	2. Herpes Simplex Infection
Session 21 (Week 24 &25)	• Infectious Diseases Viral Infections. 3. Varicella-Zoster Virus 4. Epstein-Barr Virus 5. Coxsackievirus Infections
Session 22 (Week 26)	• Hand-Foot-and-Mouth Disease • Acute Lymphonodular Pharyngitis • Other Viral Infections That May Have Oral Manifestations.
Session 23 (Week 27)	**Practical final exam**
Session 26 (Week 28)	**Theoretical and oral Final Exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	By the end of the course, the student be able to: - Communicate effectively with colleagues. - Work in group (team work). - Time management. - Give p.pt presentation. - Implement of dental laboratory instruments and devices. - Write a report about the steps that implemented in the laboratory. - Use the Internet for preparing scientific researches. - Criticize his/her work. - Think critically to solve the problem may be faced during the work.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Pharmacology

1	**Course name**	**Pharmacology**
2	**Course Code**	**MT306**
3	**Course type: /general/specialty/optional**	specialty
4	**Accredited units**	3
5	**Educational hours**	4 hours per week
6	**Pre-requisite requirements**	Non
7	**Program offered the course**	Bachelor in Medical Technology Specializing in Dental Technology
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course will provide how a drug affects a biological system and how the body responds to the drug. The discipline encompasses the sources, chemical properties, biological effects and therapeutic uses of drugs.
Textbooks required for this Course:	• Essential of general pharmacology book.Lippincott's Illustrated Reviews: pharmacology book.Pharmacology and drug administration for imaging technology book. • Basic Pharmacology Understanding Drug Actions and Reactions By Maria A. Hernandez,., Appu Rathinavelu, 1st edition 2006. • Additional Resources: Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor. • A Textbook of Clinical Pharmacology and Therapeutics, 5th By James Ritter, Lionel Lewis, Timothy Mant, Albert Ferro 2008 • Additional Resources: Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	One academic year
Delivery	Lecture-based.Group interaction and discussion. self-directed activities. Active participation.

Course Objectives:	Upon completion of this course, the student will have reliably demonstrated the ability to: • Acquire new knowledge in pharmacology by conducting and promoting innovative research. • Establish the efficacy, safety and effectiveness of medication in humans, to discover new lead compounds and to understand the mechanisms of action of drugs. • Report the clinical applications, side effects of drugs used in medicine. • Translate pharmacological principles into clinical decision making.
Course Assessments	Midterm exam 20 % Activity 10 % Attendance 10 % Final Exam 60 % A 60% is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	B. General pharmacology: • Introduction. • Drug sources. • Routes of drug administration. • Pharmacokinetics.
Session 2 (Week 2)	C. General pharmacology: • Pharmacodynamics. • Drug adverse effects and toxicity. • Drug-drug interactions.
Session 3 (Week3)	D. Autonomic nervous system: • Introduction. • Sympathomimetics. • Sympathetic depressants.
Session 4 (Week4)	B. Autonomic nervous system: • Parasympathomimetics. • Parasympathetics depressants.
Session 5 (Week5)	B. Autonomic nervous system: • Drug acting on autonomic ganglia. • Skeletal muscle relaxants. • Drug acting on the eye.
Session 6 (Week 6	C. Autacoids: • Histamine & serotonine. • Prostaglandins & eicosanoids. • Vasoactive peptides.
Session7 (Week 7)	D. Central nervous system: • Introduction. • Sedative & hypnotics.
Session8 (Week 8)	D. Central nervous system: • Analgesics and antipyretics & NSAID. • Narcotic analgesics. • Anticonvulsants & antiepileptics

Session9 (Week 9)	D. Central nervous system: • Antiparkinsonian drugs. • Antipsychotics and antianxiety & antidepressants. • Local & general Anaesthetic.
Session10 (Week 10)	E. Cardiovascular system: • Antihypertensive & antishock drugs. • Cardiac glycosides and congestive heart failure. • Antiarhythemic drugs. • Drugs used in angina pectoris.
Session 11 (Week 11)	Topics to be covered in the session (week12) F. Blood: 1. Coagulants, anticoagulants, fibrinolytics & antiplatelets. 2. Drugs used in treatment of anemia. 3. Drugs used in treatment of hyperlipidemia.
Session 12(Week 12)	G. Chemotherapy: • Sulphonamides & quinolones. • B-lactum antibiotics (penicilins, cephalosporins).
Session 13 (Week 13)	G. Chemotherapy: • Chloramphenicol & tetracyclines. • Aminoglucosides antibiotics. • Antifungal drugs
Session 14 (Week 14)	**Midterm Exam**
Session 15 (Week 15)	G. Chemotherapy: Antiviral drugs, Antituberculus, Antimalarial drugs & antiprotozal.
Session 16 (Week 16)	H. Endocrie drugs: Antidiabetics drugs and Antithyroid drugs.
Session17 (Week 17)	H. Endocrie drugs: • Drug affecting bone mineral homeostasis (pth, vit.D, calcitonin).
Session 18 (Week 18)	H. Endocrie drugs: • Corticosteroids. • Sex hormones, contraceptives drugs.
Session 19 (Week 19)	I. Respiratory system: • Drugs used in treatment of bronchial asthma.
Session 20 (Week 20)	I. Respiratory system: • Cough therapy. * Gas therapy
Session 21(Week 21)	J. GIT: • Drugs used in treatment of peptic ulcer. • Antiemetic drugs.
Session22(Week22-23)	J. GIT: • Drugs used in treatment of constipation and diarrhea. • Antispasmodics.
Session23(Week23-28)	K. Urinary tract: 1. Diuretics. 2. Urinary tract infection.
Session24(Week29)	Revision and discussion
Session25(Week 30)	**Final exam**

Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	Knowledge of basic clinical skills required to meet the skills objective including interviewing, physical diagnosis, communication and clinical reasoning processes.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Research Methodology

1	**Course name**	Research Methodology
2	**Course Code**	MT301
3	**Course type: /general/specialty/optional**	specialty
4	**Accredited units**	2
5	**Educational hours**	2 hours per week
6	**Pre-requisite requirements**	Non
7	**Program offered the course**	Medical Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course will provide students with a fundamental understanding of the research Methodology and offers "An overview of research methodology including basic concepts employed in quantitative and qualitative research methods. Includes computer applications for research.
Textbooks required for this Course:	• Tuckman, B. W. & Harper, B. E. (2012). Conducting educational research (6th ed.). Lanham, MD: Rowan & Littlefield Publishers (ISBN: 978-1-4422-0964-0). • Cohen, L. Lawrence, M., & Morrison, K. (2005). Research Methods in Education (5th edition). Oxford: Oxford University Press. • Denscombes, M. (2010). The Good Research Guide: For small-scale social research projects. Maiden-Read: Open University Press. • Dornyei, Z. (2007). Research Methods in Applied Linguistics. Oxford: Oxford University Press. • Hoadjli, A.C. (2015). The Washback Effect of an Alternative Testing Model on Teaching and Learning: An exploratory study on EFL secondary classes in Biskra. Unpublished Doctoral Thesis, University of Mohamed Kheider, Biskra. • Kothari, C. R. (1980). Research Methodology: Research and techniques, New Delhi: New Age International Publishers.

	• Kumar, R. (2011). Research Methodology: a step-by-step guide for beginners (3rd edition).London, UK: TJ International Ltd, Padstow, Corwall • Leedy, P. D. (1980). Practical Research: Planning and design. Washington: Mc Millan Publishing Co., Inc. • Singh, Y. K. (2006). Fundamental of Research Methodology and Statistics. New Delhi. New International (P) Limited, Publishers. • Wallinman, N. (2006). Your Research Project: A step-by-step guide for the first-time researcher. London: Sage Publications. • http://www.pitt.edu/~super7/43011-44001/43911.ppt • http://web.tamu-commerce.edu/academics/graduateSchool/ • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor
Course Duration	2 * 28 = 56 teaching hours
Delivery	Lecture-based, Group interaction and discussion, self-directed activities, active participation, Laboratory experiments.....etc.
Course Objectives:	Upon completing this course, each student will be able to: • Understand some basic concepts of research and its methodologies and identify appropriate research topics. • Demonstrate knowledge of research processes (reading, evaluating, and developing). • Perform literature reviews using print and online databases. • Understand the formats for citations of print and electronic materials. • Identify, explain, compare, and prepare the key elements of a research proposal/report. • Compare and contrast quantitative and qualitative research paradigms, and explain the use of each of them. • Describe, compare, and contrast descriptive and inferential statistics, and provide examples of their use in research. • Describe sampling methods, measurement scales and instruments, and appropriate uses of each. • Explain the rationale for research ethics and importance • select and define appropriate research problem and parameters • prepare a project proposal (to undertake a project) • organize and conduct research (advanced project) in a more appropriate manner • Write a research report, thesis and research proposal. • Make Critical Appraisal of the Literature
Course Assessments	Midterm exam 20 % Activity 10 % Attendance 10 % Final Exam 60 % A 60% is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	Introduction to research methodology • Meaning of Research • Definitions of Research • Objectives of Research
Session 2 (Week 2)	Introduction to research methodology • Motivation in Research

	• General Characteristics of Research • Criteria of Good Research
Session 3 (Week 3)	The Research Problem • Scientific Thinking • What is a Research Problem? • Selecting the Problem • Sources of the Problem • Defining a Problem • Statement of a Problem • Delimiting a Problem • Evaluation of a Problem Assignment 1 handed out
Session 4 (Week 4)	•The Review of Literature • Meaning of Review of Literature • Need of Review of Literature • Objectives of Review of Literature • Sources of Literature • The Functions of Literature • How to Conduct the Review of Literature • Some Hints for the Review of Literature • Precautions in Library Use • Reporting the Review of Literature
Session 5 (Week 5)	Practice on how to find a literature • Selecting a topic • Highlighting the electronic websites that help to better search of literature
Session 6 (Week 6)	The Research Hypotheses • Meaning of Hypothesis • Definitions of Hypothesis • Nature of Hypothesis • Functions of Hypothesis • Importance of Hypothesis • Kinds of Hypothesis • Characteristics of a Good Hypothesis • Variables in a Hypothesis • Formulating a Hypothesis • Testing the Hypothesis Assignment 2 handed out
Session 7 (Week 7)	The Research Approach • The Philosophical Background • The Qualitative Approach • The Quantitative Approach • The Mixed-Methods Approach
Session 8 (Week 8)	Criteria for Selecting a Research Approach
Session 9 (Week 9)	The Research Designs • Meaning of research design • Need for research design • features of a good design
Session 10 (Week 10)	Review
Session 11 (Week 11)	Assignment of research paper • selecting paper

	• guidelines of reading research paper
Session 12 (Week 12)	Assignment of research paper • Review before submitting the assignment
Session 13 (Week 13)	Cross-sectional study
Session 14 (Week 14)	Case-control study
Session 15 (Week 15)	Cohort study
Session 16 (Week 16)	**Midterm Exam**
Session 17 (Week 17)	Experimental study
Session 18 (Week 18)	Criteria for Selecting a Research design
Session 19 (Week 19)	Sampling • Meaning and Definition of Sampling • Functions of Population and Sampling • Methods of Sampling • Characteristics of a Good Sample • Size of a Sample
Session 20 (Week 20)	Data Collection Methods • Questionnaires • Interviews • Focus Groups • Observation
Session 21 (Week 21)	Interviewing techniques • Face-to-face interview • Telephone interview • Computer based interview
Session 22 (Week 22)	Data management and analysis • Descriptive statistics • inferential statistics
Session 23 (Week 23)	Writing research proposal
Session 24 (Week 24)	Writing research report
Session 25 (Week 25)	Critical Appraisal of the Literature
Session 26 (Week 26)	Guidelines for submitting graduation project
Session 27 (Week 27)	Review of research methodology
Session 28 (Week 28)	Revision and discussion
Session 29 (Week 29)	**Final Exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	The faculty is committed to ensuring that students have the full range of knowledge and skills required for full participation in all aspects of their lives, including skills enabling them to be life-long learners. To ensure graduates have this preparation, such generic skills as literacy and numeric, computer, interpersonal communications, and critical thinking skills will be embedded in all courses.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Oral Histology

1	**Course name**	**Oral Histology**
2	**Course Code**	DT309
3	**Course type: /general/specialty/optional**	Specialty
4	**Accredited units**	2
5	**Educational hours**	2 hours per week
6	**Pre-requisite requirements**	Biology/Histology
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course will provide students with a fundamental understanding of the nature of oral histology in a complete simplified way. Oral histology course provide dental students with a better understanding of the cellular components of the oral hard and soft tissues, supplying a scientific basis upon which clinical decisions for dental treatment can be made
Textbooks required for this Course:	• Essentials of oral biology, first edition, maji jose. india, 2010. • Essentials of Oral Histology and EmbryologyA Clinical Approach by Daniel Chiego 5th Edition - January 7, 2018 • Fundamentals of Oral Histology and Physiology by Arthur R. Hand, Marion E. Frank 2015 • Textbook of Dental and Oral Histology with Embryology and Multiple Choice Questions by Satish Chandra, Shaleen Chandra, Girish Chandra, Mithilesh Chandra, Nidhee Chandra 2010, DOI: 10.5005/jp/books/10905 • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	2 * 28 = 56 teaching hours
Delivery	Lecture-based, Group interaction and discussion, self-directed activities, active participation, Laboratory experiments and apply lecture material during the laboratory session while completing the assignment using the virtual microscope, Histology Atlas located on your external hard drive, and lecture slides
Course Objectives:	Upon completion of this course, the students should have the ability to: • Understand the e functional and microscopic organization of normal human tissue and the development of the face and oral cavity • Identify the Cell Structure and Basic Tissues, Histology of Organ Systems and Histology of the Face and Oral Cavity • Recognize the four basic body tissues of the oral cavity, teeth and supporting tissues.

	• Identify representations, terms, conditions that used in oral histology • Recognize the structural similarities and differences between the cells/tissues/organs studied in the course. • Explain a foundation for the study of physiological function, pharmacological effects and pathological alterations of the human body. • Implement a e histological structure of the human body and understand how this relates to function and the relationship to gross anatomy.
Course Assessments	Midterm exam 20% activities: 10% Attendances 10% Final Exam: 60% A 60% is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	General embryology Development of orofacial structures • Formation of face
Session 2 (Week 2)	• Histology Course Orientation Cell Structures and Functions • basic Types of the body tissues
Session 3 (Week 3)	Epithelium tissue Types of Epithelium tissue Characteristics of epithelial tissues Function of epithelial tissues
Session 4 (Week 4)	Connective Tissue Types of Connective tissue Characteristics of Connective tissues Function of Connective tissues
Session 5 (Week 5)	Nerve Tissue Types of Nerve tissue Characteristics of Nerve tissues Function of Nerve tissues
Session 6 (Week 6)	Muscle Tissue Types of Muscle tissue Characteristics Muscle tissues Function of Muscle tissues
Session 7 (Week 7)	Development of tooth Dental lamina Stages of development of tooth Morphological stages • Physiological stages
Session 8 (Week 8)	introductin • Enamel and amelogenesis • Characteristic features of enamel
Session 9 (Week 9)	Topics to be covered in the session (week) • Physical properties of enamel • Chemical composition of enamel Structure of enamel
Session 10 (Week 10)	**PBL assessment (project based learning)**
Session 11 (Week 11)	**Midterm exam**
Session 12 (Week 12)	• dentin and dentinogenesis

	• Characteristic features of dentin
Session 13 (Week 13)	Topics to be covered in the session (week) • Physical properties of dentin • Chemical composition of dentin Microscopic Structure of dentin
Session 14 (Week 14)	• pulp Morphological characteristic of pulp Coronal pulp Radicular pulp Apical foramen
Session 14 (Week 14)	Zones of pulp Structure of pulp Functions of pulp Age changes
Session 15 (Week 15)	**Midterm practical exam**
Session 16 (Week 16)	• cementum and cementogenesis • Physical properties • Chemical composition Types of cementum
Session 17 (Week 17)	Structure of cementum Primary acellular cementum Secondary cellular cementum Differences between acellular and cellular Functions of pulp cementum
Session 18 (Week 18)	• periodontal ligament Components of periodontal ligament development microscopic structure of periodontal ligament
Session 19 (Week 19)	Structure of periodontal ligament Cellular components Extracellular component • Functions of periodontal ligament
Session 20 (Week 20)	• alveolar bone Structure of alveolar bone Parts of the alveolar bone, Development
Session 21 (Week 21)	Chemical composition Bone histology , Cells of bone, Bone remodeling
Session 22 (Week 22)	Oral mucosa Function of oral mucosa Classification of oral mucosa Structure of oral mucosa
Session 23 (Week 23)	Salivary glands Classification of salivary glands Gross morphology, Microscopic structure
Session 24 (Week 24)	temporomandibular joint anatomy and histology of TMJ ligaments of TMJ, movements of TMJ
Session 25 (Week 25)	Maxillary sinus Anatomy of maxillary sinus Microscopic features of maxillary sinus
Session 26 (Week 26)	histopathological techniques

	steps of histopathology Tissue processing, Microtomy,Types of microtomes
Session 27 (Week 27)	Revision and discussion
Session 28 (Week 28)	**Practical Final Exam**
Session 29(Week 29-32)	**Theoretical and oral final exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	The faculty is committed to ensuring that students have the full range of knowledge and skills required for full participation in all aspects of their lives, including skills enabling them to be life-long learners. To ensure graduates have this preparation, such generic skills as literacy and numeric, computer, interpersonal communications, and critical thinking skills will be embedded in all courses.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

ج . المقررات الدراسية للسنة الرابعة قسم تقنية الاسنان

Removable Prosthodontic II

1	**Course name**	**Removable prosthodontic II**
2	**Course Code**	DT401
3	**Course type: /general/specialty/optional**	specialty
4	**Accredited units**	4
5	**Educational hours**	4 hours per week
6	**Pre-requisite requirements**	Removable Prosthodontic I
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course is designed to the undergraduate students at the 4th year, and this course will provide the students with the necessary theoretical background that includes explanations all the typesof removable partial denture , indication , contraindication, the laboratory steps of fabricating .....etc
Textbooks required for this Course:	• Phillips' Science of Dental Materials by hiayi Shen, H. Ralph Rawls, Josephine Esquivel-Upshaw13th Edition - May 13, 2021 • McCracken's Removable Partial Prosthodontics by Alan Carr, David Brown 13th Edition - November 3, 2015 • http://www-personal.umich.edu/~sbayne/dental-materials/RPD- - Acrylic-HO.pdf- • (http://www.fotosearch.com/photos images/dentures.html). • http://www-personal.umich.edu/~sbayne/dental-materials/RPD- - Acrylic-HO.pdf- • http://www.fotosearch.com/photos-images/dentures.html. • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	4 * 28 = 112 teaching hours
Delivery	Lecture- practice lectures – educational videos –training – collect information from libraries and internet - based, Group interaction and discussion, self-directed activities, active participation, Laboratory experiments.....etc.
Course Objectives:	Upon completion of this course students should have the ability to: • Understand the various processing steps used during fabrication of partial denture. • Identify various materials used in fabrication. • Recognize the theoretical background of different partial dentures.

	• Identify the different steps of constructing different partial prosthesis. • Construct interim denture and flexible denture. • Implement a dental laboratory instruments and devices professionally.
Course Assessments	Assignment 1: PBL (Report, p.pt presentation, Model) 15% Midterm: Theoretical Midterm 10%, practical midterm 10 %, Daily Assessments: Homework and Quizzes 5 % Final Exam: Theoretical 30%, Practical 30% A 60 % is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	- Introduction of removable partial denture (RPD)
Session 2 (Week 2)	- RPD component of Chromium cobalt
Session 3 (Week 3)	- Major connector.
Session 4 (Week 4)	-maxillary major connector.
Session 5 (Week 5)	-Mandibular major connector-
Session 6(Week 6)	- types of minor connector
Session 7 (Week 7)	-fabrication of minor connector
Session 8(Week 8)	- Rest
Session 9 (Week 9)	-Types of Rest
Session 10 (Week 10)	-Rest seat
Session 11 (Week 11)	**Midterm Exam**
Session 12 (Week 12)	-Types of rest seat
Session 13 (Week 13)	-Direct retainer for class I , II -Direct retainer for class III , IV
Session 14 (Week 14)	-indirect retainer
Session 15 (Week 15)	-types of indirect retainer
Session 16 (Week 16)	- dental surveyor
Session 17 (Week 17)	- Types of dental surveyor
Session 18 (Week 18)	**Midterm practical exam**
Session 19 (Week 19)	- uses of dental surveyor
Session 20 (Week 20)	- objectives of dental surveyor
Session 21 (week 21)	- tooth selection
Session 22 (week 22)	- types of Denture base
Session 23 (week 23)	- RPD component of acrylic resin
Session 24 (week 24)	- RPD acrylic resin fabrication
Session 25 (week 25)	- Interim partial denture

Session 26 (week 26)	- Flexible denture
Session 27 (week 27)	- repair of partial denture.
Session 28 (week 28)	Revision and discussion
Session29(Week29-32)	**Final Exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	The faculty is committed to ensuring that students have the full range of knowledge and skills required for full participation in all aspects of their lives, including skills enabling them to be life-long learners. To ensure graduates have this preparation, such generic skills as literacy and numeric, computer, interpersonal communications, and critical thinking skills will be embedded in all courses.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Fixed Prosthodontics II (Crowns and Bridges)

1	**Course name**	**Fixed Prosthodontics II (Crowns and Bridges II)**
2	**Course Code**	**DT402**
3	**Course type: general/specialty/optional**	Specialty
4	**Accredited units**	4 units
5	**Educational hours**	6 hours per week
6	**Pre-requisite requirements**	Fixed Prosthodontics I (Crowns and Bridges I)
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course is designed to the undergraduate students at the 4th year, and this course will provide the students with the necessary theoretical background that includes explanations the laboratory steps of fabricating metal restoration, metal ceramic system, all ceramic restoration, CAD/CAM, and dental implants.
Textbooks required for this Course:	• Fundamentals' of fixed prosthodontics. Herbert T. Shillingburg , et.al. 4th edition

	• Contemporary Fixed Prosthodontics. Stephen F. Rosenstiel, et al. 5th edition • Fundamentals' of fixed prosthodontics. 3rd edition Herbert T. Shillingburg , 2022 • Fundamentals of Fixed Prosthodontics Fourth Edition by Herbert T. Shillingburg, Jr,DDS • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	6 * 28 = 168 teaching hours
Delivery	Presentation's Lectures, small discussion Groups, seminars, project based learning (PBL), videos, practical (laboratory).
Course Objectives:	Upon completion of this course student should have the ability to: • Understand the various processing steps used during fabrication of fixed prosthesis such as spruing, Investing and casting. • Identify the various materials used in different laboratory steps • Perform the casting, finishing, and polishing. • Recognize the theoretical background of pontic design and the different types of pontics and indications • Identify the different steps of constructing different fixed prosthesis. • Recognize different types and classification of sprue formers and the ideal area for attaching in the wax pattern. • Construct a metal ceramic restoration. • Write a report about the steps that implemented in the laboratory. • Develop students' time management skills. • Implement a dental laboratory instruments and devices professionally.
Course Assessments	**Assignment 1**: PBL (Report, p.pt presentation, Model) 15% **Midterm:** Theoretical Midterm 10%, practical midterm 10 %, **Daily Assessments**: Homework and Quizzes 5 % **Final Exam**: Theoretical 30%, Practical 30% A 60 % is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	• The Spruing • Sprue • Purpose of spruing. • Different types of sprue former • According to material made of • According to thickness. • According to the Number & Shape of Sprue Former. • Spruing techniques.
Session 2 (Week 2)	The spruing II • Sprue diameter. • Sprue former length.

	• Sprue former direction. • Reservoir. • Purpose of reservoir. • Crucible former. • Types of crucible former • Casting ring and liners. • Considerations in selection of casting rings. • Purpose of ring liner
Session 3 (Week 3)	• Investing. • Requirements of Ideal investment materials. • Steps before investing procedure: • Classification of dental investment materials - Gypsum bonded investing material. - Phosphate bonded investing material. - Silica bonded investing material. • Composition of investment materials.
Session 4 (Week 4)	• The investing II • Shrinkage Compensation Systems for Solidified Gold. • Mechanisms of expansion - Setting Expansion. - Hygroscopic Expansion. - Semi-hygroscopic Expansion. - Thermal Expansion. • Investing techniques. - Single technique. • Brush technique. • Vacuum technique. - Double technique.
Session 5 (Week 5)	• Wax elimination (burnout) • Purpose of Burnout. • Types of burnout. - Controlled burnout. - Non-controlled burnout. • Calibrating the Burnout Furnace's Temperature Indicator. • process of Burnout: • Technique of Controlled Burnout. a. High Heat Technique. b. Low Heat Technique Factors Influencing Burnout Time and Temperature. 1- Temperature Rise Time. 2- Number and Size of the Mold. 3- Preheated Oven
Session 6 (Week 6)	• Casting Process.

	• Definition of casting. • Casting Equipment. 1. Heat source. a. Blowpipe Flame (Blow Torch). • Zones of Blowpipe Flame (Torch Flame). - Mixing zone. - Combustion zone. - Reducing zone. - Oxidizing zone.
Session 7 (Week 7)	•Casting Procedures b. Electric source. 2. Casting Heating Force • Casting Process. 1- Balance the Machine. 2- Prepare the Crucible. 3- Determine the Amount of Alloy Needed. 4- Select the Metal Needed. 5- Wind the Casting Machine. 6- Adjust the Torch Flame. 7- Preheat the Crucible. 8- Melt the Gold and Apply Flux. 9- Position the Ring in the Casting Machine.
Session 8 (Week 8)	• Casting Recovery A- Recovery of the Casting. B- Cleaning of the Casting. C- Pickling. • Pickling Process. • An alternative method of pickling
Session 9 (Week 9)	**PBL Assessment (Project Based Learning)**
Session 10 (Week 10)	**Midterm Exam**
Session 11 (Week 11)	• Casting Finishing & polishing c- Casting Finishing and Polishing: I. The finishing 1. Inspecting the Casting for Defects. • The major kinds of defects. 2. Removing the Sprue. 3. Test-Fitting the Casting on the Die. 4. Rough-Finishing the Casting's Surface. 5. Adjusting Proximal Contacts. 6. Adjusting the Occlusion. II. Polishing the Casting. a. Preliminary Polish. b. Final Polish.

Session 12 (Week 12)	• Metal-Ceramic Restoration. • Physical Characteristics of the Metal-Ceramic System. 1- Strength of the Bond. a. A chemical bond. b. A compression bond. c. A mechanical bond. 2- Strength of the Substructure. 3. Coefficients of Thermal Expansion. 4. Melting Range of Ceramic Alloys. 5. Thickness of the Veneer.
Session 13 (Week 13)	• Metal Substructure Treatment. • Procedures of metal surface treatment. 1. Surface grinding. - Purposes of surface grinding 2. Ultrasonic cleaning with distilled water or steam cleaning. 3. Heating under vacuum at 1040° C for 2 minutes. 4. Deoxidizing with acids or air abrading with aluminum oxide. 5. Heating at atmospheric pressure at 1040° C for 2 minutes. • Metal Conditioning Agents. 1. Gold Metal Conditioners. 2. Metal Ceramic Conditioners. • Steps of metal conditioners application.
Session 14 (Week 14)	• Porcelain Application & Firing. • Opaque Porcelain. • The major functions of opaque porcelain. • Opaque Effects. White, Gray, Lilac Gray, Pink and Brown. • Applying Opaque Layer. • Applying, Drying and Firing.
Session 15 (Week 15)	**Midterm practical exam**
Session 16 (Week 16)	Porcelain condensation and shrinkage. • Porcelain Condensation. • Porcelain shrinkage. • Methods of Condensing Porcelain ○ Apply vibration by serrating or tapping with an instrument.. ○ Perform capillary action ○ Perform pressure packing by smoothing with a spatula or pressing with a clean tissue. ○ Continue by whipping.
Session 17 (Week 17)	• All ceramic restoration. • Advantages of all-ceramic restorations. • Disadvantages of all-ceramic restorations. • Types of Dental Ceramics.

	• Tooth Preparation Requirements • In-Ceram Alumina
Session18(Week18&19)	Preparation Steps for all ceramic restoration. **1-** Complete a master cast with removable dies. **2-** Die preparation. **3-** Duplication. **4-** Special plaster model. **5-** Mixing slip material. **6-** Slip application. **7-** Sintering and finishing. **8-** Glass infiltration. **9-** Porcelain application.
Session 19 (Week 20 &21)	• CAD/CAM Restorations. • Definitions and CAD CAM Process 1.The scanning device (optical impression). 2. The computer software (CAD). 3. The Manufacturing devices (CAM) a. Subtractive Manufacturing b. Additive manufacturing. • Fabrication Procedure. • Materials used to form the ceramic block • Advantage of CAD–CAM systems. • Disadvantage of CAD–CAM systems.
Session 20 (Week 22 & 23)	• Pontic and edentulous ridge. • Ideal requirements of a pontic and Pontic design. • Factors affecting the design of a pontic. -Space available for the placement of the pontic. -The contour of residual alveolar ridge. -Amount of occlusal load that is anticipated for that patient. • General design consideration for a pontic. -Saddle pontic, Ridge lap pontic and Hygienic or sanitary pontic. • Length of the edentulous span and occluso-gingival height of the pontic
Session21(Week24&25)	• Aesthetic consideration for fixed restorations. • Definitions. • General principles of aesthetics. • Factors of aesthetic dentofacial composition. • Surgical and non-surgical methods to improve aesthetics. • Types of aesthetic restorative material. • Aesthetic fixed restorations.
Session22(Week26-28)	• Dental Implants • Indications and contra-indications of dental implants. • General principles of implant planning.

	• Clinical considerations Misch Bone Quality Classification and Bone Density Bone height, Bone width, Bone length and Bone angulation. • Planning dental implants in different clinical situations. - Available implant supported prosthetic solutions. - Number of implants required. • Special consideration in restoring teeth in esthetic zone
Session 23 (Week 29)	**Practical final exam**
Session 24(Week30-32)	**Theoretical and oral Final Exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	By the end of the course, the student be able to: - Communicate effectively with colleagues. - Work in group (team work). - Time management. - Give p.pt presentation. - Criticize his/her work. - Think critically to solve the problem may be faced during the work. - Implement of dental laboratory instruments and devices. - Use the Internet for preparing scientific researches. - Write a report about the steps that implemented in the laboratory.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Removable Orthodontics Appliances

1	**Course name**	**Removable Orthodontics Appliances**
2	**Course Code**	DT403
3	**Course type: /general/specialty/optional**	Specialty
4	**Accredited units**	4 units
5	**Educational hours**	6 hours per week
6	**Pre-requisite requirements**	Non
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course is designed to the undergraduate students at the 4th year, and this course will provide the students with the necessary theoretical background that includes explanations the laboratory steps of fabricating Adam's clasp, Labial Bow, Active components of Removable Appliances and Functional appliances.
Textbooks required for this Course:	• Orthodontic Removable Appliances, Sandhya Shyam Lohakare. • An Atlas of Removable Orthodontic Appliances Second edition, Gordon c. Dickson • https://rlmc.edu.pk/themes/images/gallery/library/books/dental/[K. G. Isaacson FDS MOrth RCS(Eng), R. T. Reed B(BookFi).pdf • Removable orthodontic appliances 2 reviews by K. G. Isaacson, J. D. Muir, R. T. Reed, W. J. B. Houston 2022 • Removable Orthodontic Appliances Paperback – January 12, 2018 by Anand Lukose , Saurabh Sonar (Author), Puneet Batra • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	6 * 28 = 168 teaching hours
Delivery	Presentation's Lectures, small discussion Groups, seminars, project-based learning (PBL), videos, practical (laboratory).
Course Objectives:	Upon completion of this course, the student should have the ability to: • Understand the various processing steps used during fabrication of Removable Orthodontic Appliances. • Identify the various materials used in different laboratory steps. • Recognize the theoretical background of Mechanical Appliances. and Functional Appliances.

	• Identify the different steps of constructing different Removable Orthodontic Appliances. • Write a report about the steps that implemented in the laboratory. • Develop students' time management skills. • Implement a dental laboratory instruments and devices professionally.
Course Assessments	**Assignment 1**: PBL (Report, p.pt presentation, Model) 15% **Midterm:** Theoretical Midterm 10%, practical midterm 10 %, **Daily Assessments**: Homework and Quizzes 5 % **Final Exam**: Theoretical 40%, Practical 20% A 60 % is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	• History and Review of Literature •Introduction of removable orthodontics appliances • The Materials •The Tools • Wire Bending
Session 2 (Week 2)	•Classification of Orthodontic Appliances. •Biomechanics.
Session 3 (Week 3)	• Classification of malocclusion Normal occlusion, Class I occlusion, Class II occlusion and Class III occlusion. • Curve of Spee and Wilson Curve.
Session 4 (Week 4 & 5)	• Retentive components of Removable Appliances • Adam's Clasp •Modifications of Adam's clasp:- C' clasp, Ball Clasp Jackson's clasp, Lingual Extension Clasp, Arrowhead Clasp and Delta clasp
Session 5 (Week 6)	•Labial bow, fabrication of Labial bow
Session 6 (Week 7)	Introduction of Active components of Removable Appliances
Session 7 (Week 8 & 9)	• Orthodontic Springs, Finger spring •Cranked single cantilever spring •Z- spring or Double cantilever spring •' T' spring, Coffin spring
Session 8(Week10&11)	• Orthodontic Springs, Finger spring •Cranked single cantilever spring •Z- spring or Double cantilever spring •' T' spring and Coffin spring
Session 9 (Week 12)	**PBL Assessment (Project Based Learning)**
Session 10(Week 13)	**Midterm Exam**
Session11(Week14-16)	• Canine distalization and Canine retractors - U loop canine retractor, Helical canine retractor - Buccal canine retractor, Palatal canine retraction
Session 12 (Week 17)	• APPLIANCE FOR ROTATION CORRECTION. • SCREW APPLIANCE: FOR EXPANSION
Session 13 (Week 18)	• Retention.
Session 14 (Week 19)	• Introduction of Functional appliances

Session 15 (Week 20)	**Midterm practical exam**
Session 16 (Week 21)	• Bionator
Session 17 (Week 22)	• Activator.
Session 18 (Week 23)	• Space Maintainers
Session 19 (Week 24)	• Plate Construction and Finishing.
Session20 (Week 25)	• Functional Occlusion and Occlusion Adjustment
Session 21 (Week 26)	• ELEMENTS OF CEPHALOMETRIC
Session 22 (Week 27)	• Acrylic base plate Mangment
Session 23 (Week 28)	Revision and discussion
Session 24 (Week 29)	**Practical final exam**
Session 25(Week 30-32)	**Theoretical and oral Final Exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	By the end of the course, the student be able to: Communicate effectively with colleagues.Work in group (team work): Time management. Give p.pt presentation, Criticize his/her work. Think critically to solve the problem may be faced during the work.Implement of dental laboratory instruments and devices.Use the Internet for preparing scientific researches. Write a report about the steps that implemented in the laboratory.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Maxillofacial Prosthetics

1	**Course name**	**Maxillofacial Prosthetics**
2	**Course Code**	DT404
3	**Course type: /general/specialty/optional**	Specialty
4	**Accredited units**	4 units
5	**Educational hours**	6 hours per week
6	**Pre-requisite requirements**	Non
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course is designed for the 4th year undergraduate dental students. It will provide the students with the necessary theoretical and practical knowledge in the field of maxillofacial prosthetics rehabilitation for patients with congenital and acquired oral and maxillofacial defects including fabrication of intraoral prostheses and extraoral prostheses such as artificial eye, nose, or ear.
Textbooks required for this Course:	• Maxillofacial Rehabilitation. Prosthetic and surgical management of cancer-related, acquired, and congental defects of head and neck. John Beumer III, et.al. 3rd edition, Quintessence Publishing. • Clinical Maxillofacial Prosthetics by Thomas D. Taylor 1st edition 2000 • Textbook of Materials in Maxillofacial Prosthodontics: In Daily Practice Paperback – May 30, 2020 by Vishwas Kharsan • Clinical Maxillofacial Prosthetics Hardcover – Import, 1 January 2000 by Thomas D. Taylor 2000 • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	6 * 28 = 168 teaching hours
Delivery	Lectures, small discussion Groups, seminars, project-based learning (PBL), videos, practical (laboratory).
Course Objectives:	Upon completion of this course students should be able to: • Understand all types of maxillofacial defects, their etiology, and their prosthetic rehabilitation needs. • Recognize the theoretical background related to maxillofacial prosthetic rehabilitation. • Identify the various materials used in maxillofacial prosthetics. • Identify the different steps of constructing different maxillofacial prostheses. • Fabricate all kind of intraoral maxillofacial prostheses such as obturators and dentures. • Fabricate all kind of extraoral maxillofacial prostheses such as orbital and nasal prostheses. • Identify the various digital technologies used in maxillofacial prosthetics. • Write a report about the fabrication steps that implemented in the laboratory. • Develop students' time management skills. • Implement a dental instruments and devices professionally.
Course Assessments	**Assignment 1**: PBL (Report, p.pt presentation, Model) 15% **Midterm:** Theoretical Midterm 10%, practical midterm 10 % **Daily Assessments**: Homework and Quizzes 5 % **Final Exam**: Theoretical 30%, Practical 30% A 60 % is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	Introduction to maxillofacial prosthetics Definitions and related terms

	Classification of maxillofacial prosthetics Treatment and team tasks
Session 2 (Week 2)	Maxillectomy defects and their prosthetic rehabilitation Maxillectomy and maxillary resection defects Etiology of Maxillectomy Defects Anatomical structure of maxillectomy defects Maxillectomy classification - Aramany's classification - Brown's classification - Okay's classification
Session 3 (Week 3)	Maxillectomy defects and their prosthetic rehabilitation...continued Disabilities associated with maxillectomy defects - Function - Appearance (aesthetic) - Psychological Trauma Rehabilitation of maxillectomy defects - Surgical rehabilitation - Prosthetic rehabilitation
Session 4 (Week 4)	Maxillectomy defects and their prosthetic rehabilitation...continued Prosthetic rehabilitation of maxillectomy defects I- Surgical obturation for maxillectomy 1- Immediate surgical obturation 2- Delayed surgical obturation II- Interim obturation for maxillectomy III- Definitive obturation for maxillectomy
Session 5 (Week 5)	Soft palate defects and their prosthetic rehabilitation Partial and full soft palate defects Etiology of soft palate defects Anatomy and physiology of soft palate defects Disabilities associated with soft palate defects
Session 6 (Week 6)	Soft palate defects and their prosthetic rehabilitation...continued Prosthetic rehabilitation of maxillectomy defects I- Surgical obturation for soft palate defects Immediate surgical obturation Delayed surgical obturation II- Interim obturation for soft palate defects III- Definitive obturation for soft palate defects
Session 7 (Week 7)	Cleft lip and palate defects and their prosthetic rehabilitation Definitions of cleft lip and palate Structure and development of the palate Causes and predisposing factors of clefts Classification of cleft lip and palate Disabilities associated with cleft lip and palate
Session 8 (Week 8)	Cleft lip and palate defects and their prosthetic rehabilitation...continued Management of congenital cleft lip and palate Maxillofacial team Diagnosis and treatment planning

	Infant feeding treatment Surgical treatment Prosthetic treatment
Session 9 (Week 9)	**PBL Assessment (Project Based Learning)**
Session 10 (Week 10)	**Midterm Exam**
Session 11 (Week 11)	Mandibulectomy defects and their prosthetic rehabilitation Congenital mandibular defects Acquired mandibular defects Etiology of mandibular defects Disabilities associated with acquired mandibular defects
Session 12 (Week 12)	Mandibulectomy defects and their prosthetic rehabilitation...continued Rehabilitation of the mandibular defects I- Surgical reconstruction rehabilitation using a bone graft II- Prosthetic Rehabilitation Mandibular reconstruction prosthesis Prosthetic fixation of jaw fractures Method of Immobilization 1- Wiring 2- Arch bar 3- Splints
Session 13 (Week 13)	Glossectomy defects and their prosthetic rehabilitation Partial and full glossectomy defects Etiology of glossectomy defects Anatomy and physiology of glossectomy defects Disabilities associated with glossectomy defects
Session 14 (Week 14)	Glossectomy defects and their prosthetic rehabilitation...continued Rehabilitation of glossectomy defects I- Surgical reconstruction and rehabilitation using soft tissue grafting II- Prosthetic Rehabilitation Palatal augmented prosthesis (PAP)
Session 15 (Week 15)	**Midterm practical exam**
Session16(Week16&17)	Midfacial defects and their prosthetic rehabilitation Anatomy and physiology of midfacial region Etiology of midfacial defects Rehabilitation of midfacial defects I- Surgical reconstruction and rehabilitation using soft tissue and bone grafting II- Prosthetic Rehabilitation - Intraoral prostheses - Extraoral prostheses
Session 17 (Week 18)	Facial defects and their prosthetic rehabilitation Etiology of facial defects Ocular defects Orbital defects Nasal defects Auricular defects
Session18(Week19&20)	Facial defects and their prosthetic rehabilitation...continued

	Rehabilitation of facial defects I- Surgical reconstruction and rehabilitation II- Prosthetic Rehabilitation Ocular prostheses Orbital prostheses Nasal prostheses Auricular prostheses
Session 19 (Week 21)	Craniofacial defects and their prosthetic rehabilitation Etiology of Craniofacial defects Craniofacial implants I- Surgical reconstruction and rehabilitation II- Prosthetic Rehabilitation
Session20(Week22&23)	Implant related maxillofacial prosthetics Implant structure and materials Implant types - Dental implants - Mini implants - Zygomatic implants Implant prosthesis connections Implant treatment planning
Session21(Week24&25)	Radiotherapy appliances in maxillofacial prosthetics Radiotherapy treatment concept Types of radiotherapy appliances Fabrication of radiotherapy appliances
Session22(Week26&27)	Digital technology for maxillofacial prosthetics Digitization Visualization Modeling and designing Additive manufacturing and 3D printing Evaluation
Session 23 (Week 28)	Revision and discussion
Session 24 (Week 29)	**Practical final exam**
Session25(Week30-32)	**Theoretical and oral Final Exam**
Attendance Expectations	Students are expected to attend every session, lecture, and lab. Absences are permitted only if there is unavoidable reason.
Generic Skills	By the end of the course, the student be able to: - Communicate effectively with colleagues. - Work in group (team work). - Time management. - Give p.pt presentation. - Criticize his/her work. - Think critically to solve the problem may be faced during the work. - Implement of dental laboratory instruments and devices. - Use the Internet for preparing scientific researches.

	- Write a report about the steps that implemented in the laboratory.
Course Change	The content of the course is revised on an ongoing basis to ensure its relevance to the changes of new materials or techniques. The educator will update the contents accordingly.

Occlusion Concept

1	**Course name**	**Occlusion Concept**
2	**Course Code**	**DT405**
3	**Course type: /general/specialty/optional**	Specialty
4	**Accredited units**	4 Units
5	**Educational hours**	6 hours per week
6	**Pre-requisite requirements**	Dental Anatomy
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2022

Brief Description:	This course is designed to the undergraduate students at the 4th year, and this course will provide the students with knowledge including an understanding of ideal occlusion form , function and the nature of normal occlusion for permanent dentation. In addition to theories of reconstruction of occlusion, tempromandibular joint(TMJ), types of articulators, mandibular movement.it also deals with problems of malocclusion and their relation with TMJ.
Textbooks required for this Course:	• Dental anatomy and occlusion. The Williams and Wilkins co,1969 • Ash M, Nelson S "Wheeler's Dental anatomy ,physiology and occlusion"8th Edition, Elsevier 2003. • http://www.quintpub.com/display_detail.php3?psku=B1676# • Occlusion in Implant Dentistry: Concepts and Considerations Paperback – March 28, 2013by Ankita Singh • Mohl ND, Zarb GA, Carlsson GE, Rugh JD. (eds) A Textbook of Occlusion. Carol Stream, IL,USA: Quintessence Publishing Company; 1988. p15. • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	6 * 28 = 168 teaching hours

Delivery	Presentation's Lectures, small discussion Groups, seminars, videos, practical (laboratory).
Course Objectives:	Upon completion of this course student should have the ability to: • Understand the ideal occlusion form and function. • Identify the occlusal contact point and all mandibular movements. • Perform the balancing occlusion. • Recognize the ecentric (working and balancing) occlusion • Identify the different steps of constructing occlusal surface and discuss types of contacts relating to the area of the occlusal surface on which their occur. • Recognize different types of mandibular movement and classification of malocclusion. • Construct the perfect occlusal surface for success the restoration. • Write a report about the steps that implemented in the laboratory. • Develop students' time management skills. • Implement a dental laboratory instruments and devices professionally.
Course Assessments	**Assignment 1**: Report, p.pt presentation 15% **Midterm:** Theoretical Midterm 10%, practical midterm 10%, **Daily Assessments**: Homework and Quizzes 5% **Final Exam**: Theoretical 40%, Practical 20% A 60 % is required for a pass in this course.
Content Breakdown	**Topics Coverage.**
Session 1 (Week 1)	• Introduction • Terminology used in occlusion . • Functional –working occlusion. • Nonfunctional-balancing occlusion. • Group function . • Canine guidance. • Incisal guidance
Session 2 (Week 2)	• Occlusion Morphology and Occlusion Concepts. • Centric relation and centric occlusion. • Working side and balancing side. • Eccentric occlusion • Traumatic occlusion
Session 3 (Week 3)	• Anatomy and physiology of masticatory muscle. • Types of masticatory muscle. • Characteristic of masticatory muscle. • Structure of masticatory muscle.
Session 4 (Week 4)	• Action of primary and secondary muscle of mastication. • Function of masticatory muscle. • Neuromascular control of mandibular movement.

Session 5 (Week 5)	• Tempromandibular joint (TMJ). • Anatomy of TMJ. • Components of TMJ. • Relation between TMJ and occlusion. • Signs and symptoms of TMJ disorder.
Session 6 (Week 6)	• Occlusal contact point. - Occlusl contact points with maxillary teeth. - Occlusl contact points with mandibular teeth. • Occlusal relationship of anterior teeth. • Occlusal relationship of posterior teeth.
Session 7 (Week 7)	• Articulator. • Purpose of articulator. • Uses of articulator. • Requirement of articulator • Advantages and limitation.
Session 8 (Week 8)	• classification of articulator. - Based on theory of occlusion. - Based on type of record. - Based on ability to simulate jaw movement. - Based on adjustability. • Components of articulator.
Session 9 (Week 9)	**PBL Assessment (Project Based Learning)**
Session 10 (Week 10)	**Midterm Exam**
Session 11 (Week 11)	• Mandibular movement. - Rotational movement . - Translation movement. - Opening and closing movement. - Protrusive movement. - Lateral movement.
Session 12 (Week 12)	• Envelope of motion. • In sagittal plane and In horizontal plane. • In fontal plane.
Session 13 (Week 13)	• Principle of occlusion curvatures. • Dental arch formation. • Over bite. • Over jet.
Session 14 (Week 14)	• Dental arch segment. • Phases in development of dental arch. • The leeway space.
Session 15 (Week 15)	**Midterm practical exam**
Session 16 (Week 16)	• The curves of dental arch. - Curve of Spee. - Curve of Wilson. - Curve of Monson. • The curvatures of individual teeth.
Session 17 (Week 17 & 18)	• Angulation of individual teeth in relation to various planes. - Definition and Importance. • Frontal view of the angulation of maxillary teeth. • Frontal view of the angulation of mandibular teeth.
Session 18 (Week 19)	• classification of occlusion.

	- Based on mandibular position. - Based on relation of first permanent molar - Based on organization. - Based on pattern.
Session 19 (Week 20)	• Six keys of normal occlusion. • Incorrect crown torque and occlusal findings. • Anterior and posterior occlusion in case of incorrect crown torque.
Session20(Week 1& 22)	• Malocclusion. • Definition. • Intra arch malocclusion. - Abnormal inclination. - Abnormal displacement. - Spacing and crowding.
Session 21 (Week 23)	**Inter arch malocclusion**: Deep bite and Open bite. • Skeletal malocclusion.
Session22(Week 24)	• Classification of malocclusion. • Angel's classification. • Drawbacks of Angle's classification.
Session23(Week 25)	• Balanced occlusion. • Objective of balanced occlusion. • Characteristics requirement of balanced occlusion. • Type of balanced occlusion.
Session24(Week26&27)	• Factor influencing balancing occlusion. • General consideration for balanced occlusion.
Session25(Week 28)	Revision and discussion
Session 26(Week 29)	**Practical final exam**
Session27(Week30-32)	**Theoretical and oral Final Exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	The faculty is committed to ensuring that students have the full range of knowledge and skills required for full participation in all aspects of their lives, including skills enabling them to be life-long learners. To ensure graduates have this preparation, such generic skills as literacy and numeric, computer, interpersonal communications, Implement of dental laboratory instruments and devices and critical thinking skills will be embedded in all courses.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.

Oral Hygiene

1	**Course name**	**Oral Hygiene**
2	**Course Code**	**DT406**
3	**Course type: /general/specialty/optional**	Specialty
4	**Accredited units**	2 units
5	**Educational hours**	2 hours per week
6	**Pre-requisite requirements**	Non
7	**Program offered the course**	Dental Technology Prog.
8	**Instruction Language**	English
9	**Date of course approval**	2010/2011

Brief Description:	This course will provide students with a fundamental understanding of the nature of oral pathology and oral hygiene in a complete simplified way. Oral hygiene course gives examples of oral hygiene and those lesions in the wide range of systemic disorders that have oral manifestations.
Textbooks required for this Course:	• Clinical Practice of the Dental Hygienist 12th Edition by Esther Wilkins • Clinical Textbook of Dental Hygiene and Therapy, 2nd Edition by Suzanne Noble 2012 • Clinical Textbook of Dental Hygiene and Therapy by Robert Ireland 2006 • Community Oral Health Practice for the Dental Hygienist by Christine French Beatty 5th Edition • Additional textbooks, handouts, and web links may be used in this course at the discretion of your instructor.
Course Duration	2 * 28 = 56 teaching hours
Delivery	Lecture-based, Group interaction and discussion, self-directed activities, project based learning (PBL), videos, active participation, Laboratory experiments.
Course Objectives:	Upon completion of this course student should have the ability to: • Practice of keeping one's mouth clean and free of disease and other problems (e.g. bad breath) by regular brushing of the teeth (dental hygiene) and cleaning between the teeth • Understand the stages of disease formation, its nature and causes • Identify the students on the most important diseases the effect the oral tissue • Recognize the types of dental caries. • Identify representations, terms, conditions that used in oral pathology • Recognize different abnormality of the teeth. • Write the stages of plaque formation.

	• Implement a diagnoses about the disease by using special instruments.
Course Assessments	**Assignment 1**: Report, p.pt presentation 15% **Midterm:** Theoretical Midterm 10%, practical midterm 10%, **Daily Assessments**: Homework and Quizzes 5% **Final Exam**: Theoretical 40%, Practical 20% A 60 % is required for a pass in this course.
Content Breakdown	**Topics Coverage**
Session 1 (Week 1)	• Introduction to principle of Oral Hygiene • Emergency procedures • Oral Cavity. •Intraoral landmarks. • Extraoral landmarks.
Session 2 (Week 2)	Pedodontic patient/Family abuse and neglect The Professional Dental Hygienist A. History of the Dental Hygiene Profession B. Objectives for Professional Practice C. Dental Hygiene Process of Care D. Professionalism
Session 3 (Week 3&4)	•Behavior modification • Early childhood caries 1. Prevention a. Relationship to maternal caries b. Fluorides 2. Treatment •Habits 1. Recognition 2. Treatment options •Periodontal diseases 1. Recognition 2. Etiology
Session 4 (Week 5)	Effective Health Communication A. Types of Communication B. Health Communication C. Health Literacy D. Communication across the Life Span E. Social and Economic Aspects of Health Communication F. Cultural Considerations
Session 5 (Week 6&7)	Topics to be covered in the session (week) . Dental Soft Deposits, Biofilm Calculus, and Stains A. Dental Biofilm and Other Soft Deposits B. Acquired Pellicle C. Dental Biofilm D. Supragingival and Subgingival Dental Biofilm E. Composition of Dental Biofilm F. Clinical Aspects of Dental Biofilm G. Significance of Dental Biofilm H. Materia Alba I. Food Debris J. Calculus K. Calculus Composition L. Calculus Formation

	M. Attachment of Calculus N. Significance of Dental Calculus O. Clinical Characteristics P. Prevention of Calculus
Session 6 (Week 8)	the Periodontium A. The Normal Periodontium B. The Gingival Description C. The Gingiva of Young Children
Session 7 (Week 9)	• . Infectious diseases • Bacterial infections • Definition • Mode of infection • Exogenous infection Endogenous infection
Session 8 (Week 10&11)	Periodontal Disease Development A. Periodontal-Systemic Disease Connection B. Risk Assessment C. Etiology of Periodontal Disease D. Risk Factors for Periodontal Diseases E. Pathogenesis of Periodontal Diseases F. Gingival and Periodontal Pockets
Session 9 (Week 12)	**PBL assessment (project based learning)**
Session 10 (Week 13)	**Midterm Exam**
Session 11 (Week 14)	Dental Hygiene Diagnosis A. Assessment Findings B. The Periodontal Diagnosis and Risk Level C. Dental Caries Risk Level D. The Dental Hygiene Diagnosis and Prognosis
Session 12 (Week 15)	The Dental Hygiene Care Plan A. Preparation of a Dental Hygiene Care Plan B. Components of a Written Care Plan C. Sequencing and Prioritizing Patient Care D. Presenting the Dental Hygiene Care Plan E. Informed Consent
Session 13 (Week 16)	Topics to be covered in the session (week) • dental caries • definition of dental caries Theories for dental caries Hypothesis for etiology of dental caries Role of saliva
Session 14 (Week 17)	Reventive Counseling and Behavior Change A. Steps in a Preventive Program B. Patient Counseling C. Patient Motivation and Behavior Change D. Motivational Interviewing E. Exploring Ambivalence F. Eliciting and Recognizing Change Talk

Session 15 (Week 18)	Protocols for Prevention and Control of Dental Caries A. History of Dental Caries Management B. The Dental Caries Process C. Dental Caries Classification D. Caries Risk Assessment E. Implementation of CRA in the Process of Care
Session 16 (Week 19)	**Midterm practical Exam**
Session 17 (Week 20)	Oral Infection Control: Toothbrushes and Toothbrushing A. Development of Toothbrushes B. Manual Toothbrushes C. Power Toothbrushes D. Toothbrush Selection E. Methods for Manual Toothbrushing F. Adverse Effects of Toothbrushing
Session 18 (Week 21)	Oral Infection Control: Interdental Care A. The Interdental Area B. Planning Interdental Care C. Selective Interdental Biofilm Removal D. Methods for Interdental Aids
Session 19(Week 22)	Fluorides A. Fluoride Metabolism B. Fluoride and Tooth Development C. Demineralization vs. Remineralization D. Effects and Benefits of Fluoridation
Session 20 (Week 23)	Principles of Evaluation A. Evaluation based on Goals and Outcomes B. Evaluation of Clinical Outcomes C. Evaluation of Behavior Changes D. Comparison of Assessment Finding
Session 21 (Week 24)	abnormalities of teeth Alterations in size, microdontia, macrodontia
Session 22 (Week 25)	Continuing Care A. Goals of the Continuing Care Program B. Continuing Care Procedures C. Appointment Intervals D. Methods for Continuing Care System
Session 23 (Week 26)	Pulp calcification Abnormalities of dental pulp
Session 24 (Week 27)	Internal resorption External resorption
Session 25 (Week 28)	Revision and discussion
Session 26 (Week 29)	**Practical final exam**
Session27(Week28-32)	**Theoretical and oral final exam**
Attendance Expectations	Students are expected to attend every session of class, arriving on time, returning from breaks promptly and remaining until class is dismissed. Absences are permitted only for medical reasons and must be supported with a doctor's note.
Generic Skills	By the end of the course, the student be able to: - Communicate effectively with colleagues.

	- Work in group (team work). - Time management. - Give p.pt presentation. - Implement of dental laboratory instruments and devices. - Write a report about the steps that implemented in the laboratory. - Use the Internet for preparing scientific researches. - Criticize his/her work. - Think critically to solve the problem may be faced during the work.
Course Change	Information contained in this course outline is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational employment and marketing needs. The instructor will endeavor to provide notice of changes to students as soon as possible. Timetable may also be revised.