Because of the diversity of learning styles & preferences of students documented in the literature, a multitude of learning situations will be utilized with emphasis on the situations that give the students ownership and control of the learning situation. Based on the student-centeredness principles, less didactic & more self-directed learning activities are going to be adopted. To improve learning & retention problem-based learning & integration will be encouraged. The learning situations will include:

1. Lectures – (as interactive, short & few as possible)
2. Practical & clinical skills sessions
3. Tutorials (case-based as far as possible- topic-based are also used)
4. Demonstrations and conferences (using real patients, simulated patients or multimedia recordings)

5. Seminars (case-based or topic-based, interactive, student lead and tutor facilitated)
6. Clinical sessions (at bedside as far as possible)
7. E-learning (structured and employing the directed self learning "DSL" approach based on the guided discovery principle).

Teaching/ Learning Methods

A- Lectures

The lecture is a period of uninterrupted talk giving information about a subject to an audience or a class. It is often supplemented by instructor- centred discussion sessions and questions. The lecture is best used for providing factual knowledge or obtaining general background of a topic. It has an important role motivating students to pursue additional self-directed learning in the topic.

B- Small Group Discussion / Group Tutorial

This is teaching and discussion session involving a tutor and a small group of students (up to14 members) to promote peer interaction, understanding, thinking and problem solving.

The topic and general direction are given by the tutor; but the organization, content and direction of the discussion depends on the student group.

C- Problem-Based learning (PBL)

PBL is the application of the problem-solving approach to learning. Students in small groups are given opportunities to examine bio-socio-medical problems which are closely related to their course objectives in order to achieve these study objectives. In PBL programs it represents the main method of learning the basic sciences. In the integrated curriculum it is used to supplement learning activities.

D- Case-Study / Clinical Presentations

This involves the use of a detailed description of a situation or clinical problem that are related to teaching points one whishes to make. It is followed by a group discussion for student to suggest their own solutions or decisions. It is used for understanding complex interrelationships and for solving problems.

E- Seminar

This is a group discussion, about 20 to 25 members, led by a teacher or somebody with particular expertise. Very often students in seminars are responsible for making presentations on specific topics. The main purpose of the seminar is to identify, explore and share the results of in depth analysis of problems. It promotes critical thinking and ability to present an argument and to stimulate thought at all levels.

F- Skills Practice

In the skills lab, the student has an opportunity to perform skills in front of other learners and receives feedback and has further chance to practice. Other student can have their turn.

G- Practical

In laboratories and dissection rooms, students gain knowledge and practical experience from their observation, manual activities and scientific thinking.

H- Demonstration

The demonstration teaching method involves performing a phenomenon or skill one is trying to teach while the student watches – "showing". Then the teacher takes the student through performance of what he is demonstrating – "coaching". The student then practices the skill with feedback from the teacher on his performance-"rehearsing"

I- Student Independent learning

Students work on their own to meet their own learning needs, e.g. after a lecture, preparation for small group work, after a clinical problem analysis, before formal examinations, in distance learning etc. Time for IL should be scheduled in the module timetable, and support and resources for the student provided.

Learning Resources

The following learning resources are going to be made available for the students:

1. A library with the recommended textbooks & periodicals in the various disciplines of Medicine.
2. A computer lab with a digital library containing books, CDs, multimedia resources and an internet connection to the relevant online resources
3. Laboratories including clinical skills labs
4. Teaching hospitals & PHC facilities

Assessment Strategy

Key Principles of Assessment

Student assessment is based on the learning outcomes and the core clinical problems.
As far as possible, assessment is integrated like the teaching and learning, and oriented towards clinical relevance rather than theoretical aspects.
Assessment informs staff and students, with the aim that students will be fit to practice as Foundation (undifferentiated) doctors bearing in mind their responsibilities as interns & medical officers in the Sudanese context. A range of appropriate assessment instruments

are used to enable assessment of the learning outcomes at the level required at each stage of the curriculum. These are selected to allow assessment of knowledge, its application, competence and performance.

It is recognized that assessment inevitably drives learning, and it is both formative, enabling students to identify their strengths and weaknesses in terms of the learning outcomes, and summertime, allowing individual students to demonstrate achievement of the outcomes at a level appropriate for each year of the course, before being allowed to progress to the next stage.

Formative assessments take place during each module, block of teaching or clinical attachment, and are the responsibility of the organizer of each module / block of teaching.

Summative assessment takes place towards the end of each academic year to enable the students to demonstrate that they have achieved the appropriate standard for progression / graduation, and is carried out by both internal and external examiners. All assessments provide students with feedback on their performance to allow improvement in areas of weakness.

The assessment process is subject to quality assurance procedures by the Medical School, the university and external bodies.

Students should be aware that assessment of core material is rigorous. Students who fail to reach the appropriate assessment standard at the first diet will be required to participate in further remedial study and re-assessment. A student failing to reach the appropriate standard on the second occasion will be deemed to have failed the year.

Range of Assessments used in (ACST)

Evaluation of students

- Assessment: Examinations on all domains of learning are conducted throughout the year employing both formative & summative assessment types. Although the formative types are meant for diagnosis & feedback, a percentage not exceeding 20% of the final mark can be calculated from these tests and considered as a form of continuous assessment.
- Assessment Tools: used for both types of formative & Summative types of assessment are:
  - **WRITTEN**
    - MCQs: As single best answer or single correct answer.
    - SAQs short answer questions (As structured as possible). Applied where appropriate
    - CCSs: Clinical case scenarios (in the form of modified essay questions as far as possible)
  - OSPE/ Spotters: Where appropriate
  - OSCE: Where appropriate.
  - CLINICAL: Workplace-based assessment utilizing the Mini CLEX

Section 2: Curriculum Structure & Organization

The curriculum is delivered in 10 semesters spread over five years employing a blended model with a traditional structure & the gradual integration of the innovative approaches of the SPICES framework of medical education.

First year					
Semester one			Semester two		
Code	Educational unit	Credits	Code	Educational unit	Credits
CC-1.1.1	Religious Studies1 الثقافة الدينية1	2	CC-1.2.1	Religious Studies2 الثقافة الدينية2	2
CC-1.1.2	Arabic language1 اللغة العربية1	2	CC-1.2.2	Arabic language2 اللغة العربية2	2
CC-1.1.3	Sudan culture1 دراسات سودانية1	2	CC-1.2.3	Sudan culture2 دراسات سودانية2	2
CC-1.1.4	English language1 اللغة الانجليزية1	2	CC-1.2.4	English language2 اللغة الانجليزية2	2
CC-1.1.5	Computer science1 علوم الحاسوب1	2	CC-1.2.5	Computer applications2 علوم الحاسوب1	2
CC-1.1.6	Medical physics الفيزياء الطبية	3	CC-1.2.6	Physiology1 وظائف الاعضاء1	3
CC-1.1.7	General chemistry الكيمياء العامة	3	CC-1.2.7	Biochemistry & Nutrition1 الكيمياء الحيوية1	3
CC-1.1.8	Cell & Human biology	3	CC-1.2.8	Anatomy1 علم التشريح1	3
CC-1.1.9	Special Arabic1 اللغة العربية لغير الناطقين بها1	2	CC-1.2.9	Development & Growth النموء والتطور	3
			CC-1.2.10	Special Arabic language2 اللغة العربية لغير الناطقين بها2	2
Second year					
Semester one			Semester two		
Code	Educational unit	Credits	Code	Educational unit	Credits
Hna.	Head & neck (anatomy ii)	3	D. Mat	Dental materials science	2

Obio	Oral biology	3	Path .	Gen. Pathology + dental pathology	3
Physio.ii	Physiology ii	3	Micro	Microbiology+ oral microbiology	4+1
Bio ii	Biochemistry ii	3	Morph	Dental morphology	4
Neuro.	Neuroanatomy	2			

Third year

Semester one			Semester two		
Code	Educational unit	Credits	Code	Educational unit	Credits
O. Path.i	Oral pathology ii	3	O. Path.ii	Oral pathology ii	3
D.Mat.	Dental material	2+2	Paedo & orth	Paediatric dentistry- & orthodontics	2+1
Pharma	Pharmacology	3	O. Path	Oral Pathology{1}	2
Pre.Cons. 1	Preclin. Conservation	2	Cons.	Conservative	1+1
Pre.Prosth	Preclin. Prosth.	2	R.Prosth	Removable prosthodontics	2
Pre. OMFS	Preclin.omf surg.& diagnostic process	2	Pre Pre. OMFS	O & mf surgery OMF Surgery	2+1
Pre. Prosth D358	Preclin – fixed prosthodontics	2	F.prosth	Preclinical fixed prosthodontics	2

Fourth year

Semester one			Semester two		
Code	Educational unit	Credits	Code	Educational unit	Credits
OMFS	OMF Surgery	3	OMFS	OMF Surgery	3
OMFS .R	OMFS radiology	2	O. Med	Oral Medicine(2)	2
Cons.	Conservative & endodontics	3	Cons.	Conservative & Endodontics	3
Perio	Periodontics	1+1	Perio	Periodontics	1+1
R.Prosth	Removable Prosthodontics	2	R.Prosth	Removable Prosthodontics	2
F. Prosth.	Fixed prosthodontics	2	F. Prosth.	Fixed prosthodontics	2
Peado.	Peadodontics	2	Peado.	Paediatric dentistry	2

Ortho.	Orthodontics	2	Ortho.	Orthodontics	2
O. Med	Oral medicine (1)	1			
Comm. Dentistry	Basics of Community Dentistry Biostatistics & Research	2	Comm. Dentistry	Epidemiology, Behavioral Sciences & Ethics	4
I m	Internal medicine	2	I m	Internal medicine	1
G s	General surgery	2	G s	General surgery	1

Fifth year					
Semester one			Semester two		
Code	Educational unit	Credits	Code	Educational unit	Credits
OMFS	OMF Surgery	2+1	Cdc	Comprehensive dental care	8
Cons & endo	Conservative & Endo	2+2	Ad.d.p	Advanced dental practice	3+1
Perio	Periodontics	1+1	Res. Proj.	Research project	2+1
R.prosth	Removable Prosth.	1+1			
F. Prosth.	Fixed Prosthodontics	1+1			
Peado.	Peadodonics	1+1			
Ortho.	Orthodontics	1+1			

Educational Units

Cell & Human Biology

Course No. D 119
Code: CC-1.1.8
Course Title: Cell & human Biology
Credit hour: 3

Conducted during semester 1

Objectives

By the end of the course the student should:

- Understand the basic structure and function of the cell and as the human is a single cell descendent
- know topics and concept of biology relevant to medicine and their applications in dentistry and health sciences.

Contents

The cell and its organelles – structure of the viruses, bacteria, fungi, vertebrates, biology of arthropod and insect vectors- principles of genetics – principles of molecular biology- metabolism – reproduction in mammals –the nervous system- the cardiovascular system – respiratory system – hormones and the kidney – life cycle of the common parasite
Practical: principles of scientific drawing – structure and function of common parasites - structure and function of vertebrates .

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

General Chemistry

Course No. D 112
Code: CC-1.1.7
Course Title: General Chemistry
Credit hour: 3

Objectives :

Provide an appropriate base for those students who wish to pursue further studies in different branches of dentistry/medicine, as well as laying a secure foundation for those who continue their studies in related subjects such as biochemistry & physiology.

Contents:

Inroduction to chemistry

Chemical properties of materials

Organic chemistry

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Medical Physics

Course No. D 113
Code: Physic
Course Title: Medical Physic
Credit hour: 3

Objective

- The course is designed to allow the dental student to acquire knowledge of the basic ideas & concepts of medical physics& mechanics relevant to dental material and dental mechanics

Contents

1. Biological thermodynamics
2. Membrane biophysics & ion channels
3. Molecular biophysics
4. Cell signaling and cell biophysics
5. Single-molecule biophysics
6. Nanobiotechnology and biosensors
7. Modern experimental methods in Biophysics
8. Biomedical Imaging and Medical Physics

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended matching questions and problems 20%**
- **Practical Examination 20%**

English Language

Course No. D 114+ D126
Code: Eng.
Course Title: English Language
Credit hour: 2 +2

Objectives

By the end of the course the student should be able to:

- Translate from Arabic to English.
- By the end of the course the student should be able to:
- Improve his\her linguistic skills relevant to dental sciences in writing, listening and speaking.
- Know some aspects of grammar and phonetics
- Translate dental information from and to Arabic language.

Contents:

- Use of library, references and language dictionaries – English grammar – number – subject and verb – passive voice – connective articles – relative sentences – relative pronouns.
- Improve his\her linguistic skills relevant to dental sciences in writing, listening and speaking.
- Use of library, references and language dictionaries – English grammar – number – subject and verb – passive voice – connective articles – relative sentences – relative pronouns.
- Use of library, references and language dictionaries – English grammar – number – subject and verb – passive voice – connective articles – relative sentences – relative pronouns.
- Writing and reading skills – conversation skills – discussion and dialogue skills – translation in dental – English grammar and phonetics.

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Computer

Course No. D 115+ D125
Code: Comp.
Course Title: Computer
Credit hour: 2+2

Objectives

- By the end of the course the student should:
- Understand the basics of computer components, soft wares, networks and computer connectivity.
- Use the internet and its applications in medical and health sciences.
- Develop an awareness of common computer programmes relevant to medical and health sciences.

Contents:

Introduction to computing – computer types – capacity, characteristic, software – statistical software's – databases and their uses in dental practice and research – internet – networks

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Sudanese Culture

Course No. D 116
Code: Sud. Cult.
Course Title: Sudanese Culture
Credit hour: 2

Objeives:

- By the end of the course the student should:
- Comprehend basic social and geographic acts about Sudan.
- Understand the general features of Sudan history.
- Enhance his\her feelings on unity and solidarity and nation building.
- Become aware of the characteristics of the Sudanese personality.
- Comprehend the origin and development of the university of Khartoum, its history, goals, systems, regulations and bylaws that govern the tuition scheme and its roles in serving the Sudan enhancement of national development.

Contents:

- Introduction to Sudan geography and history – Sudan environment, resources and capitals development – Sudanese community – Sudanese cultures sources – ethnic formation, Islamic, Arabic and Africans impact on Sudanese personality, the advantages of diversity and forces of unity in new world orders (globalization) governmental systems in Sudan – Sudan boundaries and inter-relationship .

Arabic Language

Course No. D 117+ D127
Code: Ar.
Course Title: Arabic Language
Credit hour: 2+2

Objectives

- By the end of the course the student should be able to:
- Improve his\her linguistic skills relevant to dental sciences in writing, listening and speaking in accordance with the correct grammar rules and proper phonetics
- acquire linguistic skills relevant to dental sciences in writing, listening and speaking in accordance with the correct grammar rules and proper phonetics.
- Have sound knowledge on Arabic heritage.

Contents:

- Arabic grammar – Uses of references and language dictionaries – subject and verb – passive voice – connective articles – relative sentences – relative pronouns – common mistakes –essays writing – scientific terminology scientific jargon.

Islamic Studies

Course No. D 118 + D128
Code: Isl. St.
Course Title: Islamic Studies
Credit hour: 2 +2

Objectives

- By the end of the course the student should be able to:
- Associate religion with different patterns of human behavior.
- Acquire the concepts of coherence of the Islamic nation which emerges from the faith in the only Allah, the creator and the designer of this universe.
- Understand the basic concepts of Islamic culture, of science and Islamic ethics.
- Gain knowledge about belief, values, sociology, politics and economics.

Contents:

- Islamic culture definition
- Islamic belief, cults and worship
- contemporary religious
- Islamic parties and creeds
- doubts raised against Islam
- polygamy
- introduction to Islamic laws
- introduction to holy Koran sciences ,
- sunna of the prophet
- principles of Islamic jurisprudence
- Islamic economic and social systems
- science and religion
- ethics of discussion and arguments
- scientific inimitability in holy Koran
- Muslim physician jurisprudence

Introduction to Dentistry

Course No. D 111
Code: Int. Dent.
Course Title: Introduction to Dentistry
Credit hour: 2

Objectives:

Upon completion of the course, the student should:

1- Know history of dentistry
2- .Know dental Profession
3- Know dental Professional Organizations
5- Know dental team
4- Define the Key Terms.
5. Explain the abbreviation BDS .
6- Identify the main specialties of dentistry..
7- Define various discipline in dentistry and describe objectives of each discipline.
8- Be familiar with characteristics of target population served by the discipline.
9- Discuss preventive aspects of the disciplines in dentistry.
10- Explain the role of health provider in patient management related to the discipline.
11- Discuss major procedures in the discipline with emphasis on comprehensive treatment.
12- Have sufficient knowledge on professionalism and professional ethics.
13- Be oriented with the program mission and regulations

Contents:

1- History of Dentistry
2- Dental profession
    a. What is a profession?
    b. Definition and characteristics of a profession.
    c. Dental profession development.
    d. Era of modern dentistry.
3- Dental team
    a. Team personals
    b. What is team work
    c. Contribution& role of each team partners
4- Common dental& medical terms
5- Description of the different dental degrees and job description
6-The main dental specialties and dental career
7- Introduction to Dental Curriculum and program Regulations
    a. The college and program regulation

b. Curriculum objectives
c. Yearly curriculum plan
d. Pre-clinical regulations
d. Clinical regulations

8- Introduction to Diagnostic Sciences

a. Collection of diagnostic information
b. Information analysis
c. Diagnosis & treatment plan

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Dental Morphology

Course No. D 121
Code: D. Morph.
Course Title: Dental Morphology
Credit hour: 3

Objectives:

The aim of this course is intended to introduce the main aspects of human tooth morphology. Particular attention will be placed on the linking of form and function and the value of this in dental treatment. Students will have the opportunity to gain skills in tooth identification and in carving teeth using wax

I. Tooth Morphology

1. Introduction to tooth morphology:
   - Human dentition, types of teeth, & functions, Palmer's & Binomial notation systems, tooth surfaces, their junctions - line angles & point angles, definition of terms used in dental morphology, geometric concepts in tooth morphology, contact areas & embrasures - Clinical significance.
2. Morphology of permanent teeth:
   - Description of individual teeth, along with their endodontic anatomy & including a note on their chronology of development, differences between similar class of teeth & identification of individual teeth.
   - Variations & Anomalies commonly seen in individual teeth.
3. Morphology of Deciduous teeth:
   - Generalized differences between Deciduous & Permanent teeth.
   - Description of individual deciduous teeth, including their chronology of development, endodontic anatomy, differences between similar class of teeth & identification of individual teeth.
4. Occlusion:
   - Definition, factors influencing occlusion - basal bone, arch, individual teeth, external & internal forces & sequence of eruption.
   - Inclination of individual teeth - compensatory curves.
   - Centric relation & Centric occlusion - protrusive, retrusive & lateral occlusion.
   - Clinical significance of normal occlusion.
   - Introduction to & Classification of Malocclusion.

II. Oral Embryology

1. Brief review of development of face, jaws, lip, palate & tongue, with applied aspects.
2. Development of teeth
   - Epithelial mesenchymal interaction, detailed study of different stages of development of crown, root & supporting tissues of tooth & detailed study of formation of calcified tissues.

- Applied aspects of disorders in development of teeth.

3. Eruption of deciduous & Permanent teeth
   - Mechanisms in tooth eruption, different theories & histology of eruption, formation of
   - dentogingival junction, role of gubernacular cord in eruption of permanent teeth.
   - Clinical or Applied aspects of disorders of eruption.
4. Shedding of teeth
   - Factors & mechanisms of shedding of deciduous teeth.
   - Complications of shedding.

III. Oral Histology

1. Detailed microscopic study of Enamel, Dentine, Cementum & Pulp tissue. Age changes & applied aspects (Clinical and forensic significance) of histological considerations - Fluoride applications, transparent dentine, dentine hypersensitivity, reaction of pulp tissue to varying insults to exposed dentine; Pulp calcifications & Hypercementosis.
2. Detailed microscopic study of Periodontal ligament & alveolar bone, age changes, histological changes in periodontal ligament & bone in normal & orthodontic tooth movement, applied aspects of alveolar bone resorption.
3. Detailed microscopic study of Oral Mucosa, variation in structure in relation to functional requirements, mechanisms of keratinization, clinical parts of gingiva, Dentogingival & Mucocutaneous junctions & lingual papillae.
   Age changes & clinical considerations.
4. Salivary Glands:
   - Detailed microscopic study of acini & ductal system.
   - Age changes& clinical considerations.
5. TM Joint:
   - Review of basic anatomical aspects & microscopiuc study & clinical considerations.
6. Maxillary Sinus
   - Microscopic study, anatomical variations, functions & clinical relevance of maxillary sinus in dental practice.
7. Processing of Hard & soft tissues for microscopic study
   - Ground sections, decalcified sections & routine staining procedures.
8. Basic histochemical staining patterns of oral tissues.

IV. Correlation

1- Recognize errors that may cause difficulties or failures in root canal treatment owing to lack of knowledge of pulp anatomy.
2- List ways that help to determine the type of pulp canal system.
3- Draw common shapes of roots in cross section and common canal configurations in these roots.

4- Describe the most common root and pulp anatomy of each tooth.
5- List, for each tooth type, the average length, number of roots, and most common root curvatures.
6- Characterize the more frequent variations in root and pulp anatomy of each tooth.
7- Explain why standard periapical radiographs do not present the complete picture of root and pulp anatomy.
8- Draw a representative example of the most common internal and external anatomy of each tooth and root in the following planes: (1) sagittal section of mesiodistal and faciolingual planes and (2) cross section through the cervical, middle, and apical thirds.
9- Suggest methods for determining whether roots and canals are curved as well as the severity of the curvature.
10- State the tenet of the relationship of pulp-root anatomy.
11- List each tooth and the root(s) that require a search for more than one canal.
12- List and recognize the significance of iatrogenic or pathologic factors that may cause alterations in pulp anatomy.
13- Define the pulp space and list and describe its major components.
14- Describe variations in the pulp system in the apical third, including the apical foramen region.
15- Describe how to determine clinically, the distance from the occlusal-incisal surface to the roof of the chamber.
16- Discuss location, morphology, frequency, and importance of accessory (lateral) canals.
17- Describe relationships between anatomic apex, radiographic apex, and actual location of the apical foramen.
18- Describe common variations in pulp anatomy resulting from developmental abnormalities and state their significance.
19- Describe why many root curvatures are not apparent on standard radiographs.

Contents:

include Dental formula & Tooth annotation systems - line & point angles The dental arches & tooth surfaces – Detailed description of the external feature of the deciduous & the permanent dentitions . Tooth dimensions & proportions - The chronology of human dentitions - Tooth relationships - Tooth pulp morphology -Tooth inclination & alignment.

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Anatomy

Course No. D 122
Code: Anat.1
Course Title: Anatomy1
Credit hour: 3

Main Objective:

The main objective of the course is to enable the student to have basic knowledge about the general gross (macroscopic), general histological and cytological (microscopic) and embryological basis of the human body.

It assists the student to correlate the structural framework of the human body to its functional activities

provides information on structures necessary for the practice of safe clinical dentistry

1. **Gross Anatomy**

Objectives:

1. Know the major anatomical structures of the human body and their primary functions.
2. Be able to recognize important clinical structures and landmarks on various radiographic images including CT, MR and X-ray images, in all planes.
3. Be able to describe various anatomical structures, both superficial and deep, that need to be considered during palpation.
4. Be able to make reasonable predictions of the clinical manifestation of injury or disease to anatomic structures.
5. Be able to relate anatomic structures to clinical diagnostic procedures and treatment approaches

Contents:

a- Thoracic Region

Region Objectives:

By the end of this region the student should be able to

1- Identify the different component of the bony thorax
2- The important relations and the anatomical land marks of thoracic cage
3- The respiratory system& pleural sac
4- The mediastenal contents
5- The cardiovascular system& the great vessels

Contents

a-Introduction and terminology related to the anatomy and topographic anatomy
b- Surface antomy of the thorax:
c- Thoracic cage and its articulations.
d- Thoracic wall and surface anatomy.
e- Thoracic cavity, plura and lungs.

f-mediastinium ,pericardium
g- middle mediastemum & heart
h- cardiovascular anatomy(great vessels& blood supply of the heart)
i- cardiovascular anatomy(conducting system of the heart)
j- posterior mediastenum contents

b-Applied Gross Anatomy of Abdomen, Pelvis for dental student

Objectives of this regions:

The student should be able to:

1-identify the regional anatomical land mark

2- Deal with these parts of the human body during general body examination

3- Deal with emergencies and patient right refer

Contents:

a-Anterior abdominal wall and surface anatomy of the internal organs.
b-Clinical application and hernias.
c-Anatomy of the GIT & Porto systemic Anastomosis.
d-The anatomical land marks of bony pelvis & iliac crest
e- Identification of urinary and reproductive systems.

c-Applied Gross anatomy of the Limbs:

Objective:

The dental student needs this course to

a-relate between the different parts of the body

b-Identify& use correctly the peripheral superficial veins in investigations & managements.

c- Communicate scientifically with medical colleges

d- able to deal with emergencies **.**

Contents:

Appendicular skeleton & the names of the joints.
Brachial blexus, shoulder region & axilla.
Cubital fossa and superficial veins variation.
Glutial region and the thigh.
Knee joint , populated fossa& -Leg and foot
Common fractures of the limbs & nerves injures

2-General Embryology,

Objectives:

By the end of this course the student should be able to

1- know about the gametes& gmitogenesis

2- know about normal fertilization& in vertro fertilization

3- know the normal site of implantation & ectopic pregnancy

4- know the derivatives of the germinal layers
5- know the fetal developmental stages& full term baby
6- fetal membranes & placenta

Contents:

Gamitogenesis
Ovulation & menstruation
Fertilization& implantation
Bilaminar germ disc and extraembryonic membranes
Gastrulation& deravatives of the germinal layers
Fetal period
Fetal membranes

3- general histology

Objectives:

By the end of this course the student should be able to:-

1- know the different parts of the light microscope& how to use the microscopic
2- know about the different histological techniques and slide preparations
3- identify the micrscopical picture of the different body tissues
4- identify the functional & histological changes of the tissues under the microscope.

Contents:

1-The Body's Microscopic Organization
2- Cytology, recognize parts of the typical cell and describe their
3- Cell mitosis.& chromosomes
4-Classify tissues and list their functions.
5- The epithelial tissues.
6- Classify the epithelia.
7-Describe types of membranes.
8-Types of glands.& endocrine system
9-Connective tissues and their functions.
10-The types of connective tissue propers.
11-The supporting connective tissues.
12-The specialized connective tissue B blood.
13- The muscular tissues.
14- The nervous tissues.
15- The lymphoid tissue.
16- The special sense organs
17- Histology of the endocrine glands
18- Histology of the respiratory system
19- Histology of the cardiovascular system
20 - Histology of the digestive systm

Recommended Books:

- Clinical anatomy for medical students. Richard Snell - by regions.
- Last anatomy
- Clinical anatomy – Kiss Moore.
- Human development. – Moore.
- Anatomy for dental student - Moore
- Basic histology.
- Functional histology.
- Gay's anatomy -------(as reference)

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Biochemistry and Nutrition

Course No. D 123
Code: bio.Nut.
Course Title: Biochemistry and Nutrition
Credit hour: 3

Objectives:

At the end of the course the student would be able to acquire a useful core of information, and should know

1. The structure of cholesterol and why it cannot be carried free in plasma.
2. Why amylase will not hydrolyse cellulose.
3. Haemoglobin is globular and keratin is fibrous.
4. Mechanism of oxidative phosphorylation.

Should know more than 90 % of atp is formed by this process.

5. Hydrochloric acid cannot break a peptide bond at room temperature.
6. The steps of glycogenesis.
7. The basis of increase of urea and creatininein blood in renal insufficiency.
8. The structure of insulin. Should know why insulin level in circulation is normal in most cases of maturity onset diabetes.
9. The structure of atp and energy needs.
10. The mechanism of action of prolylhydroxylase.
11. The structure of vitamin k and basis of bleeding arising due to its deficiency starvation1.

Chemistry of bioorganic molecules

Carbohydrates: Definition, biological importance and classification.

Monosaccharides - Isomerism, anomerism. Sugar derivatives, Disaccharides. Polysaccharides. Structures of starchand glycogen.

Lipids: Definition, biological importance and classification. Fats and fatty acids. Introduction tocompound lipids. Hydrophobic and hydrophilic groups. Cholesterol. Bile salts. Micelle. Bimolecular leaflet.

Proteins: Biological importance. Aminoacids: Classification.

Introduction to peptides.

Proteins : Simple and conjugated; globular and fibrous. Charge properties. Buffer action . Introduction to protein conformation .

Denaturation. Nucleic acids: Building units . Nucleotides. Outline structure of DNA and RNA.

2. High energy compounds: ATP , Phosphorylamidines, Thiolesters, Enol phosphates.

Energy needs: Basal metabolic rate. Dietary carbohydrates, fibres. Dietary lipids, essential fatty acids. Nitrogen balance.

Essential amino acids. Protein quality and requirement (methods for evaluation of protein quality to be excluded).
Protein calorie malnutrition. Balanced diet.
Enzymatic hydrolysis of dietary carbohydrates. Mechanism of uptake of monosaccharides. Digestion and absorption of triacylglycerols. Enzymatic hydrolysis of dietary proteins and uptake of amino acids.

3. Micronutrients.
Vitamins: Definition, classification, daily requirement, sources and deficiency symptoms. Brief account of water-soluble vitamins with biochemical functions. Vitamins A functions
including visual process. Vitamin D and its role in calcium metabolism. Vitamin E. Vitamin K and gamma carboxylation.
Introduction to antivitamins and hypervitaminosis.
Minerals :Classification, daily requirement. Calcium and phosphate: sources, uptake, excretion, function. Serum calcium regulation. Iron: sources, uptake and transport.
Heme and nonheme iron functions; deficiency. Iodine: Brief introduction to thyroxine synthesis. General functions of thyroxine. Fluoride: function, deficiency and excess. Indications of role of other minerals.
4. Energy Metabolism
Overview: Outlines of glycolysis,pyruvate oxidation and citric acid cycle. Beta oxidation of fatty acids. Electron transport chain and oxidative phosphyorylation. Ketone body formation and utilisation. Introduction to glycogenesis, glycogenolysis, fatty acid synthesis, lipogenesis and lipolysis. Gluconeogenesis.
Lactate metabolism . Protein utilisation for energy. Glucogenic and ketogenic amino acids. Integration of metabolism.
5. Special Aspects Of Metabolism
Importance of pentose phosphate pathway. Formation of glucuronic acid. Outlines of cholesterol synthesis and breakdown. Ammonia metabolism. Urea formation.
Phosphocreatine formation. Transmethylation. Amines.
Introduction to other functions of amino acids including one carbon transfer.
Detoxication : Typical reactions. Examples of toxic compounds.
Oxygen toxicity.

Biochemistry II

Course No. D 235
Code: bio.
Course Title: Biochemistry II
Credit hour: 3

Contents:

Biochemical genetics and protein synthesis

- Introduction to nucleotides; formation and degradation. DNA as genetic material. Introduction to replication and transcription.
- Forms and functions of RNA. Genetic code and mutation.
- Outline of translation process.Antimetabolites and antibiotics interfering in replication, transcription and translation.
- Introduction to cancer, viruses and oncogenes.

Enzyme and metabolic regulation

- Enzymes: Definition, classification, specificity and active site.
- Cofactors. Effect of pH, temperature and substrate concentration.
- Introduction to enzyme inhibitors, proenzyme and isoenzymes. Introduction to allosteric regulation, covalent modification and regulation by induction/repression.
- Overview of hormones. Introduction to second messengers, cyclic AMP, calcium ion, inositol triphosphate. Mechanism of action of steroid hormones, epinephrine, glucagon and insulin in brief.
- Acid base regulation.
- Electrolyte balance.

Structural components and blood proteins

- Connective tissue: Collagen and elastin. Glycosaminoglycans.
- Bone structure. Structure of membranes. Membrane associated processes in brief. Exocytosis and endocytosis. Introduction to cytoskeleton.
- Myofibril and muscle contraction in brief.
- Haemoglobin: functions. Introduction to heme synthesis and degradation.
- Plasma proteins: classification and separation.
- Functions of albumin. A brief account of immunoglobulins.
- Plasma lipoproteins: Formation, function and turnover.

Medical biochemistry

- Regulation of blood glucose.Diabetes mellitus and related disorders.
- Evaluation of glycemic status.
- Hyperthyroidism and hypothyroidism: Biochemical evaluation.
- Hyperlipoproteinemias and atherosclerosis, Approaches to treatment.
- Jaundice: Classification and evaluation.
- Liver function tests: Plasma protein pattern, serum enzymes levels.
- Brief introduction to kidney function tests and gastric function tests.

- Acid base imbalance.
- Electrolyte imbalance: evaluation.
- Gout.
- Examples of genetic disorders including lysosomal storage disorders, glycogen storage disorders, glucose 6- phosphate dehydrogenase deficiency, hemoglobinopathies, inborn errorsof amino acid metabolism and muscular dystrophy (one or two examples with biochemical basis will be adequate). Serum enzymes in diagnosis.

Text & Reference Books:

1- Concise text book of Biochemistry (3rd edition) 2001, T.N. Pattabiraman
2.Nutritional Biochemistry 1995,S. Ramakrishnan and S.V. Rao
3.Text book of Biochemistrywith clinical correlations 1997, T.N. Devlin
4.Harper's Biochemistry, 1996., R.K. Murray et.al
5.Basic and applied Dental Biochemistry, 1979, R.A.D. Williams & J.C.Elliot

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical examination 20%**

Physiology

Course No. D 124
Code: Physio.1
Course Title: Physiology1
Credit hour: 3

Objectives:

The aim of the course is to provide students with essential knowledge of bodily functions and homeostasis (with special emphasis on the functions of oral structures and applied Oral Physiology as a basis for Dental practice)

Content:

Introduction to Human physiology
Autonomic nervous system –
Blood groups (Rh & ABO) -
Heart & circulatory system –
Coagulation mechanisms –
Respiration & gaseous exchange
Renal function

Head & Neck

Course No. D 231
Code: H&N Anat,.
Course Title: Head& Neck Anatomy
Credit hour: 3

Objectives:

By the end of this course the student should be able to:

1-Identify the bones of the skull& cervical vertebrae.
2- Locate the cranial& facial exits and describe the structures& function of the structures passing through
3-Locate the origin and insertion and describe the action of the muscles of the head and neck.
4- Describe the venous and arterial blood supply to the structures of the head and neck.
5. Explain the relationship of the autonomic nervous system to the head and neck.
6.Locate and identify the glandular tissues and associated structures in the head and neck.
7. Describe the location and function of the lymphatic system of the head and neck.
8. Trace the routes of infection of the orofacial region.
9. Describe the injection penetration sites for dental local anesthesia.
10. Describe the anatomy, functioning& common disorders of the temporomandibular joint.

Contents:

- 1-Oestology of the cranium
- 2- Osteolgy of the facial skeleton
- 3.The spine, cervical vertebrae and surface markings.
- 4-Cervical fascia& Fascial spaces .
- 5-Scalp and head injuries.
- 6- cutaneous innervation of the face& distribution of trigeminal nerve
- 7- blood supply of the face & dangerous trigone
- 8- muscles of facial excepression
- 9- posterior triangle of the neck& cervical plexus
- 10- anterior triangle of the neck
- 11- Carotid sheath
- 12- sub-occiptal region& back of the neck
- 13- Median viscera of the neck& thyroid gland
- 14- Infratemoral fossa
- 15- Pterygoplatine fossa
- 16- Crainial cavity& dural sinuses
- 17- Nasal cavity and Para nasal sinuses.
- 18- Oral cavity
- 19- Salivary Glands
- 20- Muscles of mastication TMJ.
- 21-Pharynx
- 22-Larynx.
- 23-Root of the neck& Prevertebral region
- 24-Orbit.
- 25-Ear
- 26- Lymphatic Drainage of head& neck

Recommended Books:

Clinical anatomy for medical students. Richard Snell - by regions.

Last anatomy

Clinical anatomy – Kiss Moore..

Anatomy for dental student - Moore

Gray's anatomy -------(as reference)

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Oral Biology

Course No. D 232
Code: O. Bio.
Course Title: Oral Biology
Credit hour: 3

Objectives:

By the end of the course the student should be able to:

- Understand the origin of dental & other oral tissues
- Describe the basic structure and function of dental tissues
- Understand the basic design of oral mucosa and its varieties to undergo the different functions
- Understand and correlate form & function of oral tissue

Contents:

Oral Embryology

1. Development of teeth :
   - Epithelial mesenchymal interaction, detailed study of different stages of development of crown,root & supporting tissues of tooth & detailed study of formation of calcified tissues.
   - Applied aspects of disorders in development of teeth.
2. Eruption of deciduous& Permanent teeth:
   - Mechanisms in tooth eruption, different theories & histology of eruption, formation of dentogingival junction, role of gubernacular cord in eruption of permanent teeth.
   - Clinical or Applied aspects of disorders of eruption.
3. Shedding of teeth:
   - Factors & mechanisms of shedding of deciduous teeth.
   - Complications of shedding.

Oral Histology

- Detailed microscopic study of Enamel, Dentine, Cementum & Pulp tissue. Age changes & Applied aspects (Clinical and forensic significance) of histological considerations -
- Fluoride applications, transparent dentine, dentine hypersensitivity, reaction of pulp tissue to varying insults to exposed dentine; Pulp calcifications & Hypercementosis.
- Detailed microscopic study ofPeriodontal ligament & alveolar bone, age changes, histological changes in periodontal ligament & bone in normal & orthodontic tooth movement, applied aspects ofalveolar bone resorption.
- Detailed microscopic study of Oral Mucosa, variation in structure in relation to functional requirements, mechanisms of keratinization, clinical parts of gingiva, Dentogingival & Mucocutaneous junctions & lingual papillae. Age changes & clinical considerations.
- Salivary Glands :
- Detailed microscopic study of acini & ductal system.
- Age changes& clinical considerations.

Maxillary Sinus:

- Microscopic study, anatomical variations, functions & clinical relevance of maxillary sinus in dental practice.
- Processing of Hard & soft tissues for microscopic study
- Ground sections, decalcified sections & routine staining procedures.

Oral Physiology

1. Saliva :
   - Composition of saliva - variations, formation of saliva & mechanisms of secretion, salivary reflexes, brief review of secretomotor pathway, functions, role of saliva in dental caries & applied aspects of hyper & hypo salivation.
2. Mastication :
   - Masticatory force & its measurement - need for mastication, peculiarities of masticatory muscles, masticatory cycle, masticatory reflexes & neuralcontrol of mastication.
3. Deglutition :
   - Review of the steps in deglutition,swallowing in infants, neural control of deglutition & dysphagia.
4. Calcium, Phosphorous & fluoride metabolism :
   - Source, requirements, absorption, distribution, functions & excretion, clinicalconsiderations, hypo & hypercalcemia & hyper & hypo phosphatemia & fluorosis.
5. Theories of Mineralization :
   - Definition, mechanisms, theories & their drawbacks.
   - Applied aspects of physiology ofmineralization, pathological considerations - calculus formation.
6. Physiology of Taste
   - Innervation of taste buds & taste pathway, physiologic basis of taste sensation, age changes & applied aspects – taste disorders.
7. Physiology of Speech :
   - Review of basic anatomy of larynx & vocal cords.
   - Voice production, resonators, production of vowels & different consonants - Role of palate, teeth & tongue.
   - Effects of dental prosthesis & appliances on speech & basic speech disorders.

Recommended Text Books

1.Orban's Oral Histology & Embryology - S.N.Bhaskar
2.Oral Development & Histology - James & Avery
4.Dental Anatomy - its relevance to dentistry - Woelfel & Scheid
5.Applied Physiology ofthe mouth - Lavelle
6.Physiology & Biochemistry of the mouth – Jenkins

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Physio.II

Course No. D 233
Code: Physio.II
Course Title: Physiology 2
Credit hour: 3

Contents:

- Gastrointestinal system - Physiology of the mouth & oral cavity structures - Speech & Swallowing - - Bone physiology - Endocrinology - Nutrients & metabolism
- Nerve & muscle function / Neurophysiology

Text Books:

Guyton; Text book of Physiology, 9th edition.
Ganong; Review of Medical Physiology, 19th edition
Vander; Human physiology, 5th edition
Choudhari; Concise Medical Physiology, 2nd edition
Chaterjee; Human Physiology, 10th edition
A.K. Jain; Human Physiology for BDS students, 1st edition.

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Development and Growth

Course No. D 234
Code: Devel.Gro.
Course Title: Development & Growth
Credit hour: 2

Objectives:

Define and understand the basic growth concepts (area relocation, appositionalgrowth, displacement, remodeling, resorption, deposition, fusion).

Understand the growth and development of the main craniofacial components:cranial base, maxilla, and mandible, and their interrelationships at different stagesof growth.

Understand the tissues involved in facial growth: bone, cartilage and muscle..

Understand the differences in facial form and patterns..

Understand major deformities of growth.

Understand why and how knowledge of facial and somatic growth and development is critical to early treatment of malocclusion through prevention,interception, or early correction of interferences with normal development that lead to malocclusion

Know the basic tissues involved in craniofacial growth, particularly bone and cartilage (muscles are addressed in a specific course)

.Know the different locations of cartilage in the head. Differentiate and identify the endochondral and intramembranous modes of bone formation, and the facial bones involved in each modality

.Know the basic craniofacial growth concepts including area relocation, bonedisplacement, processes of appositional growth and depositional resorption, andissues of modeling, remodeling, and the principle

.Know sites and mechanisms of growth of the cranial base, the influence of thisgrowth on the position of the growing maxilla and mandible, and the factors thatlead to anomalies of cranial growth.

Know the patterns and mechanisms of maxillary growth in all 3 planes of space, and the influence of sutural growth on maxillary development.

know the patterns and mechanisms of mandibular growth in all 3 planes of space and the role of condylar growth in mandibular development.

Contents:

1. Pharyngeal arches development
2. Development of the oral cavity and orofacial clefts
3. Development of the face, nasal cavity and palate
4. Development and growth of the skull and maxilla
5. Development and growth of the mandible
6. Craniofacial malformations commonly seen in maldevelopment of the craniofacial structures
7. Selected Syndromes & clinical considerations
8. Development and growth of the teeth: Crown formation including Amelogenesis and Dentinogenesis
9. Development of the root and supporting structure

10. Developmental Anomalies of the teeth
11. Tooth movements

Recommended Textbook:

James Avery (Oral development and histology)
3rd edition,2002..
Ten Cate (Oral Histology – development, structure and function)
5th edition, 1998,

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Neuroanatomy

Course No. D 236
Code: Neuro
Course Title: Neuroanatomy
Credit hour: 23

Objectives:

By the end of this course the student should be able to:-

1- know the general organization of the nervous system

2-Identify the different components of the nervous system

3-The pathways and gaits of forth& back messages through the nervous system

4-The circulations through& around the nervous system and the clinical problem correlate to them

3-Correlate between the different connections, anatomical location and neurological activities of the different parts of the nervous system

4- Identify the main neurological disturbances& the neurological defect lead to them.

Contents:

topics		
1- Introduction to neuroanatomy.		
2- topography of the brain& meninges .		
3- Cerebral cortex, Lobes and cortical areas .		
4-Basal ganglia and thalamus		
4- Organization& external feature of the brain stem and its locations.		
5- Internal features of brain stem.		
6- Topography of the spinal cord and its segmentations		
7-Internal features of spinal cord.		
8-Tractology.		
9-Limb system.& Reticular formation		
10-CSF circulation & ventricular system.		
11-Blood supply of the nervous system& dural venous sinuses .		

Recommended Books:

Clinical anatomy for medical students. Richard Snell - Neuroanatomy.

Last anatomy

Gay's anatomy -------(as reference)

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Dental Material Science

Course No. D 241
Code: D.Mat.
Course Title: Dental Material Science
Credit hour: 2

Course Description

This course focuses on the nature, qualities, and composition of modern dental materials, their manipulation, and how this assists the dental hygienist in professional duties. The primary goal of this course is to enhance the student's ability to make clinical judgments regarding the use and care of dental materials, based on how they react in the oral environment. Topics include: dental material standards; dental materials properties; direct and indirect restorative dental materials; preventive dental agents; impression materials; gypsum products; mouth guards and whitening systems; dental bases, cements, and liners; temporary restorations; polishing procedures for dental restorations; fixed and removable dental prostheses; sealants; implants; adjunct dental materials; and quality assurance for dental materials.

Objectives:

I. Course Introduction; History of Dental Materials; Characteristics of Dental Materials

The students should be able to:

- Identify various approval agencies for dental materials.
- Define the ADA specifications and acceptance standards.
- Describe the history of dental materials
- Recognize the factors of the oral environment adverse to dental materials
- Describe characteristics of the ideal material
- Recognize features that assure quality assurance in handling dental materials
- Identify the classes of materials used in dentistry
- Describe the structure of dental materials
- Describe the physical characteristics of dental materials
- Describe the mechanical characteristics, including types of forces, stress and
- Strain
- Discuss chemical properties of dental materials and limitations of dental materials.
- Recognize biological considerations
- Describe pit and fissure sealants and their use in dentistry
- List some resins used in preventive restorations
- Identify fluoride-releasing agents
- Describe the fabrication and use of mouthguards

II. Impression Materials; Dental Plaster and Stone

- The students should be able to:

- Identify various impression materials.
- Explain the advantages and limitations of various impression materials.
- List the uses of impression materials in dentistry
- Describe the characteristics of the various materials used
- Identify the composition of impression materials
- Describe the mixing and handling of impression materials
- Demonstrate the method to obtain alginate impressions in the laboratory.
- Describe the manufacture of gypsum and its various forms.
- List the uses of plaster and stone in dentistry
- Describe the handling of plaster and stone (dispensing, mixing, clean-up)
- Distinguish between the various setting times of plaster and stone
- Recognize setting expansion and its causes
- Identify the properties (strength and hardness) of plaster and stone
- List the types of dental gypsum
- Describe the process of pouring and trimming a gypsum cast or model
- Demonstrate the fabrication of study models in the laboratory.
- Explain the disinfection of study models and casts

III. Intermediary Materials and Cements; Provisional Restoratives

The students should be able to:

- Describe dental varnishes and list their uses, types, handling, and characteristics
- Identify what dental liners are and explain their uses, types, handling, and characteristics
- Identify what dental bases are and explain their uses, types, handling, and characteristics
- Identify what dental cements are and explain their uses, types, handling, and Characteristics
- Describe the usual components of bases, liners, and cements.
- Demonstrate the procedure to mix each of the above in the laboratory.
- Define a temporary restoration.
- Describe uses in dentistry for temporary restorations
- List and be able to recognize the various types of provisional restoratives
- Describe the mixing and placing of temporary restorations
- Explain the uses for indirect restorative temporary crowns

IV: Direct Restoratives

- The students should be able to:
- Define a direct restorative material.
- Describe esthetic anterior restorations and their historical perspectives

- Describe esthetic anterior restorations and their uses in composites and glass ionomers with their various types and packaging, compositions, characteristics and properties,handlings and mixings, settingreactions, finishing and polishing, and clinical performances
- Describe the various types of posterior restorations
- Describe amalgam restorations and composite resins and their uses, types and compositions, characteristics and properties, mixings and handlings, setting reactions, and clinical successes
- Describe the use of direct gold as a dental restoration
- List the advantages and disadvantages of direct restorative materials.

V: Materials for Inlays, Onlays, Crowns, and Bridges; Materials for Cast Restorations

The students should be able to:

- Define an indirect restorative material.
- Recognize the indications of various indirect restoration.
- List the types of materials used in fabricating inlays, onlays, crowns, and bridges
- Describe the basic concepts of metals, including their metallic structures, deformations, and alloying
- List the compositions, properties, and preparations of various metals used in dentistry, including noble metals, base metal alloys, and the repair of metals through soldering and welding
- Describe the basic concepts of ceramics
- List the composition, properties, and preparation of various ceramics used in dentistry, including dental porcelains, cast ceramics, and the repair of ceramics
- List the composition, properties, and preparation of composite restorations
- Describe the basic process of casting using the lost-wax technique
- List the dental waxes and identify uses in dentistry, types and characteristics
- Explain die materials and their uses in dentistry, types and characteristics
- Explain investment materials and their uses in dentistry, types and characteristics
- List the advantages and disadvantages of various indirect restorative materials.
- Attend a local dental laboratory to view the process for fabrication of indirect restorative materials.

VI. Abrasion and Polishing

The students should be able to:

- Describe the rational of polishing restorations.
- List the objectives and theory behind polishing dental materials
- Explain the various factors affecting polishing, including the polish’s hardness, particle shape and size, pressure used, speed of use, and lubrication in use.

- Describe the instruments used in cutting and abrading, including the composition of abrasives, prophylaxis pastes, dentifrices, and denture cleansers used
- Outline finishing and polishing procedures for composites, amalgams, alloys, ceramics and porcelains, and acrylics

VII. Polymers for Prosthetics

The students should be able to:

- Define removable prostheses.
- Describe the basics of polymeric materials used in dentistry, including their properties, definitions and uses,chemistries of polymerization, polymer sizes and effects
- Describe prosthetic resins use in denture bases, denture liners and conditioners and other resin systems
- Outline the steps used in the production of a heat-processed denture
- Explain the construction of an acrylic custom tray
- Describe the process of cleaning removable appliances

VIII. Metal Alloys for Orthodontics, Prosthodontics, and Pediatric Dentistry

The students should be able to.

- Identify when we use metal alloys in dentistry
- List the types of dental alloys – stainless steels, cobalt-chromium, titanium, nickel-chromium
- Describe the differing properties of alloys used in orthodontic wires and prosthodontics
- Describe the biocompatibility of the various dental alloys

IX. Sealants

The students should be able to.

Define a sealant

- Describe the indications for use of a sealant
- Identify the components of sealants
- Explain the techniques for placing sealants
- Demonstrate the procedure to place a sealant on extracted natural teeth.

X. Implants

The students should be able to.

- Define an implant and osseous integration.
- Describe the metals used in implant fabrication
- Describe the various coating available on implants
- Describe the various types and shapes of various implants
- Summarize the precautions necessary in cleaning and maintaining implants

Required Text:

Ferracane, J., *Materials in Dentistry-Principles and Applications* (2001), 2nd Edition, Lippincott, Williams & Wilkins. ISBN 0-7817-2733-2

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

General Pathology

Course No. D 242
Code: Path..
Course Title: General Pathology
Credit hour: 4

Objectives:

- The course is aimed at enabling the student to know:
- Causes and mechanisms of cell injury, inflammation, immune system reaction, healing and the various metabolic & morphological changes that take place in cells .
- Definition of neoplasia; nomenclature; behavioural & morphological differences between benign & malignant tumours; histological grading and staging & their importance in predicting clinical behavior
- & prognosis. Tumor factors & their role in diagnosis & classification of cancer.
- Etiology of cancer

Contents:

Cell injury - Inflammation I & II - Healing & repair I & II - Oedema - Pigmentation & calcification - Tuberculosis I & II - Amyloidosis - Disorder of growth I & II - Immunopathology - Genetics I & II - Thrombosis + Embolism - Congestion & infarction - Shock - Haemopoiesis & classifcation of anaemias - Bleeding disorders I & II + Blood transfusion - Acid base disturbances - Water & electrolyte balance - Disturbance of CHO metabolism - Disorders of protein, lipid, calcium and phosphate metabolism - Inborn errors of metabolism - Malaria; leishmaniasis & schistomiasis - Leprosy & syphilis - Hepatitis I & II - Leukemias I & II - Malabsorption - AIDS pathology - Diseases of the blood & lymph vessels - Systemic hypertension - Rheumatic fever + Infective endocarditis - Ischaemic heart disease - Congenital heart disease - Musculoskeletal diseases - Renal disease & its oral manifestations - Salivary glands & oropharyngeal pathology - Gall bladder & pancreatic pathology - Thyroid gland diseases - CNS I – III - Diseases of the skin I & II

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Microbiology

Course No. D 243
Code: Micro.
Course Title: Microbiology and Oral Microbiology
Credit hour: 5

Description:

The course Microbiology for dental student is designed to provide and facilitate the learning in which the student can make acquaintance, both in a theoretical and practical context, with microorganisms as agents of human disease with relevance to dentistry. The major topics covered in this course will be:

1. Fundamentals of Immunology and Host-parasite relationship
2. Bacteria and Human Diseases caused by them
3. Viruses and Human Diseases caused by them
4. Fungi and their human oral diseases.
5. An introduction to Oral Microbiology

Objectives:

By the end of the course the dental students should:

6. Have a basic understanding of the major pathogenic organisms, related disease-syndromes ad their modes of spread with particular reference to dentistry.
7. Have a basic understanding of the host-parasite relationship and the immune system
8. Have a basic understanding of the oral microbial ecology and pathogenesis of dental caries and periodontal disease
9. be aware of the major clinical and biological factors to be taken into consideration for the appropriate use of anti-microbial therapy
10. be familiarized with some of the laboratory procedures including specimen collection and handling, requesting appropriate tests and interpretation of laboratory reports.

Contents:

The role of microbes & parasites in health & disease, with specific reference to the oral cavity. The characteristics of various classes of microbes and parasites & their role in pathogenesis of various infections - the role of the immune system in health & disease - the principles & clinical applications of sterilization & disinfection - the judicious selection & use of antimicrobial therapy - the proper utilisation of clinical laboratory support services, specimen collection, requests & interpretation of lab test results - the modes of transmission of infection and infection control mechanisms/parameters

Introduction to the course

- morphology, classification & identification of bacteria
- Normal flora - Host-parasite relationships - Sterilization & disinfection Microogansims - Food & water bacteriology - Bacteriology of dental caries - Hospital cross infection.

- Mycology
- Immunology
- The immune system - Innate immunity + Acquired immunity - Antigens – Vaccinations. Oral immunity. Mucosal immune mechanisms (including immune function of salivary secretions)
- *Parasitology*
- Intestinal protozoa - Amoebae - Intestinal & urogenital flallegates - Leishmaniasis
- Malaria
- Virology
- Introduction - Viral hepatitis - Herpes viruses & papilloma viruses - AIDS\HIV infections and oral manifestations
- Ebstein Barr virus and CMV clinical manifestations & presentation.
- Practical session
- Microscopy, isolation & identification of bacteria - Sterilization & disinfection techniques - Gram positive & negative cocci - Enteric organisms - Anaerobes - Food & water bacteriology - Diagnostic procedures in clinical bacteriology

Recommended Textbooks:

- McCracken and Cawson, Clinical and Oral Microbiology, McGraw Hill
- Sleigh and Timbury, Notes on Medical bacteriology, Churchill Livingstone
- Timbury, Notes on medical Virology, Churchill Livingstone
- Kimball Introduction to Immunology, Macmillan
- Oral Microbiology at a Glance. Richard J. Lamont, Howard F. Jenkinson

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Pharmacology

Course No. D 244
Code: Pharma.
Course Title: Pharmacology
Credit hour: 3

Course Aim:

The aim of this course is to establish the core pharmacological knowledge and attitude to drug information that will ensure sound and safe dental practice throughout the dental graduate's career & to increase the student's comfort level with pharmacological information, to provide them with a background of knowledge to enable them to make appropriate decisions involving the use of dental medications in patient care, and instill in them the curiosity that will encourage them to stay current in this ever changing field.

Objectives:

This course is not meant to be an exhaustive compendium of pharmacology. Rather, the course focuses primarily on those drugs used by the Dentist – local anesthetics, antibiotics, and analgesics. These are reviewed in terms of how they work, their clinical advantages and disadvantages compared to each other in terms of appropriate usage, adverse side effects, and potential drug:drug interactions.

We will also review those medications most frequently taken by patients, e.g., cardiovascular drugs, discussing them from the perspective of how they work, and how they might impact dental management of the patient in terms of special precautions that need to be taken, potential drug;drug interactions that might require alteration of standard treatment regimens, oral side effects, etc.

Finally, the course will stress the ever changing nature of the pharmacology knowledge base and the need for the student to keep informed and updated in terms of not only new drugs becoming available, but new knowledge regarding older, traditional drugs that may require alterations in how these drugs are used. By the end of the course the student should have a strong working vocabulary of pharmacology upon which to build and keep up to date.

Upon completion of this course students should:

a) understand the actions of and appropriate therapeutic use of local anesthetics, sedatives, and analgesic medications. This knowledge is crucial in the provision of effective, safe, and pain free care to the calm or anxious patient both during and after dental treatment

b) understand the rational use of antiinfective agents in dentistry, both in terms of the management of existing orofacial infections and for prophylaxis against the development of bacterial endocarditis or other infection post treatment

c) understand the importance of organ function/disease status in altering the absorption, distribution, metabolism, and therapeutic action of dentally used drugs such as antibiotics

and local anesthetics. Using this knowledge, the student should be able to appropriately modify usage and dosing of standard drugs or substitute alternative medications.
d) have a basic knowledge of commonly prescribed drugs. Many of the patients that seek treatment in a dental school environment are significantly medically compromised. Management of such patient often necessitates frequent consultation with their physicians as to their medical status at the time of treatment, need for prophylactic antibiotic treatment, dosage adjustment, appropriate use of local anesthetic vasoconstrictor containing preparations, etc. Furthermore, when reviewing a patient's medical history and the drugs that a patient might be taking, the student should be able to identify any problematic combinations of medications and advise the patient to check with their physician regarding their need to be taking such medications.
e) be informed as to potentially problematic interactions that may arise between medications the patient may be taking for acute or chronic medical conditions and therapeutic agents such as local anesthetics or antibiotics that the dentist needs to utilize for appropriate management of the patient. Upon recognizing such interactions, the student should be able to substitute alternative medications
f) have a sufficient base of pharmacological information upon which to continue to build in the future via self-education, as well as knowing how to access new information when the need arises

Content:

- Absorption, distribution, biotransformation and excretion of drugs
- Pharmacokinetics. Targets for drug action (receptors, ion channels, enzymes, transporters and DNA)
- The nature of receptors, their superclasses and transduction mechanisms
- Selectivity, agonism and antagonism, quantitative effects of drugs (dose-response relationships)
- The process and mechanisms involved in neurotransmission with particular reference to cholinergic and noradrenergic neurotransmission
- Adverse reactions to drugs, including immunological hypersensitivity reactions and with particular regard to anaphylactic shock
- Mechanisms of adverse drug interactions
- The organisation of clinical trials and interpretation of clinical trial data
- The system of post-marketing surveillance of drugs
- Prescribing and the Law

Reference Textbook:

- Oral Pharmacology for the Dental Hygienist, 2/E, Mea A. Weinberg, Cheryl Westphal Theile, and James Burke Fine
- Essentials of Pharmacology for Dentistry, K. D. Tripathi

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Examination 20%**

Behaviour and Medical ethics

Course No. D 245
Code: Behav.M.E
Course Title: Behaviour and Medical ethics
Credit hour: 2

Objective:

Principles of medical ethics

This educational unit introduces students to the basic constraints and methods of ethical analysis and moral reasoning, with emphasis on their application to key ethical issues in health care practice and policy .Special attention is given to the role of the physician and the opportunities and challenges to the ethical practice of medicine in today's society.

Objectives:

Upon completion of the Educational unit, learners should be able to:

1. Describe the essential elements of the medical profession, including moral and ethical principles and legal responsibilities underlying the profession;
2. Define professional values which include excellence, altruism, responsibility, compassion, empathy, accountability, honesty and integrity, and a commitment to scientific methods;
3. Apply the principles of moral reasoning and decision making to conflicts within and between ethical, legal and professional issues including those raised by economic constraints, commercialization of healthcare, and scientific advances;
4. Describe the dimensions of professional self-regulation and express the need for continuous self-improvement admitting personal limitations including limitations of one's medical knowledge;
5. Explain the need for respect of colleagues and other healthcare professionals and the positive collaborative relationship with them;
6. Express the moral obligation to provide end-of-life care, including palliation of symptoms; recognition of ethical and medical issues in patient documentation, plagiarism, confidentiality and ownership of intellectual property;
7. Explain the ways and means of planning effectively and managing efficiently one's own time and activities to cope with uncertainty, adapt to change; and take personal responsibility for the care of individual patients.
8. Describe the theories and principles that govern ethical decision making, and of the major ethical dilemmas in medicine, particularly those that arise at the beginning and end of life and those that arise from the rapid expansion of knowledge of genetics.
9. Explain the threats to medical professionalism posed by the conflicts of interest inherent in various financial and organizational arrangements for the practice of medicine.

10. Make a self evaluation of his limitations in knowledge and clinical skills, and show a commitment to continuously improve one's knowledge and ability.
11. Define and describe contemporary medical ethics and the main ethical principles of autonomy, beneficence, non-maleficence and justice.
12. Describe the circumstances under which the breaking of confidentiality can and should occur.
13. Describe and apply in practice the principles of patient consent including relation of capacity, competence, and respect for autonomy, criteria for consent to be valid and legal, criteria for ordinate refusal of consent, implied consent, age of legal capacity, advance directives and statements and consent for research.
14. Use appropriate approaches for establishing trust with, and showing respect for, patients and colleagues.

Contents:

- What's special about the physician-patient relationship
- Respect and equal treatment
- Communication and Consent
- Decision-making for incompetent patients
- Confidentiality
- Beginning-of-life issues
- End-of-life issues

Recommended Books

- A Casebook of Medical Ethics, Terrence F. Ackerman and Carson Strong
- An Introduction to Medical Ethics: Patient's Interest First, 2nd ed., Arthur SM Lim
- Evidence-Based Medical Ethics: Cases for Practice-Based Learning, Candace C. Gauthier, PhD
- Dental ethics at chairside : professional principles and practical applications - David T. Ozar, David J. Sokol. 2nd
- Ethical questions in dentistry - James T. Rule
- Dental ethics - [edited by] Bruce D. Weinstein.

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 30%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 30%**

Comu. D	Community dentistry + Behaviour and Medical ethics	4	Comu. R & S	Comm. Dent, research & statistics	2

Pre-Clinical Dental Skills

Code: pre. Cons. D 234
Course title: Preclinical Operative Conservative Dentistry
Credit hour: 2

Objectives:

These courses consist of lectures and demonstrations of instruments& procedures to develop the student skills on the cast, extracted teeth and phantom heads in operative dentistry, conservatives, prosthodontics and oral& maxillofacial surgery:

Contents:

1. Identification and study of handcutting instruments chisles, gingival margin trimmers, excavators, hatchet, carvers and burnishers.
2. Identification and use ofrotary cutting instruments in contra angle hand pieces burs (micromotor)
3. Preparation class i and extended class i and class ii and mod's and class v in plaster models then in extracted teeth.
4. Exercises on phantom head models which includes cavity preparation base, liners and varnish application matrix and wedge placement followed by amalgam restoration and carving.

Class i 5
Class i with extension class ii
Class v and iii for glass ionmers
Class v for amalgam 1

5. Polishing of above restorations.
6. Demonstration of class iii and classv cavity preparation. For composites on extracted tooth completing the restoration.
7. Polishing and finishing of the restoration of composites.
8. Identification and manipulation of varnish bases like zinc

Phosphate, poly carboxylate, glass ionomers, zinc oxide, euginol cements.

9. Identification and manipulation of various matrices, tooth separators and materials likecomposites and modified glassionomer cements.

Endodontic:

1. Identification of basic endodontic instruments
2. Access cavity preparation on extracted.upper central

Incisiors

3. Determination of working length.
4. Biomechanical preparation of roo tcanal space of central incisor
5. Obturation of root canal spaces.
6. Closure of acess cavity.

Code: Pre. Cons. D 235
Course title: Preclinical Operative Prosthodontics
Credit hour: 2

Contents:

A. Applied anatomy and physiology.

1. Introduction
2. Biomechanics of the edentulous state.
3. Residual ridge resorption.

B. Communicating with the patient

1. Understanding the patients.

Mental attitude.

2. Instructing the patient.

C. Diagnosis and treatment planning for patients-

1. With some teeth remaining.
2. With no teeth remaining:
   a) Systemic Status.
   b) Local Factor.
   c) The Geriatric Patient.
   d) Diagnostic Procedures.

D. Articulators- discussion

E. Principles of retention, support and stability

F. Impressions - detail.

A. Muscles of facial expression.

B. Biologic considerations for maxillary and mandibular impression including anatomy landmark and their interpretation.

C. Impression objectives.

D. Impression materials.

E. Impression techniques.

F. Maxillary and mandibular impression procedures.

I. Preliminary impressions.

II. Final impressions.

G. Laboratory procedures involved with impression making (beading & boxing, and cast preparation).

G. Record bases and occlusion rims- in detail.

A. Materials & techniques.

B. Useful guidelines and ideal parameters.

C. Recording and transferring bases and occlusal rims.

H. Biological consideration in jaw relation & jaw movements - craniomandibular relations.

A. Mandibular movements.

B. Maxillo -mandibular relation including vertical and horizontal jaw relations.

C. Concept of occlusion- discuss in brief.

I. Relating the patient to the articulator.

A. Face bow types & uses– discuss in brief.

B. Face bow transfer procedure - discuss in brief.

J. Recording maxillo mandibular relation.

A. Vertical relations.

B. Centric relation records.

C. Eccentric relation records.

D. Lateral relation records.

K. Tooth selection and arrangement.

A. Anterior teeth.

B. Posterior teeth.

C. Esthetic and functional harmony.

L. Relating inclination of teeth to concept of occlusion- in brief.

A. Neutrocentric concept.

B. Balanced occlusal concept.

M. Trial dentures.

N. Laboratory procedures.

A. Wax contouring.

B. Investing of dentures.

C. Preparing of mold..

D. Preparing & packing acrylic resin.

E. Processing of dentures.

F. Recovery of dentures.

G. Lab remount procedures.

H. Lab remount procedures.

I. Recovering the complete denture from the cast.

J. Finishing and polishing the complete denture.

K. Plaster cast for clinical denture remount procedure

Code: Pre. OMF. D 236
Course Title: Preclinical Oral & Maxillofacial And Diagnostic Process
Credit hour: 2

Objective:

Section (A) – Surgery & Anaesthesia

1. anatomy and innervation of the oral cavity
2. Introduction, definition, scope, aims and objectives
3. History taking
4. Clinical examination & Investigations.
5. Principles of infection control and cross-infection control with particular reference to HIV/AIDS and Hepatitis.
6. Principles of Oral Surgery – Asepsis: Definition, measures to prevent introduction of infection during surgery.
7. Biologic considerations for maxillary and mandibular impression including
8. Measures to be taken by operator
9. Sterilisation of instruments - various methods of sterilisation etc.
10. Surgery set up.
11. Painless Surgery:
12. Pre- anaesthetic considerations & Pre-medication: purpose, drugs used
13- Simple extraction procedures

Local Anaesthesia:

- Introduction, concept of L.A., classification of local anaesthetic agents, ideal requirements, mode of action, types of local anaesthesia, complications.
- Use of Vasoconstrictors in local anaesthetic solution –
- Advantages, contra-indications, various vaso constrictors used.
- Anaesthesia of the mandible –
- Pterygomandibular space - boundaries, contents etc.
- Inferior Dental Nerve Block - various techniques
- Complications
- Mental foramen nerve block
- Anaesthesia of Maxilla –
- Infra - orbital nerve block.
- Posterior superior alveolar nerve block
- Maxillary nerve block – techniques

Diagnostic Process

(1) Definition and importance of Diagnosis and various types of diagnosis.
(2) Method of clinical examinations.
    (a) General Physical examination by inspection.
    (b) Oro-facial region by inspection, palpation and other means

(c) To train the students about the importance, role, use of saliva and techniques of diagnosis of saliva as part of oral disease

(d) Examination of lesions like swellings, ulcers, erosions, sinus, fistula, growths, pigmented lesions, white and red patches

(e) Examination of lymph nodes

(f) Forensic examination – Procedures for post-mortem dental examination; maintaining dental records and their use in dental practice and post-mortem identification; jurisprudence and ethics.

(3) Investigations

(a) Biopsy and exfoliative cytology.

(b) Hematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

Section (B) – Diagnosis, Differential Diagnosis

While learning the following chapters, emphasis shall be given only on diagnostic aspects including differential diagnosis

(1) Teeth: Developmental abnormalities, causes of destruction of teeth and their sequelae and discoloration of teeth

(2) Diseases of bone and Osteodystrophies: Development disorders:

- Anomalies, Exostosis and tori, infantile cortical hyperostosis,
- osteogenisis imperfect, Marfanssyndrome, osteopetrosis.
- Inflamation – Injury, infection and sperad of infection,fascial space
- infections, osteoradionecrosis.
- Metabolic disorders – Histiocytosis
- Endocrine – Acro-megaly and hyperparathyroidism
- Miscellaneous – Paget's disease,Mono and polyostotic fibrous
- dysplasia, Cherubism.

Books recommended:

a) Oral Diagnosis, Oral Medicine & Oral Pathology

1. Burkit – Oral Medicine – J.B. Lippincott Company
2. Coleman – Principles of OralDiagnosis – Mosby Year Book
3. Jones – Oral Manifestations of Systemic Diseases – W.B. Saunders company
4. Mitchell – Oral Diagnosis & Oral Medicine
5. Kerr – Oral Diagnosis
6. Miller – Oral Diagnosis & Treatment
7. Hutchinson – clinical Methods
8. Oral Pathology – Shafers
9. Sonis.S.T., Fazio.R.C. and Fang.L - Principles and practice of Oral Medicine

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

General Surgery

Course No. D 353
Code: Surg.
Course Title: General Surgery
Credit hour: 3

Objectives:

The course is aimed at enabling the student to have:

- knowledge of common surgical diseases
- ability to interpret the symptoms & signs of common surgical problems
- ability to recognize common surgical emergencies and to manage them,
- ability to communicate in an informed manner with other relevant members of the medical profession

Course content:

- Haemorrhage, shock & blood transfusion –
- Fluid & electrolyte balance –
- Burns - Surgical infections, wound healing & management –
- Multiple injuries, chest injuries & abdominal injuries
- Head injuries, raised intracranial pressure & spinal injuries –
- Fractures & dislocations, principles of diagnosis & management –
- Bone infections & tumours –
- Principles of cancer management –
- ENT problems, tonsillitis, epistaxis, ear infections –
- Cervical lymphadenopathy & other neck swellings Salivary gland swellings
- Anaesthesia, cardiopulmonary resuscitation, airway obstruction & tracheostomy.
- Preoperative preparations & postoperative complications –
- Thyroid diseases –
- Breast diseases –
- Gastrointestinal bleeding –
- Acute abdominal conditions: acute appendicitis, intestinal obstruction, acute cholecystitis, peritonitis –
- Dysphagia & gastrointestinal tumours –
- Vascular diseases, -
- Common skin & subcutaneous swellings & ulcers –
- Common problems during pregnancy
- Clinical training

Reference books:

Bailey and Love's Short Practice of Surgery 25th Edition, Norman S. Williams, Christopher J.K. Bulstrode and P. Ronan O'Connell

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

General Medicine

Course No. D 352
Code: Med..
Course Title: General Medicine
Credit hour: 3

Description:

The aim of this course is to:

- Provide an environment for learning clinical and intellectual skills with emphasis on diagnosing, treatment planning and comprehensive dental care
- provide clinical experience in the management of the medically compromised patient
- provide training experiences in hospital protocol, management of inpatients, patient rounds and interaction with other hospital specialties
- provide experiences in dealing with and managing acute dental emergencies and problems
- provide training in conscious sedation and to be Advanced Cardiac Life Support

Objectives:

- The importance of teaching general medicine to dental students has been well recognized in the provision of undergraduate dental education in Sudan. The nature of medical services in Sudan, the attitudes of Sudanese patients and the changing pattern of prevalent diseases, make comprehensive understanding of medical problems a necessity for all practicing dentists

Content:

- *Introduction to history taking and physical examination*
- *Cardiology- Respiratory medicine - Haematology - Endocrinology*
- Diabetes mellitus - Thyrotoxicosis - Hypothyroidism - Ca^{++} abnormalities
- *Gastroenterology - Nephrology - Neurology - Infections*
- Malaria - Visceral leishmaniasis - Meningitis/Encephalitis - HIV/AIDS
- *Dermatology -Venereology / Genitourinary conditions*
- *Psychiatry&* Physiotherapy - *Paediatrics & Important childhood diseases*
- Common childhood conditions- Malnutrition - Measles – Gastroenteritis

+ Clinical training

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Oral Pathology

Course no. D 351+ d 361
Code: o. Path i&ii.
Course title: oral pathology i+ii
Credit hour: 3+3

Objectives:

At the end of oral pathology & microbiology course, the student should be able to comprehend –

1. The different types of pathological processes, that involve the oral cavity.
2. The manifestations of common diseases, their diagnosis & correlation with clinical pathological processes.
3. An understanding of the oral manifestations of systemic diseases should help in correlating with the systemic physical signs & laboratory findings.
4. The student should understand the underlying biological principles governing treatment of oral diseases.
5. The principles of certain basic aspects of forensic odontology.

Contents:

Part one:

General principles of oral pathology:

1/ inflammation
2/ regeneration and repair
3/ immunity and allergy

Part two:

Pathology of teeth and jaws

4/developmental disturbances of jaws, dentition and individual teeth
5/lesions of hard dental tissues
6/diseases of the pulp
7/periapical lesions
8/periodontal diseases
9/cysts of the jaws
10/odotogenic tumours of the jaws
11/non-odotogenic tumours of the jaws
12/ diseases of jaws

Part three:

Infections

13/ bacterial infections
14/fungal and protozoal diseases
15/ viral infections

Part four:

Pathology of oral mucosa, tongue and salivary glands

16/surface lesions of the oral mucosa
17/cysts of soft tissues
18/benign tumours and tumours like proliferations of soft tissues
19/malignant tumours of soft tissues
20/lesions of salivary glands

Part five:

Special oral pathology

21/ developmental malformation
22/ oral manifestations of generalized diseases
23/ general manifestations of oral diseases
24/ neurologic disturbances involving oral regions
25/ forensic dentistry (principles of basic forensic odontology (pre-clinical forensic odontology; introduction, definition, aims & scope.)

Recommended Books:

- Oral and maxillofacialppathology. Editors; neville ,damn ,allen and bouquot
- A text book of oral pathology - shafer, hine & levy.
- Oral pathology - clinical pathologic correlations - regezi & sciubba.
- Oral pathology -soames & southam.

Methods of assessment

- **Continuous assessment (c.a) 20%**
- **Mcqs (sba) 20%**
- **Structural short answers (ssa) 20%**
- **Extended matching questions and problems 20%**
- **Ospe /oscape 20%**

Community Dentistry

Course No. D 357+ D 367
Code: Comu D. +R.
Course Title: Community Dentistry& Research
Credit hour: 2+2

Aim:

- The dental student will be able to address the main oral health problems of his community.
- Suggest therapeutic, preventive and educational solutions for these problems.
- Conduct a basic oral health survey for a target group plan and implement. a health educational program
- Construct a data base file and prepare a research.

Course Content:

By the end of the course the student will be able to: differentiate various epidemiological tools for assessment of community problems, list various research methods & evaluate the strength given by each ,compare various health educational methods & their advantages & limitations, categorize the levels of risk to which a person or a community is subjected to oral disease interpret fluoride use in caries prevention &methods of prevention of periodontal disease &recognize the oral health problems.

Objectives:

- Students are expected to acquire the following knowledge & skills of social, environmental, behavioural and psychological determinants of health and oral health
- The range of different ways in which health is defined by different groups in society
- Understanding patients' rights, as well as moral and ethical responsibilities involved in the provision of care to individuals, communities and populations

Contents:

- Research design & methodology –
- Biostatistic –
- Epidemiology of dental diseases-
- Individual & community prevention for common oral diseases –
- Introduction to primary health care (PHC) approach & oral health within PHC principles of dental health education –
- Communication & leadership in the health care team –
- Administration & organization of dental care systems in Sudan & other countries –
- Hospital administration & manpower –
- Administration of private practice –
- Safety in practice/hospital & hazards in dentistry –
- Introduction to law & ethics: statutory controls affecting dental practice and the legal and ethical obligations of registered dental

Competency Statement:

After completing the course the student should be able to :

1. address community health problems by means of surveying & measuring to a moderate competency level.
2. Suggest solutions for these problems on the skills acquisition level.
3. Plan and implement a health educational program on a moderate competency level.
4. Construct a data base file on a moderate competency level and prepare a research report on the skill acquisition level since it's the students' first experience with report writing.

Recommended Books:

1- Essential References

- Burt BA & Elkland SA Dentistry Dental Practice and the Community (1999).
- Jog WA, Community .Dental Health (2004)
- Harris No, Garcia Godoy F .Primary Preventive Dentistry (2004).
- Oral Health Surveys WHO Basic method (1997)

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **Practical Exam 20%**

Conservative Dentistry

Course no. D 364+ d 473+ d483+d 592+d 5101+ d5102
Code: cons
Course title: conservative dentistry& endodontic
Credit hour: 2+2+3+2+2

Objectives:

- Science and art of providing suitable prevention and treatment of diseases and injuries of the hard tissues and pulp of the tooth.
- The conservative dentistry curriculum is taught as a horizontally and vertically integrated theme with teaching crossing year boundaries and underpinning the clinical teaching that takes place during years 3, 4 and 5 of the bds programme.
- Students are taught the principles and techniques used in simple and complex intra-coronal restorations using a variety of restorative materials. In addition, they are taught how to provide extra-coronal restorations for anterior and posterior teeth.
- Course content
- Prevention and control of dental caries - control of moisture and isolation of the working field - liners and cements - dental amalgam alloy& manipulation - tooth coloured restorative materials& manipulation - restoration of badly damaged teeth - biological aspects of operative procedures and occlusal considerations - aesthetics in conservative dentistry - management of deep carious lesions- local anaesthesia uses in conservative dentistry, dental pain& pulp therapy - hazards in conservative dentistry - - acute alveolar abscess management - tooth isolation and access cavities - biomechanical preparation - root canal obturation - surgical endodontics - problems in endodontics - bleaching and restoration of endodontically treated teeth

Contents:

Introduction :

1.definition aims objectives of conservative dentistry scope and future of conservative dentistry.

2. Nomenclature of dentition: tooth numbering systems a.d.a.

Zsigmondy palmer and f.d.i. Systems.

3. Principles of cavity preparation : steps and nomenclature of cavity preparation classification of cavities, nomenclature of floors angles of cavities refreshment

4. Dental caries : aetiology, classification clinical features, morphological features, microscopic features, clinical diagnosis and sequel of dental caries.

5. Treatment planning for operative dentistry: detailed clinical examination, radiographic examination, tooth vitality tests, diagnosis and treatment planning, preparation of the case sheet.

Patient and operator position.

6. Gnathological concepts of restoration: physiology of occlusion, normal occlusion, ideal occlusion, mandibular movements and occlusal analysis. Occlusalrehabilitation and restoration.
7. Aramamentarium for cavity preparation: general classification of operative instruments, hand cutting instruments design formula and sharpening of instruments. Rotarycutting instruments dental bur, mechanism of cutting, evaluation of hand piece and speed current concepts of rotary cutting procedures. Sterilisation and maintenance of instruments. Basic instrument tray set up. Infection control.
8. Control of operating filed: light source sterilisation field of operation control of moisture, rubberdam in detail, cotton rolls and anti sialogagues Temporary restorations.
9. Amalgam restoration : indication contraindication, physical and mechanical properties , clinical behaviour. Cavity preparation for class i , ii, v and iii. Step wiseprocedure for cavity preparation and restoration. Failure of amalgam restoration.
10. Pulp protection : liners, varnishes and bases, zinc phosphate, zinc polycarboxylate, zinc oxide eugenol and glass inomer cements.
11. Anterior restorations : selection of cases, selection of material, step wise procedures for using restorations , silicate (theory only) glass inomers, composites, including sand witch restorations and bevels of the same with a note on status of the dentine bonding agents.
12. Direct filling gold restorations: types of direct filling gold indications and limitations of cohesive gold. Annealing of gold foil cavity preparation and condensation of gold foils.
13. Direct filling gold restorations: types of direct filling gold indications and limitations of cohesive gold. Annealing of gold foil cavity preparation and condensation of gold foils.
14. Preventive measures in restorative practice plaque control : pit and fissure sealants dietary measures restorative procedure and periodontal health. Contact and contour of teeth and restorations matrices tooth separation and wedges.
15. Temporasation or iterim restoration.
16. Pin amalgam restoration indication contra indication:
    A. advantages
    B. Disadvantages of each types of pin._____ x. Failure of pin amalgam restoration.
17. Management of deep carious lesions indirect and direct pulp capping.
18. Non carious destruction’s tooth structures diagnosis and clinical management
19. Hyper sensitive dentine and its management.
20. Recent cavity modification amalgam restoration.
21. Differences between amalgam and inlay cavity preparation with note on all: the types of bewels used for cast restoration

22. Control of pain during operative procedures.
23. Treatment planning for operative dentistry detailed clinical examination radiographic examination 1g0.vitality tests, diagnosis and treatment planning and preparation of case sheet.
24. Endodontics: introduction definition scope and future of endodontics
25. Clinical diagnostic methods
26. Emergency endodontic procedures
27. Pulpal diseases causes, types and treatment .
28. Periapical diseases: acute periapical abscess, acute periodontal abscess phoeix abscess, chronic alveolar abscess granuloma cysts condensing osteits, external resorption.
29. Vital pulp therapy: indirect and direct pulp capping pulpotomy different types and medicaments used.
30. Apexogenisis and apexification or problems of open apex.
31. Rationale of endodontic treatment case selection indication and contraindications for root canal treatments.
32. Principles of root canal treatment mouth preparation root canal instruments, hand instruments, power driven instruments, standardisation color coding principle of using endodontic instruments. Sterilisation of rootcanal instruments and materials

Rubber dam application.

33. Anatomy of the pulp cavity: rootcanals apical foramen. Anomalies of pulp cavities access cavity preparation of anterior and premolar teeth.
34. Preparation of root canal space . Determination of working length, cleaning and shaping ofroot canals, irrigating solution chemical aids to instrumentation.
35. Disinfection of root canal space intracanal medicaments, poly antibiotic paste gross mans paste, mummifying agents. Out line of root canal treatment, bacteriological examinations, culture methods.
36. Problems during cleaning and shaping of root canal spaces. Perforation and its management. Broken instruments and its management, management of single and double curved root canals.
37. Methods of cleaning and shaping like step down, crown down, balanced forse and conventional methods.
38. Obturation of the root canal system. Requirements of an ideal root canal filling material obturation methods using gutta percha healing after endodontic treatment. Failures in endodontics.
39. Root canal sealers. Ideal properties classification. Manipulation of root canal sealers.
40. Post endodontic restoration fabrication and components of post core preparation.
41. Smear layer and its importance in endodontics and conservative treatment.
42. Discoloured teeth and its management. Bleaching agents, vital and non vital bleaching methods.

43. Traumatised teeth classification of fractured teeth. Management of fractured tooth and root. Luxated teeth and its management.
44. Endodontic surgeries indication contraindications, pre operative preparation. Pre medication surgical instruments and techniques apicectomy, retrograde filling, post operative sequaleterphination hemisection, radiscetomy techniques of tooth reimplantation (both intentional and accidental) endodontic implants.
45. Root resorption.
46. Emergency endodontic procedures.
47. Dental material and basic equipment management
48. Cosmotic dentistry.
49. Ethics.
50. Evidance base conservstive dentistry.

Methods of assessment

- **Continuous assessment (c.a) 20%**
- **Mcqs (sba) 20%**
- **Structural short answers (ssa) 20%**
- **Extended matching questions and problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Removable Prosthodontics

Course No. D 365+ D 475+485+594+5101+5102
Code: R. Proth.
Course Title: Removable Prothodontics
Credit hour: 2+2+2+2+2

Objectives:

- These course are provided during years 3, 4 & 5, providing suitable removable substitutes for lost or missing natural teeth and their associated tissues to treat the impaired function, appearance, comfort
- and the health of the patient . This includes the treatment planning for and construction of a range of prosthetic appliances, including complete and partial dentures, immediate dentures and over dentures.

Contents:

Complete Dentures
A. Applied Anatomy and Physiology.
1. Introduction
2. Biomechanics of the edentulous state.
3. Residual ridge resorption.
B. Communicating with the patient
1. Understanding the patients. - Mental attitude.
2. Instructing the patient.
C. Diagnosis and treatment planning for patients-
1. With some teeth remaining.
2. With no teeth remaining.
a. Systemic status.
b. Local factor.
c. The geriatric patient.
d. Diagnostic procedures.
D. Articulators- discussion
E. Improving the patient's denture foundation and ridge relation -an overview.
a. Pre-operative examination.
b. Initial hard tissue & soft tissue procedure.
c. Secondary hard & soft tissue procedure.
d. Implant procedure.
e. Congenital deformities.
f. Postoperative procedure.
F. Principles of Retention, Support and Stability
G. Impressions - detail.
a. Muscles of facial expression.

b. Biologic considerations for maxillary and mandibular impression including anatomy landmark and their interpretation.
c. Impression objectives.
d. Impression materials.
e. Impression techniques.
f. Maxillary and mandibular impression procedures.
i. Preliminary impressions.
ii. Final impressions.
g. Laboratory procedures involved with impression making (Beading & Boxing, and cast preparation).
H. Record bases and occlusion rims- in detail.
a. Materials & techniques.
b. Useful guidelines and ideal parameters.
c. Recording and transferring bases and occlusal rims.
I. Biological consideration in jaw relation & jaw movements – craniomandibular relations.
a. Mandibular movements.
b. Maxillo -mandibular relation including vertical and horizontal jaw relations.
c. Concept of occlusion- discuss in brief.
J. Relating the patient to the articulator.
a. Face bow types & uses– discuss in brief.
b. Face bow transfer procedure - discuss in brief.
K. Recording maxillo mandibular relation.
a. Vertical relations.
b. Centric relation records.
c. Eccentric relation records.
d. Lateral relation records.
L. Tooth selection and arrangement.
a. Anterior teeth.
b. Posterior teeth.
c. Esthetic and functional harmony.
M. Relating inclination of teeth to concept of occlusion- in brief.
a. Neutrocentric concept.
b. Balanced occlusal concept.
N. Trial dentures.
O. Laboratory procedures.
a. Wax contouring.
b. Investing of dentures.
c. Preparing of mold.
d. Preparing & packing acrylic resin.

e. Processing of dentures.
f. Recovery of dentures.
g. Lab remount procedures.
h. Recovering the complete denture from the cast.
i. Finishing and polishingthe complete denture.
j. Plaster cast for clinical denture remount procedure.
P. Denture insertion.
a. Insertion procedures.
b. Clinical errors.
c. Correcting occlussal disharmony.
d. Selective grinding procedures.
R. Treating problems with associated denture use – discuss in brief (tabulation/flow-chart form).
S. Treating abused tissues - discuss in brief.
T. Relining and rebasing of dentures- discuss in brief.
U. Immediate complete dentures construction procedure- discuss in brief.
V. The single complete denture- discuss in brief.
W. Overdentures denture- discuss in brief.
X. Dental implants in complete denture - discuss in brief.
Y. Copy denture.
Z. Maxillo-facial prosthesis and Obturators:
A1. Stents and splints.
A2. Radiation therapy in prosthesis.
Note- It is suggested that the above mentioned topics be dealt with wherever appropriate in the following order so as to cover –
1. Definition
2. Diagnosis (of the particular situation /patient selection /treatment planning)
3. Types / Classification
4. Materials
5. Methodology – Lab /Clinical
6. Advantages & disadvantages
7. Indications, contraindications
8. Maintenance Phase
9. Oral Implantology
10. Ethics.

Removable Partial Dentures

1. Introduction
Terminologies and scope
2. Classification.
3. Examination, Diagnosis & Treatment planning & evaluation of diagnostic data.

4. Components of a removable partial denture.
Major connectors, Minor connectors, Rest and rest seats.
5. Components of a Removable Partial Denture.
Direct retainers, Indirect retainers, Tooth replacement.
6. Principles of Removable Partial Denture Design.
7. Survey and design – in brief. - Surveyors. - Surveying. - Designing.
8. Mouth preparation and master cast.
9. Impression materials and proceduresfor removable partial dentures.
10. Preliminary jaw relation and esthetic try-infor some anterior replacement teeth.
11. Laboratory procedures for framework construction-in brief.
12. Fitting the framework - in brief.
13. Try-in of the partial denture - in brief.
14. Completion of the partial denture - in brief.
15. Inserting the Removable Partial Denture - in brief.
16. Post insertion observations.
17. Temporary Acrylic Partial Dentures.
18. Immediate Removable Partial Denture.
19. Removable Partial Dentures opposing Complete denture

Recommended Books:

1. Syllabus of Complete denture by - Charles M. Heartwell Jr. and Arthur O. Rahn
2. Boucher's "Prosthodontic treatment for edentulous patients"
3. Essentials of complete denture prosthodontics by – Sheldon Winkler.
4. Maxillofacial prosthetics by – Willam R.Laney.
5. McCraken's Removable partial prosthodontics
6. Removable partial prosthdontics by – Ernest L. Miller and Joseph E. Grass.

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Fixed Prosthodontic

Course no. D 368+ d 476+d 486+ d595
Code: f. Proth.
Course title: fixed prothodontics
Credit hour: 2+2+2+2

Objectives:

- To provide experience in the diagnosis, treatment planning and provision of advanced restorations including inlays, onlays, anterior & posterior crowns, post-crowns, adhesive bridges and conventional bridges
- To introduce the fundamental clinical and practical concepts associated with the design, provision and maintenance of fixed bridges and their effect on the periodontium
- To acquire knowledge of instruments and materials used and become competent in basic laboratory techniques as related to fixed prosthodontics

Contents:

Introduction and general principles - diagnosis and general planning - occlusion in relation to fixed prosthodontics - impression materials and techniques - working casts and dies - inlay & onlay techniques - posterior crowns - anterior crowns - post-crowns - articulation of casts - wax patterns - investing and casting - finishing and insertion - bridges - principles of bridge design - types and classification of bridges - clinical procedures for bridges - laboratory procedures for bridge-work - treatment failure - maintenance and care - cast restoration - preparation of class ii inlay cavity - fabrication of wax pattern - sprue for inner attachment investing - investing of wax pattern - finishing and cementing of class ii inlay in extracted tooth.

Methods of assessment

- **Continuous assessment (c.a) 20%**
- **Mcqs (sba) 20%**
- **Structural short answers (ssa) 20%**
- **Extended matching questions and problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Period ontology

Course No. D 363+ D 474+D 484+D 593+D 5101+D 5102
Code: Perio
Course Title: Periodontology
Credit hour: 2+2+2+2+2

Objectives:

- To introduce screening for risk of periodontal diseases
- To teach the common periodontal conditions i.e. gingivitis and periodontitis and other less common conditions
- To learn the application of charting systems for management
- and monitoring of patients at risk of periodontal disease
- To learn about periodontal armamentarium and basic instrumentation techniques for supra- and sub-gingival debridement

Contents:

- Introduction and terminology - Tissues of the periodontium - Aetiology of gingival and periodontal disease - Immunology & bacteriology of gingival and periodontal disease - Classification of gingival and periodontal disease - Diagnosis and measurement of gingival and periodontal disease - Clinical features, aetiology, pathology and treatment of : Chronic marginal gingivitis - Chronic periodontitis – Aggressive periodontitis- Gingival and periodontal abscess - Gingival enlargements
- Acute gingival infections - Juvenile periodontitis - Gingival recession - Occlusal trauma & tooth mobility - Determination of prognosis - rationale for periodontal therapy - Treatment of gingival & periodontal diseases : non- surgical versus surgical therapy – maintenance & care – oral hygiene techniques - evaluation and
- follow-up of cases

1. Introduction: Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
2. Development of periodontal tissues, micro-structural anatomy and biology of periodontal tissues in detail. Gingiva, junctional epithelium, periodontal ligament Cementum and Alveolar bone.
3. Defensive mechanisms in the oral cavity: Role of epithelium, gingival crevicular fluid, saliva and other defensive mechanisms in the oral environment.
4. Age changes in periodontal structures and their significance in Geriatric dentistry - Age changes in teeth and periodontal structures and their association with periodontal diseases
5. Classification of periodontal diseases - Need for classification, scientific basis of classification.
   Classification of gingival and periodontal diseases as described in World Workshop1999 by AAP.

Gingivitis: Plaque associated, ANUG, steroid hormone influenced, Medication influenced, Desquamative gingivitis, other forms of gingivitis as in nutritional deficiency, bacterial and viral infections etc.

Periodontitis: Adult periodontitis, aggressive periodontitis (rapidly progressive periodontitis A&B, Juvenile)

Periodontitis (localized, generalized, and post-juvenile), Prepubertal periodontitis, Refractory periodontitis

6. Gingival diseases -

Localized and generalized gingivitis, papillary, marginal and diffuse gingivitis

Etiology, pathogenesis, clinical signs, symptoms and management of

i) Plaque associated gingivitis

ii) Systemically aggravated gingivitis (sex hormones, drugs and systemic diseases)

iii) ANUG

iv) Desquamative gingivitis-Gingivitis associated with lichen planus, Pemphigoid, Pemphigus, and other Vesiculobullous lesions

v) Allergic gingivitis

vi) Infective gingivitis-Herpetic, bacterial and candidial.

vii) Pericoronitis

viii) Gingival enlargement (classification and differential diagnosis)

7. Epidemiology of periodontal diseases - Definition of index incidence, prevalence, epidemiology, endemic, epidemic, and Pandemic

-Classification of indices (Irreversible and reversible)

-Deficiencies of earlier indices used in Periodontics

-Detailed understanding of Silness &Loe Plaque Index, Loe & Silness Gingival Index, CPITN & CPI.

-Prevalence of periodontal diseases in India and other countries.

-Public health significance (All these topics are covered at length under community dentistry. Hence, the topics may be discussed briefly. However, questions may be asked from the topics for examination

8. Extension of inflammation from gingival - Mechanism of spread o inflammation from gingival area to deeper periodontal structures Factors that modify the spread

9. Pocket - Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket

10. Etiology - Dental Plaque (Biofilm)

-Definition, New concept of biofilm -Types , composition, bacterial colonization, growth, maturation & disclosing agents

-Role of dental plaque in periodontal diseases

-Plaque microorganisms in detail and bacteria associated with periodontal diseases

-Plaque retentive factors

-Materia Alba, Food debris and Calculus

- Calculus -Definition, Types, composition, attachment, theories of formation and role of calculus in periodontal disease.

- Food Impaction –Definition, Types, Etiology, Hirschfelds' classification, Signs, symptoms &sequellae of treatment.

- Trauma from occlusion Definition, Types, histopathological changes, role in periodontal disease.

-Measures of management in brief Habits, significance ,Bruxism &parafunctional habits, tongue thrusting ,lip biting, occupational habits

-Iatrogenic Factors, Conservative Dentistry and Restorations

-Contact point, marginal ridge, surface roughness, overhanging restorations, interface between restoration and teeth

Prosthodontics –Interrelationship, Bridges and other prosthesis, pontics (types), surface contour, relationships of margins to the periodontium, gingival protection theory, muscle action theory & theory of access to oral hygiene.

-Orthodontics-Interrelationship, removable appliances &fixed appliances,

retention of plaque and bacterial changes.

-Systemic diseases -Diabetes, sex hormones, nutrition (Vit.C &proteins)

-AIDS & periodontium, Hemorrhagic diseases, Leukemia, clotting factor disorders, PMN disorders.

11. Risk factors - Definition. Risk factors for periodontal diseases.
12. Host response -Mechanism of initiation and progression of periodontal diseases - Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief

-Stages in gingivitis-Initial, early, established & advanced

-Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple burst hypothesis

1.Periodontitis - Etiology ,histopathology ,clinical signs & symptoms, diagnosis and treatment of chronic periodontitis.

-Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment.

-Furcation involvement, Glickmans' classification, prognosis and management

-Aggressive periodontitis: Localized and generalized.

-Periodontitis associated with systemic diseases

-Refractory periodontitis

14. Diagnosis -

- Routine procedures, methods of probing, types of probes,(According to case history)

-Halitosis: Etiology and treatment. Mention advanced diagnostic aids and their role in brief.

15. Prognosis - Definition, types, purpose and factors to be taken into consideration

16. Treatment plan - Factors to be considered
17. Periodontal therapy -
    - A. General principles of periodontal therapy. Phase I, II, III, IV therapy.
    Definition of periodontal regeneration, repair, new attachment and reattachment.
    - B. Plaque control
    i. Mechanical tooth brushes, interdental cleaning aids, dentifrices
    ii. Chemical; classification and mechanism of action of each & pocket irrigation
18. Pocket eradication procedures
    - Scaling and root planing- Indications, Aims, objectives and Healing following root planing.
    - Hand instruments, sonic, ultrasonic & piezo-electric scalers
    - Curettage &present concepts – Definition, Indications ,Aims & objectives, procedures and healing response.
    - Flap surgery- Definition Types of flaps, Design of flaps, papilla preservation
    - Indications & contraindications - Armamentarium - Surgical procedure & healing response .
19. Osseous Surgery - Osseous defects in periodontal disease -Definition
    And Classification
    -Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts).
    -Healing responses
    -Other regenerative procedures; root conditioning
    -Guided tissue regeneration
20. Mucogingival surgery &periodontal plastic surgeries - Definition
    Mucogingival problems: etiology, classification of gingival recession (P.D.Miller Jr. and Sullivan and Atkins) Indications & objectives
    Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy
    Crown lengthening procedures
    Periodontal microsurgery in brief
    -Splints- Periodontal splints -Purpose & classification -Principles of splinting.
    -Hypersensitivity -Causes, Theories & management
    -Implants: Definition, types, scope &biomaterials used.
    -Periodontal considerations: such as implant-bone interface, implant-gingiva interface, implant failure, peri-implantitis & management.
    -Maintenance phase (SPT): -Aims, objectives, and principles, Importance Procedures and Maintenance of implants
    - Pharmaco-therapy: -Periodontal dressings, Antibiotics & anti-inflammatory drugs -Local drug delivery systems.
    -Periodontal management of medically compromised patients: Topics concerning periodontal management of medically compromised patients

- Inter-disciplinary care: -Pulpo-periodontal involvement -Routes of spread of infection -Simons' classification -Management.

-Systemic effects of periodontal diseases in brief: Cardiovascular diseases, Low birth weight babies etc.

-Infection control protocol: Sterilization and various aseptic procedures

-Ethics

-Laser and Periodontics.

-Smoking & periodontal health.

Demonstrations:

1.History taking and clinical examination of the patients
2.Recording different indices
3.Methods of using various scaling and surgical instruments
4.Polishing the teeth
5.Bacterial smear taking
6.Follow up procedures, post operative care and supervision
7.Surgical procedures- gingivectomy, gingivoplasty, and flap operations
8.Demonstration to patients about different oral hygiene aids

Requirements:

1. Diagnosis, treatment planning, and discussion and total periodontal treatment- 25 cases
2. Dental scaling, oral hygiene instructions- 50 complete cases/ equivalent
3. Assistance in periodontal surgery- 5 cases
4. A work record should be maintained by all the students and should be submitted at the time of examination after due certification from the head of the department. Students should have to complete the work prescribed by the concerned department from time to time and submit a certified record for evaluation.

Prescribed Book:

1. Glickman's Clinical Periodontology - Carranza

Recommended Books:

1. Essentials of Periodontology and periodontics- Torquil MacPhee
2. Contemporary periodontics- Cohen
3. Periodontal therapy- Goldman
4. Orbans' periodontics- Orban
5. Oral Health Survey- W.H.O.
6. Preventive Periodontics- Young and Stiffler
7. Public Health Dentistry- Slack
8. Advanced Periodontal Disease- John Prichard
9. Preventive Dentistry- Forrest
10. Clinical Periodontology- Jan Lindhe
11. Periodontics- Baer & Morris.

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Oral & Maxillofacial Surgery

Course No. D 367+ D 471+D 481+D 591+D 5101+D 5102
Code: OMFS
Course Title: Oral and Maxillofacial Surgery
Credit hour: 2+3+3+3+23+1

Objectives:

The aim of this course is to guide the student to how to do proper clinical examination of the oro-facial region.

- To provide an integrated approach to basic Oral Surgery
- To provide clinical exposure which instructs the students in the management of patients, the basic principles of surgery and the importance of carrying out treatment under aseptic conditions with minimal trauma
- To provide an introduction to the attitude, knowledge and skills required for the provision of Local Anaesthesia, Conscious sedation and General Anaesthesia for dental treatment
- To develop the skill of performing minor oral surgical procedsures
- To give students exposure to advanced clinical activities

encompassed by the speciality of Oral & Maxillofacial Surgery.

Contents:

1- Anaesthetic considerations –
   a) Local
   b) Local with IV sedations
   c) Use of general anaesthetic

2- Access:

- Intra-oral: Mucoperiosteal flaps, principles, commonly used intra oral incisions.
- Bone Removal: Methods of bone removal.
- Use of Burs: Advantages & precautions
- Extra-oral: Skin incisions - principles, various extra-oral incision to expose facial skeleton.
  a. Submandibular & Pre auricular
  b. Incision to expose maxilla & orbit
  c. Bicoronal incision
  d. Control of haemorrhage during surgery Normal Haemostasis Local measures available to control bleeding Hypotensive anaesthesia etc.
  e. Drainage & Debridement Purpose of drainage in surgical wounds - Types of drains used

  Debridement: purpose, soft tissue & bone debridement.

3- Closure of wounds

- Suturing: Principles, suturematerial, classification,body response to various materials etc.

4. Post operative care - Post operative instructions
   - Physiology of cold and heat
   - Control of pain – analgesics
   - Control of infection – antibiotics
   - Control of swelling - anti-inflammatory drugs
   - Long term post operative follow up - significance.
5. Exodontia: General considerations
   - Ideal Extraction.
   - Indications for extraction of teeth
   - Extractions in medically compromised patients.
   - Methods of extraction –
     (a) Forceps or intra-alveolar or closed method.
     Principles, types of movement, force etc.
     (b) Trans-alveolar, surgical or open method Indications, surgical procedure.
   - Dental elevators: uses, classification, principles in the use of elevators, commonly used elevators.
   - Complications of Exodontia –
     - Complications during exodontias
     - Common to both maxilla and mandible.
     - Post-operative complications –
     - Prevention and managementof complications.
6. Impacted teeth: Incidence, definition, aetiology.
   (a) Impacted mandibular third molar.
   Classification, reasons for removal, Assessment - both clinical & radiological
   Surgical procedures for removal.
   Complications during and after removal, Prevention and management.
   (b) Maxillary third molar,
   Indications for removal, classification, Surgical procedure for removal.
   (c) Impacted maxillary canine
   Reasons for canine impaction, Localization, indications for removal,
   Methods of management, labial and palatal approach, Surgical exposure, transplantation, removal etc.
7. Pre-prosthetic Surgery:
   Definition, classification of procedures
   (a) Corrective procedures: Alveoloplasty, Reduction of maxillary tuberosities, Frenoctemies and removal of tori.
   (b) Ridge extension or Sulcus extension procedures Indications and various surgical procedures

(c) Ridge augmentation and reconstruction.

Indications, use of bone grafts,

Hydroxyapatite

Implants - concept of osseo integration

Knowledge of various types of implants and surgical procedure to place implants.

8. Diseases of the maxillary sinus

Surgical anatomy of the sinus.

Sinusitis both acute and chronic

Surgical approach of sinus- Caldwell-Luc procedure

Removal of root from the sinus.

Oro-antral fistula - aetiology, clinical features and various surgical methods for closure.

9. Disorders of T.M. Joint

Applied surgical anatomy of the joint.

Dislocation - Types, aetiology, clinical features and management.

Ankylosis - Definition, aetiology, clinical features and management

Myo-facial pain dysfunction syndrome, aetiology, clinical features, management – Non surgical and surgical.

Internal derangement of the joint.

Arthritis of T.M. Joint.

10. Infections of the Oral cavity

Introduction, factors responsible for infection, course of odontogenic infections, spread of odontogenic infections through various facial spaces.

Dento-alveolar abscess - aetiology, clinical features and management.

Osteomyelitis of the jaws - definition, aetiology, pre-disposing factors, classification, clinical features and management.

Ludwigs angina - definition, aetiology, clinical features, management and complications.

11. Benign cystic lesions of the jaws - Definition, classification, pathogenesis.

Diagnosis - Clinical features, radiological, aspiration biopsy, use of contrast media and histopathology.

Management - Types of surgical procedures, Rationale of the techniques, indications, procedures, complications etc.

12. Tumours of the Oral cavity - General considerations Non odontogenetic benign tumours occuring in oral cavity - fibroma, papilloma, lipoma, ossifying fibroma, myloma etc.

Ameloblastoma - Clinical features, radiological appearance and methods of management.

Carcinoma of the oral cavity – Biopsy – types

TNM classification.

Outline of management of squamous Cell carcinoma: surgery, radiation and chemotherapy Role of dental surgeons in the prevention and early detection of oral cancer.

13. Fractures of the jaws - General considerations, types of fractures, aetiology, clinical features and generalprinciples of management. mandibular fractures – Applied anatomy, classification.
    Diagnosis - Clinical and radiological
    Management - Reduction closed and open Fixation and immobilisation methods
    Outline of rigid and semi-rigid internal fixation.
    Fractures of the condyle - aetiology, classification, clinical features, principles of management.
    Fractures of the middle third of the face.
    Definition of the mid face, applied surgical anatomy, classification, clinical features and outline of management.
    Alveolar fractures - methods of management
    Fractures of the Zygomatic complex
    Complications of fractures - delayed union, non-union and malunion.
14. Salivary gland diseases - Diagnosis ofsalivary gland diseases' Sialography, contrast media, procedure. Infections of the salivary glands
    Sialolithiasis - Submandibular duct and gland and parotid duct.
    Clinical features, management.
    Salivary fistulae
    Common tumours of salivary glands like Pleomorphic adenoma including minor salivary glands.
15. Jaw deformities - Basic forms - Prognathism, Retrognathism and open bite.
    Reasons for correction.
    Outline of surgical methods carried out on mandible and maxilla.
16. Neurological disorders - Trigeminal neuralgia - definition, aetiology, clinical features and methods of management including surgical.
    Facial paralysis - Aetiology, clinical features.
    Nerve injuries - Classification, neurorhaphy etc.
17. Cleft Lip and Palate - Aetiology of the clefts, incidence, classification, role of dental surgeon in the management of cleft patients.
    Outline of the closure procedures.
18. Medical Emergencies in dental practice – Primary care of medical emergencies in dental practice particularly –
    (a) Cardio vascular (b) Respiratory (c) Endocrine
    (d) Anaphylactic reaction (e) Epilepsy
19. Emergency drugs & Intra muscular I.V. Injections – Applied anatomy, Ideal location for giving these injections, techniques etc.

20. Oral Implantology

General Anaesthesia – Concept of general anaesthesia.
Indications of general anaesthesia in dentistry.
Pre-anaesthetic evaluation of the patient.
Pre-anaesthetic medication - advantages, drugs used.
Commonly used anaesthetic agents.
Complication during and after G.A.
I.V. sedation with Diazepam and Medozolam.
Cardiopulmonary resuscitation
Indications, mode of action, technique etc.
Use of oxygen and emergency drugs.
Tracheostomy.

Recommended Books:

1. Impacted teeth; Alling John F & etal.
2. Principles of oral and maxillofacial surgery; Vol.1,2 & 3 Peterson LJ & etal.
3. Text book of oral and maxillofacial surgery; Srinivasan B.
4. Handbook of medical emergencies in the dental office, Malamed SF.
5. Killeys Fractures of the mandible; Banks P.
6. Killeys fractures of the middle 3rd of the facial skeleton; Banks P.
7. The maxillary sinus and its dental implications; McGovanda
8. Killey and Kays outline of oral surgery – Part-1; Seward GR & etal
9. Essentials of safe dentistry for the medically compromised patients; Mc Carthy FM
10. Oral & maxillofacial surgery, Vol 2; Laskin DM
11. Extraction of teeth;Howe, GL
12. Minor Oral Surgery; Howe.GL
13. Contemporary oral and maxillofacial surgery; Peterson I.J.& EA
14. Oral and maxillofacial infections; Topazian RG & Goldberg MH

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Oral Medicine

Course No. D 482
Code: CO. Med.
Course Title: Oral Medicine
Credit hour: 2

Objectives:

The goal of this course is to enable the graduate students to acquire the clinical skills required for the diagnosis and management of primary and secondary diseases affecting the Oral and para-oral structures. These includes:

1. To develop an understanding of the range of disorders and diseases that affect the teeth, the supporting tissues of the teeth and the surrounding oro-facial tissues
2. To develop an appreciation that oral disease may be a manifestation of a generalised disease state
3. To develop an understanding of the relevance of systemic disease in the management of patients who require routine dental care
4. The ability to obtain and evaluate the patient's dental and medical history and to perform a complete systemic examination of the oral and para-oral tissues.
5. The ability to recognize and thoroughly describe the deviations from normal and to establish a working diagnosis based on a differential diagnosis.
6. The ability to select and use appropriate investigations and consultations needed to determine the treatment required and to rationalized different treatment considerations i.e. the need for emergency dental care, medications, referral and follow-up.
7. The ability to disseminate the clinical knowledge through cases presentations and encouraging responsiveness to scientific advances & research engagement.

Content:

On successfully completing the course, the students should

- Demonstrate an understanding of the etiology, epidemiology and clinical presentation of the common disorders of oral & Para-oral structures including salivary glands, TMJ and pain disorders.
- Illustrate the diagnostic basis for diseases and conditions in the oral &Para-oral structures.
- Define and describe risk factors, prevention and control of common oral & systemic diseases.
- Identify the Signs and symptoms of systemic diseases including standard treatment emphasizing on diseases causing oral manifestation, or diseases prone to oral infection, diseases enhancing existing oral diseases, and diseases affecting dental team. The students should mention and demonstrate their Oral manifestations and the dental considerations in management of these patients.

- Express the basic knowledge regarding mechanisms of action of antibiotics and antifungal drugs, and their therapeutic uses particularly in dental practice.

Learning issues:

- History taking + examination of the oral cavity, oro-facial region and neck –
- Infections of the oral mucosa and adjacent tissues –
- Recurrent oral ulceration –
- Oral lesions associated with dermatological & venereal conditions –
- Oral manifestations of haematological diseases –
- Oral manifestations of gastrointestinal diseases –
- Nutritional diseases and their manifestation in the oral cavity –
- Functional disorders of the salivary glands –
- Influence of oral diseases on general health –
- Traumatic conditions of oral tissues –
- Psychosomatic aspects of oral diseases –
- Differential diagnoses of orofacial pain –
- White & red lesions of the oral mucosa –
- Premalignant and malignant lesions [integrated with oral pathology] -
- Pigmented lesions of the oral mucosa –
- Vesiculobullous lesions –
- Oral manifestations of hiv infection –
- Halitosis - clinical pharmacology and prescribing in oral medicine –
- Occupational hazards: blood-borne viruses & transmissible diseases.

Competency Statement:

Oral Medicine is the part of dentistry that is involved in the diagnosis and non surgical treatment of primary or secondary disease involving the oral and para-oral structures including Lymph node, salivary gland and TMJ disorders ".Also it is concerned with the oral manifestations of systemic diseases and the oral and dental care of patients with special needs.

The course intended to educate and train students:

1. Who will play a leading role in the promotion of dental health in their community, and is capable of providing high quality primary dental care to patients, with special focus on prevention of dental and oral diseases.

2. Who are competent, ethical, compassionate, lifelong learners, who are self-reflective-always striving to improve themselves and the systems surrounding them, and who attend equally well to all aspects of the oral health care continuum, including disease management, prevention, oral health promotion and maintenance, and palliative care.

Recommended Books:

1- Burket's oral medicine Diagnosis and treatment, 11th edition

2- Essential References differential diagnosis of oral lesions, By Wood and Goaz 5th edition

3-Principles And Practice Of Oral Medicine, Sonis And Others- Saunders, Second Edition (1995)

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Oral & Maxillofacial Radiology

Course No. D 472
Code: OMFR.
Course Title: Oral & Maxilofacial Radiology
Credit hour: 2

Objectives:

By the end of this course the student should be able to

Performe importance, role, use and technics of radiographs and other imaging methods in diagnosis.

Know the principles of the clinical and radiographic aspects of Forensic Odontology

Contents

(1) Scope of the subject and history of origin

(2) Physics of radiation:

(a) Nature and types of radiations

(b) Source of radiations

(c) Production of X-rays

(d) Properties of X-rays

(e) Compton effect

(f) Photoelectric effect

(g) Radiation measuring units

(3) Biological effects of radiation

(4) Radiation safety and protection measures

(5) Principles of image production

(6) Radiographic techniques:

(h) Intra-Oral:

(a) Periapical radiographs (Bisecting and parallel technics)

(b) Bite wing radiographs

(c) Occlusal radiographs

(ii) Extra-oral:

(a) Lateral projections of skull and jaw bones and paranasal sinuses

(b) Cephalograms

(c) Orthopantomograph

(d) Projections of temperomandibular joint and condyle of mandible

(e) Projections for Zygomatic arches

(iii) Specialised techniques:

(a) Sialography

(b) Xeroradiography

(c) Tomography

(7) Factors in production of good radiographs:

(a) K.V.P. and mA.of X-ray machine

(b) Filters
(c) Collimations
(d) Intensifying screens
(e) Grids
(f) X-ray films
(g) Exposure time
(h) Techniques
(i) Dark room
(j) Developer and fixer solutions
(k) Film processing

(8) Radiographic normal anatomical landmarks
(9) Faculty radiographs and artefacts in radiographs
(10) Interpretation of radiographs in various abnormalities of teeth, bones and other orofacial tissues
(11) Principles of radiotherapy oforo-facial malignancies and complications of radiotherapy
(12) Cantrast radiography and basic knowledge of radio-active isotopes
(13) Radiography in Forensic Odontoloy - Radiographic age estimation and post-mortem radiographic methods

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSPE/OSCE/OSCAPE 20%**

Paediatric Dentistisry

Course No. D 362+ D 477+D 487+ D596+ 5101
Code: Paedo.
Course Title: Paedodontics
Credit hour: 2+2+2+2+1

Objectives:

- To provide an academic and clinical training in the dental care of children
- To produce a student who will be able to provide a full range of preventive, restorative and emergency care for healthy children with basic dental needs, for healthy children with more complex dental needs and for those children with complex medical problems (children with special needs).
- By the end of these courses the student should become competent in the formulation of a comprehensive treatment plan for the children that they will be treating in the dental clinic.

Contents:

1. Growth & development in general with emphasis on craniofacial growth and development and chronology of both primary and permanent teeth
2. Child management:
   a. Non- pharmacological:
   Including, Psychological growth in children, behavioral theories, variables influencing children's behavior and the different behavior modification techniques used in pediatric dentistry.
   b. Pharmacological:
   Conscious sedation, definition,techniques, routes of administration with example of common used drugs
3. Dental caries
   Definition, theories, types and feature of caries in children ,causes and prevention
4. Preventive Dentistry:
   - Definition.
   - Principles & Scope.
   - Types of prevention.
   - Home Oral Hygiene for the Child and Adolescent
   - Different preventive measures used in Pediatric Dentistry including pit and fissure sealants, preventive resin restoration and caries vaccine
5. Fluorides:
   - Historical background.
   - Systemic & Topical fluorides.
   - Mechanism of action.
   - Toxicity & Management.
6. Dental health education & school dental health programmes.

7. Local anesthesia in children
8. Rdiology in pediatric dentistry
9. Dental anomalies

   Knowledge of the developmental anomalies of the dentition with regard to the anomalies of number ,anomalies of size , abnormalities of structure , abnormalities size and shape ,abnormality of color and abnormalities of shedding and eruption and their management.
10. Principles of pediatric operative dentistry.

    Morphological differences between the primary & the permanent dentition
    - Modifications required for cavity preparation in primary and young permanent teeth.
    - Various Isolation Techniques.
    - Restorations of decayed primary, young permanent and permanent teeth in children using various restorative materials like Glass Ionomer, Composites & Silver Amalgam. Stainless steel, Polycarbonate & Resin Crowns.
11. Dental materials used in pediatric dentistry.
12. Diagnosis and treatment planning

    The student should be able to describe the value of a case history, including the chief complaint, present illness, past medical and dental history, family history, and personal and social history .review of systems.

    Student should know the influence of the past dental history on the present treatment plan, and the influence of the previous behavior on the present dental treatment
13. Setting up of pedodontic clinic.
14. Pediatric endodontics
    - Principles & Diagnosis.
    - Definition, Classification, Clinical features & Management
    - Classification of Pulpal Pathology in primary, young permanent & permanent teeth.
    - Management of Pulpally involved primary, young permanent & permanent teeth.
        • Pulp capping – direct & indirect.
        • Pulpotomy
        • Pulpectomy
        • Apexogenesis
        • Apexification
    - Obturation Techniques & material used for primary, young permanent & Permanent teeth in children.
15. Traumatic dental injuries in children:
    - Classifications & Importance.

    Assessment &management of primary and permanent dentition trauma
    - Sequelae & reaction of teeth to trauma.

- Management of Traumatized teeth
    * Treatment of fracture to the hard dental tissues
    * Treatment of luxation injuries
    * Avulsion & restorative care or orthodontic considerations

16. Preventive & interceptive orthodontics:
    - Definitions.
    - Problems encountered during primary and mixed dentition phases, the most common pediatric malocclusions & their management.
    - Serial extractions.
    - Space management: the student will learn the classification, advantages and disadvantages of the different space Maintainers .How to plan for the space maintainer and Causes of Space Maintainer Failure
17. Oral habits in children:
    - Definition, Etiology & Classification.
    - Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
    - Management of oral habits in children.
18. Dental care of children with special needs:
    - Definition, Aetiology, Classification, Behavioral and Clinical features & Management of children with:
        • Physically handicapping conditions.
        • Mentally compromising conditions.
        • Medically compromising conditions.
        • Genetic disorders.
19. Pediatric periodontal interface

    Knowledge on the normal and healthy gingiva , color ,form ,density , , depth of gingival crevice ,level of epithelial attachment , mobility of teeth in children in different dentition stages(primary, mixed and permanent dentition)
20. Oral manifestation of systemic diseases

    Viral ,bacterial and fungal infections with common oral manifestation in children
21. Dental emergencies in children & their management.
22. Ethics.

Recommended Books:

1. Pediatric Dentistry (Infancy through Adolescences) - Pinkham.
2. Kennedy's pediatric operative dentistry - Kennedy & Curzon.
3. Pediatric oral & maxillofacial surgery - Kaban.
4. Pediatric Medical Emergencies - P. S. Whatt.
5. Clinical Pedodontics - Finn.
6. Textbook of Pediatric Dentistry - Braham Morris.
7. Handbook of clinical pedodontics - Kenneth. D.

8. Dentistry for the Child and Adolescence - Mc. Donald.
9. Pediatric dentistry - Damle S. G
10. Behaviour management - Wright
11. Pediatric dentistry - Mathewson.
12. Traumatic Injuries - Andreasen.
13. Occlusal guidance in pediatric dentistry – Nakata
14. Pediatric drug therapy - Tomare
15. Contemporary orhtodontics - Profitt.
16. Pathways of pulp – Cohen.
17. Management of Traumatized anterior Teeth - Hargreaves
18. Hand book of pediatric dentistry - Cameron Third Edition

Methods of assessment

- **Continuous Assessment (C.A) 20%**
- **MCQs (SBA) 20%**
- **Structural Short Answers (SSA) 20%**
- **Extended Matching Questions and Problems 20%**
- **OSCE/OSCAPE 20%**

Preclinical Course content: (Which I suggest to start on semester 2 of the 3rd year and continue on the first semester in 4th year)

1. Demonstration on the morphological differences between the primary & the permanent dentition with emphasis on the anatomy of each of the deciduous teeth.

A. Principles of Tooth Preparation and Anatomic Considerations

1. State the main considerations with regard to size and shape of the primary tooth crown when planning caries restorations.
2. State the main considerations with regard to size and shape of the pulp of primary teeth when planning caries restoration.
3. State the main considerations with regard to the size and shape of the contact area of primary teeth when planning caries restoration.

B. Blacks' Classification of Lesions

1. List and describe each of G.V. Black's classification of lesions.
2. Cavity preparation class 1: occlusal of 75,74,54

O,ol 55

C. Class I Cavity Preparation

1. Describe the location and incidence of Class I carious lesions.
2. Describe the principles of the Class I cavity preparation in primary teeth. The discussion should be based on:

2.1 comparison to the Class I cavity preparation for permanent teeth

2.2 the depth and shape of the pulpal wall, the isthmus width, extensions into grooves and fissures, and orientation of the walls

2.3 pulpal consideration

3. Describe the cavity preparations for the mandibular left second primary molar and the maxillary right second primary molar. this description should include:

3.1 pertinent morphologic features of each tooth

3.Class II cavity preparation: o.D of 84,M.o of 85

M.o of 65,O.D of 64

E. Class II Cavity Preparation

1. Describe the location and incidence of Class II carious lesions.
2. Describe the principle of the Class II cavity preparation in primary teeth. The description should include:

2.1 comparison to the Class II cavity preparation for permanent teeth

2.2 The size of the isthmus, the location and orientation of all walls, and the reverse curve

2.3 pulpal considerations

4.Restoration with amalgam of any 2 class II

H. Restoration Placement

1. Describe the indications and technique for adapting and removing the T-band matrix and wedge.

2. Describe the technique used for placement of an amalgam restoration.
3. Describe the indications and contraindications for use of the following restorative materials in restoration of carious lesions.

3.1 posterior glass ionomer/silver restorations

3.2 posterior composite resin restorations

3.3 preventive resin restorations

5.Class III cavity preparation M of 51

F. Class III Cavity Preparation

1. Describe the location and incidence of Class III carious lesions.
2. Describe the principles of the Class III cavity preparations. This description should include:

2.1 consideration given to the size of the teeth

2.2 consideration given to the thickness of enamel

2.3 consideration given to the size of the pulp

2.4 access when there is open contact

2.5 access when the teeth are in contact

2.6 retention for incipient versus large carious lesions

2.7 use of the dovetail

6.Class IV cavity preparation M of 61

Describe the location and incidence of Class IV carious lesions.

1. Describe the principles of the Class IV cavity preparations. This description should include:

1. consideration given to the size of the teeth
2. consideration given to the thickness of enamel
3. consideration given to the size of the pulp
4. access when there is open contact
5. retention for incipient versus large carious lesions
6. use of the dovetail
7. S.S.C preparation &adaptation in 75

- List the types of crown available.
- List the dimensions considered when selecting a crown.
- Describe the correct location of the margin of a crown and the margin adaptation sought.
- Define contouring of a stainless steel crown and give the reasons for contouring.
- State which pliers are used for this purpose.
- Define crimping and give the reasons for crimping a crown. State which pliers are used for this purpose.
- State which plier is used to produce contact.
- Describe the reason for establishing contact.
- State how a crown is seated and removed.

- Describe the technique used for smoothing, finishing and polishing the surface of a crown.
- Describe the technique used for cementation of a stainless steel crown.

8. Pulpotomy in extracted teeth 85
9. Pulpectomy in extracted teeth 75
10. Space maintenance

A. Mixed Dentition

1. State the sequence of eruption of permanent teeth.
2. Compare the size of primary teeth to their succedaneous, individually and the total sum of each arch.

B. Effect of Premature Loss of Primary Teeth

1. Describe how and why the premature loss of primary teeth can result in malocclusion.

C. Nance's Leeway Space

1. State its average dimension.
2. Describe its significance.

D. Space Management vs. Space Maintenance

1. Describe how and why maintaining space for an individual tooth may not prevent a malocclusion.
2. Describe the effect of a premature loss of a primary tooth on the eruption of its successor.

E. Advantages and Disadvantages of the Different Space Maintainers

1. List advantages and disadvantages of:

1.1 band and loop
1.2 fixed space maintainers
1.3 removable space maintainers

F. Causes of Space Maintainer Failure

1. List defects of fabrication that may cause failure.
2. Describe importance of compliance.

11. Fissure sealant

1. Explain why pits and fissures have a high susceptibility to caries.
2. Explain the purpose of pit and fissure sealants.
3. Describe types of sealant materials and their relative advantages, disadvantages, and properties.
3. Discuss considerations in patient and tooth selection.
4. Describe the mechanism by which the sealant attaches to the tooth.
5. List conditions that can interfere with bonding of the sealant to the tooth surface.
6. List and explain different methods used to maintain a dry field.
7. State the precautions that must be taken with regard to the following:

8. selection of a polishing agent
9. use of the air syringe in drying the teeth
10. rinsing the etched tooth surface
11. Explain and demonstrate the suggested procedure for application
12. of various types of pit and fissure sealants.
13. Evaluate the results of pit and fissure application.
14. Discuss current controversies relevant to sealant placement.
15. Describe common errors in the placement of pit and fissure sealants.

Discuss information that should be relayed to the patient and/or parent regarding sealant placement and subsequent recall appointments.

12.Charting &data collection

. Diagnosis And Treatment Planning

A. Describe the value of a case history.

1. Describe the commonly used outline in taking a medical history. The discussion should be based on:

1.1 chief complaint
1.2 present illness
1.3 past medical and dental history
1.4 family history
1.5 personal and social history
1.6 review of systems

2. Describe the influence of the past dental history on your present treatment plan. Discussion should be based on:

2.1 frequency of visits
2.2 frequency of dental prophylaxis
2.3 past experience during and after anesthesia
2.4 past experience during and after extractions
2.5 dental appliance history
2.6 extent of dental treatment
2.7 behavior
2.8 expectations of the past dental treatment

B. Systematic Soft Tissue Examination

1. State the objective of lip inspection and palpation. Explain the significance of changes in lip color.
2. Describe the technique for examination of the vestibular and labial buccal mucosa. Describe the clinical manifestations and etiology of:

2.1 candidieas
2.2 herpes gingivostomatitis
2.3 aphthous ulcers
2.4 trauma

3. Describe the normal texture, and color of the buccal mucosa. List some variations according to the different races.
4. Describe the objective of labial and lingual frenum examination. Compare the location of the labial frenum and its changes with the eruption of the permanent incisors. Describe the appearance and effect of an abnormal labial frenum.
5. List and describe the sequential steps in examining the palate. Discuss the structures to be included when proceeding to the palate examination. Describe their normal anatomical appearance.
6. Describe possible pathologic changes associated with hard and soft palate examination, such as:

6.1 abscess
6.2 salivary gland tumor
6.3 trauma
6.4 cleft palate

7. Describe the method of examination of the tonsillar area. Describe some abnormal findings that could be present during oropharynx examination.
8. Describe the method of examination of the floor of the mouth. List the structures that occupy the floor of the mouth and the tongue.

10. List anatomical differences between child and adult gingiva.

C. Describe the method of hard tissue examination.

1. Describe the developmental anomalies of the dentition. Discussion should be based on the clinical manifestations of:

1.1 anomalies of number
1.2 anomalies of size
1.3 abnormalities of structure
1.4 abnormalities size and shape
1.5 abnormality of color

2. State the normal eruption process.
3. Describe the normal and healthy gingiva. Discussion should be based on:

3.1 color
3.2 form
3.3 density
3.4 level of epithelial attachment
3.5 depth of gingival crevice
3.6 level of epithelial attachment
3.7 mobility of teeth

D. Value of Occlusal Examination

1. State the criteria for an ideal pediatric frontal face pattern. Describe the proper patient's head position for evaluation of the frontal face.

2. State the criteria for an ideal pediatric facial profile pattern. Describe the proper patient's head position for evaluation of the facial profile.
3. Describe the three distinct types of normal molar relationship.
4. Describe the growth and pattern of occlusion. The discussion should be based on:
4.1 ideal static occlusion pattern
4.2 ideal dental arch pattern
4.3 environmental factors affecting the dental arch status
E. Effect and Treatment of Oral Habits
1. Define the term bruxism.
1.1 state the intraoral findings associated with bruxism
1.2 describe the therapeutic approach to modify the behavior
2. Describe the effect of the sucking habit on the:
2.1 maxillary and mandibular bones
2.2 dental arches
3. State when is the appropriate time to correct this oral habit.
4. Describe the etiology of tongue thrust. State the role of myofunctional therapy in correction of tongue thrust and swallowing habit.
5. Statethe effect of the use of a pacifier after the age of two.
F. Describe the relationship between diagnosis and treatment planning.
1. Describe in detail the significance of the medical diagnosis on the dental treatment plan.
2. Describe the relationship between the diagnosis and the etiology of oral disease.
3. Explain the problem of treatment without diagnosis.
4. List the reasons for having an itemized sequential treatment plan.
5. Describe the variables which must be taken into account when considering the proper treatment sequence.
G. Describe the Importance of a Preventive Treatment Plan
1. State the significance of preventive dental care.
2. State the present fluoride recommendations. Describe the proper fluoride supplementation requirements, based on the assessed fluoride content of drinking water.
3. Describe the age-specific home oral hygiene instructions. The discussion should be based on age categories:
3.1 prenatal counseling
3.2 infants
3.3 toddlers
3.4 preschool
3.5 school age
3.6 adolescents

Orthodontics

Course no. D 362+ d 478+ d 488+ d597
Code: Ortho
Course title: Orthodontics
Credit hour: 1+2+2+2 +2 two credit hour less

Objectives:

Undergraduate program in orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyze and treat common orthodontic
Problems by preventive, interceptive and corrective orthodontic procedures

Objectives:

The objective of orthodontic course is preparing the new dental practitioner to recognize orthodontic problems, distinguish between simple and complex cases and to be able to diagnose, analyze and treat simple orthodontic cases by preventive, interceptive and corrective orthodontic procedures, and discussing treatment planning with patients and other health care provider.

Specific objectives:

1. Mastery of preventive and interceptive orthodontic procedures in the primary and mixed dentitions required to properly manage the developing occlusion in children.
2. Mastery of multi-phased and growth modification orthodontic procedures in the growing patient required to properly manage the developing occlusion and skeletal dysplasia.
3. Mastery of orthodontic procedures in the young permanent dentition required to manage the occlusion in adolescents to include both extraction and non-extraction protocols.
4. Mastery of orthodontic procedures in the adult dentition required to properly manage occlusion considerations in older patients to include orthognatic surgery, prosthetic dentistry, periodontal disease, and temporomandibular dysfunction.
5. Ability to educate and guide patients and parents to accept and practice oral health care with preventive concepts, a foundation of clinical orthodontic practice.
6. Understanding the physical and chemical properties of dental materials used in orthodontic treatment and patient responses to these agents.
7. Knowledge of oral pathology and management procedures applicable to patient care.
8. Capability to diagnose traumatized and carious primary and permanent teeth with ability to maintain the teeth, pulp tissues, and periodontium in a healthy state during orthodontic treatment. (not related to orthodontics)
9. Understanding the growth and development of the stomatognathic system and the ability to provide treatment aimed at allowing optimal development of this system.
10. Familiarity with published literature pertinent to orthodontics and the motivation to remain abreast with and critically evaluate the literature.

11. Commitment to the implementation of community based programs aimed at educating the public on oral health, dental and orthodontic issues.
12. Preparation for managing a contemporary orthodontic practice relative to practice administration, efficient auxiliary utilization, and marketing.
13. Coordination of all objectives such that diagnosis, case analysis, treatment planning, and clinical management of dentofacial occlusion problems that occur in childhood, adolescence and adulthood are grounded in a sound application of scientific knowledge which remains a state-of-the-art level through development of an attitude towards lifelong inquiry and study.

Contents:

1. Introduction, definition, historical background, aims and objectives of orthodontics and need for orthodontics care.
2. Growth and development: in general
   - A. Definition
   - B. Growth spurts and differential growth
   - C. Factors influencing growth and development
   - D. Methods of measuring growth
   - E. Growth theories (genetic, sicher's, scott's, moss's,petrovics, multifactorial)
   - F. Genetic and epigenetic factors in growth
   - G. Cephalocaudal gradient in growth.
3. Morphologic development of craniofacial structures
   - A. Methods of bone growth
   - B. Prenatal growth of craniofacial structures
   - C. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion. (this courses should be teach within the general anatomy)
4. Functional development of dental arches and occlusion
   - A. Factors influencing functional development of dental arches and occlusion.
   - B. Forces of occlusion
   - C. Wolfe's law of transformation of bone
   - D. Trajectories of forces
5. Clinical application of growth and development (this courses should be teach within the general or dental anatomy)
6. Malocclusion - in general
   - A. Concept of normal occlusion
   - B. Definition of malocclusion
   - C. Description of different types of dental, skeletal and functional malocclusion.
7. Classification of malocclusion principle, description, advantages and disadvantages of classification of malocclusion by angle's, simon's, lischer's and ackermann and proffitt's. Remove
8. Normal and abnormal function of stomatognathic system remove

9. Etiology of malocclusion
    A. Definition, importance, classification, local and general etiological factors.
    B. Etiology of following different types of malocclusion:
        1) Midline diastema
        2) Spacing
        3) Crowding
        4) cross-bite: anterior/posterior
        5) Class iii malocclusion
        6) Class ii malocclusion
        7) Deep bite
        8) Open bite
        9) Scissor bite
        10) Diagnosis and diagnostic aids
            A. Definition, importance and classification of diagnostic aids.
            B. Importance of case history and clinical examination in orthodontics .
            C. Study models: - importance and uses - preparation and preservation of study models .
            D. Importance of intraoral x-rays in orthodontics .
            E. Panoramic radiographs:- (principles, advantages, disad vantages) and uses .
            F. Cephalometrics: (its advantages, disadvantages) remove:
                1. Definition
                2. Description and use of cephalostat
                3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
                4. Analysis- steiner's, down's, tweed's, ricket's-e- line
            G. Electromyography and its uses in orthodontics
            H. Wrist x-rays and its importance in orthodontics
11. General principles in orthodontic treatment planning of dental and skeletal malocclusions
12. Anchorage in orthodontics - definition, classification, types and stability of anchorage
13. Biomechanical principles in orthodontic tooth movement
    A. Different types of tooth movements
    B. Tissue response to orthodontic force application
    C. Age factor in orthodontic tooth movement
14. Preventive orthodontics
    A. Definition
    B. Different procedures undertaken in preventive orthodontics and their limitations.
15. Interceptive orthodontics
    A. Definition

B. Different procedures undertaken in interceptive orthodontics

C. Serial extractions: definition, indications, contra-indication, technique, advantages and disadvantages.

D. Role of muscle exercises as an interceptive procedure.

16. Corrective orthodontics

A. Definition, factors to be considered during treatment planning

B. Model analysis: pont's, ashley howe's, bolton, careys, moyer's mixed dentition analysis

C. Methods of gaining space in the arch:- indications, relative merits and demerits of proximal stripping, arch expansion and Extractions

D. Extractions in orthdodontics - indications and selection of teeth for extraction.

17. Orthodontic appliances: general

A. Requisites for orthodontic appliances

B. Classification, indications of removable and functional appliances

C. Methods of force application

D. Materials used in construction of various orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, principles of welding and soldering, fluxes and antifluxes.

E. Preliminary knowledge of acid etching and direct bonding

Removable orthodontic appliances :

1. Components of removable appliances
2. Different types of clasps and their uses
3. Different types of labial bows and their uses
4. Different types of springs and their uses
5. Expansion appliances in orthodontics:
   - I. Principles
   - II. Indications for arch expansion
   - III. Description of expansion appliances and different types of expansion devices and their uses.
   - IV. Rapid maxillary expansion

Fixed orthodontic appliances:

1. Definition, indications & contraindications
2. Component parts and their uses
3. Basic principles of different techniques: edgewise, begg's, straight wire.

Extraoral appliances

1. Headgears
2. Chincup
3. Reverse pull headgears

Myofunctional appliances

1. Definition and principles

2. Muscle exercises and their uses in orthodontics
3. Functional appliances:
    I. Activator, oral screens, frankels function regulator, bionator twin blocks, lip bumper
    II. Inclined planes - upper and lower

18. Orthodontic management of cleft lip and palate
19. Principles of surgical orthodontics brief knowledge of correction of:
    A. Mandibular prognathism and retrognathism
    B. Maxillary prognathism and retrognathism
    C. Anterior open bite and deep bite
    D. Cross bite
20. Principle, differential diagnosis& methods of treatment of:

0.6mm :

1. Midline diastema
2. Cross bite.
3. Open bite
4. Deep bite
5. Spacing
6. Crowding
7. Class ii - division 1, division 2
8. Class iii malocclusion - true and psuedo class iii

21. Retention and relapse definition, need for retention, causes of relapse, methods of Retention, different types of retention devices, duration of retention, theories of retention.
22. Ethics

Clinicals and practicals inorthodontics practical

Training during ii year b.d.s. :

I. Basic wire bending exercises gauge 22 or 0.7mm

1. Straightening of wires (4 nos.)
2. Bending of a equilateral triangle
3. Bending of a rectangle
4. Bending of a square
5. Bending of a circle
6. Bending of u.v.

II. Construction of clasps (both sides upper/lower) gauge 22 or 0.7mm:

1. 3/4 clasp (c-clasp)
2. Full clasp (jackson's crib)
3. Adam's clasp
4. Triangular clasp

III. Construction of springs (on upper both sides) gauge 24 or 0.5mm:

1. Finger spring
2. Single cantelever spring
3. Double cantelever spring (z-spring)
4. T-springs on premolars

IV. Construction of canine retractors gauge 23 or

1. U - loop canine retractor (both sides on upper & lower)
2. Helical canine retractor (both sides on upper & lower)
3. Buccal canine retractor: - self supported buccal canine retractor with a) sleeve - 5mm wire or 24 gauge b) sleeve - 19 gauge needle on any one side. (not requird)
4. Palatal canine retractor on upperboth sides gauge 23 or 0.6mm
5. Labial bow gauge 22 or 0.7mm one on both upper and lower

Clinical training during iii year b.d.s:

No. Exercise

01 making upper alginate impression
02 making lower alginate impression
03 study model preparation
04 model analysis:
A. Pont's analysis
B. Ashley howe's analysis
C. Carey's analysis
D. Bolton's analysis
E. Moyer's mixed dentition analysis

Clinical training duringfinal year b.d.s.

No. Exercise

01 case history taking
02 case discussion
03 discussion on the given topic
04 cephalometric tracings
A. Down's analysis
B. Steiner's analysis
C. Tweed's analysis

Practical training during final year b.d.

Student should be able to design and construct simple removable appliance for correction of different types of malocclusion

1. Adam's clasp on anterior teeth gauge 0.7mm (not required)
2. Modified adam's clasp on upper arch gauge 0.7mm (not required)
3. Modified adam's clasp on upper arch gauge 0.7mm (gauge of labial bow - 0.9mm, apron spring - 0.3mm) (not required)
4. Coffin spring on upper arch gauge 1mm appliance construction in acrylic(not required):

1. Upper & lower hawley's appliance
2. Upper hawley's with anterior bite plane
3. Upper habit breaking appliance
4. Upper hawley's with posterior bite plane with `z' spring
5. Construction of activator(not required)
6. Lower inclined plane/catalan's appliance (not required)
7. Upper expansion plate with expansion screw

Recommended and reference books

1. Contemporary orthodontics william r. Proffit
2. Orthodontics for dental students white and Gardiner
3. Handbook of orthodontics moyers
4. Orthodontics - principles and practice graber
5. Design, construction and use of removable
6. Orthodontic appliances c. Philip adams
7. Clinical orthodontics: vol 1 & 2 salzmann

Methods of assessment

- **Continuous assessment (c.a) 20%**
- **Mcqs (sba) 20%**
- **Structural short answers (ssa) 20%**
- **Extended matching questions and problems 20%**
- **Ospe/osce/oscape 20%**

Examination Regulations

These regulations supplement the General Examination for entry to any examination:

1- The student must satisfy the attendance requirement of at least 75% of the course or training rotation to be examined.
2- Assessment or year work requirements must be satisfied.
3- Students are allowed to sit as external students once at the end of the first or second year.
4- At the discretion of the Faculty Board, a student may be allowed to sit as an external student once at the end of the third year.

Examination Time tables:

5- All examination time-tables shall be approved by Faculty Board on the recommendation of the examinations committee or by the Dean on behalf of Faculty Board.
6- Continuous assessment shall be scheduled at least two weeks before the final examination.
7- Examination time-tables shall be published at least four weeks before the dates of the examination.

The Examiners:

8- For each course there shall be one external examiner & one or more internal examiners.
9- The status of the external examiner should not be less than associate Professor in the basic sciences. In clinical subjects the external examiner shall have no less than seven years experience in the clinical discipline of the examination.
10- All examiners shall be approved by Faculty Board at least two months before the examination or by the Dean on behalf of Faculty Board.

Promotion:

11- Examinations shall be held at the end of each semester.
12- End of semester examinations are considered final for completed courses & counted as part of the continuous assessment for longitudinal courses.
13- To be promoted to the following level (year), all the final examinations of courses of both semesters must be passed.

Supplementary & substitute examinations:

14- All supplementary examinations shall be held at the end of the year at least one month after the second semester of each year.
15- To be eligible for entry to the supplementary examination a student must have passed at least one third of the courses of that year.
16- Substitute examinations will be held once at the end of each year two weeks after the final examinations.

17- A student who absents himself / herself from taking part or all of an examination, without prior notification of acceptable reasons, will be considered as a failure in that examination.

18- Students must pass all supplementary & substitute examinations before promotion to the next year.

Repetition

19- A first year student who fails in 75% or more of the combined semester 1 & II courses will be advised to discontinue.

20- A student who fails in more than two thirds of the courses of a given year repeats that year and sits for all the completed courses of both semesters.

21- A student who repeats the year after having passed one or more courses, will be reassessed in these courses, giving due consideration to his previous results in each course.

22- A student who fails in a supplementary examination repeats the year unless it is otherwise decided by the faculty board for a given course.

23- A student will not be allowed to repeat a year more than once in the four years.

The Final examination for the BDS degree

24- The Final examination for the BDS degree will be held in two parts at the end of semester IX & X of year 5

25- Candidates should satisfy the examiners in the theory & clinical parts of the examination independently.

The scoring & grading systems:

26- Final scores, grades & prizes should be approved by the examiners.

27- The final scores of all courses shall be reported to the registrar's office out of 100 & to the Faculty Board as grades.

28- Distribution of marks between theory & practical should be weighted by each department according to the objectives of the course & approved by the Faculty Board upon the recommendation of the curriculum committee.

29- Continuous assessment should receive 20 to 30% of the total marks for a given course.

30- The grading system is as follows:

Distinction:	80% and more
Very good:	70 - 79%
Good:	60-69%
Pass:	50 - 59%
Fail:	less than 50%