Preclinical Removable Prosthodontic (323)

COURSE OUTLINE

Division Head : Dr. Yaser M. Alkhiary
Course Director : Dr. Amal Mubarak
Number of Hours : 8 hours / week for males and females
Semesters : 1st and 2nd

Course Meeting Times and Places:

Students should attend one hour lecture followed by 3 hours laboratory session. Male student's lectures are held at building number 10 (1st level) at 3rd year class room. Female student's lectures are held at the faculty of dentistry female section building number 9 (1st level) 3rd year class room. Clinical sessions (3 hours/week) take place at building number 12 (basement) for the male students and building number 9 (basement) for the female students.

Course Description:

Students will be introduced to the discipline of prosthodontics at two semesters. The first semester course includes the pre-clinical laboratory procedures for complete denture construction and their clinical inter-dependence procedures will be stressed. The second semester course includes the preclinical laboratory procedures of partial denture construction and their clinical interdependence procedures will be stressed.

First semester (complete denture)

During the theoretical part of this course students will be taught the necessary anatomical part of the maxillary and mandibular edentulous arches and the different theoretical steps for constructing a complete denture. After each lecture, student will attend a laboratory session to construct one of the steps which is necessary for maxillary and mandibular complete denture construction.

The relationship between this preclinical course and the procedure as performed with a patient will be shown. Boxing of impression technique, method of determining inter maxillary relations and articulator use will be demonstrated. Also, setting of artificial teeth, occlusal adjustment on the articulator and laboratory remounting for the finished denture will be demonstrated.
Second semester (Partial denture)

During the theoretical part of this course students will be taught the classification of the maxillary and mandibular edentulous arches and the different theoretical steps for constructing a partial denture. After each lecture students will attend a laboratory session to construct one of the steps which is necessary for maxillary and mandibular partial denture construction.

Course Objectives:

First semester (complete denture)

By the end of the first semester, the students should be:

1. Able to construct custom trays
2. Gain experience in the fabrication of record bases, wax rims, and understand their use in the determination of the inter-maxillary relations
3. Become familiar with the use of articulators, and should understand there relationship to the anatomic features of a patient
4. Gain experience in the set-up of both anterior and posterior teeth
5. Able to prepare a set up for processing, satisfying the esthetic and phonetic requirements, as well as functional
6. Able to carry out the laboratory procedures involved in processing the denture base
7. Able to finish and polish the processed dentures

Second semester (Partial denture)

By the end of the second semester, the students should be:

1. Familiar with the biological and technical aspects of removable partial denture and their integration with the clinical procedures
2. Demonstrate the basic knowledge and fundamentals of the various laboratory procedures
3. Able to identify and describe the various components of a removable partial denture
4. Identify the different instruments and devices involved in the construction of removable partial dentures as well as their uses
5. Learn how to submit written work authorization to a dental laboratory

Course requirements and grading

* At the end of the course, the students should do the following pre-clinical procedures and sign them at the corresponding booklet.

* Each laboratory step is evaluated and graded at the lab guide booklet.

* Student's attendance is mandatory.

Preclinical complete denture course requirements

1. Drawing of maxillary and mandibular anatomical landmarks.
2. Construction of maxillary and mandibular special trays with spacers and stoppers.
3. Construction of maxillary and mandibular record bases and occlusion rims.
4. Complete set of arrangement of maxillary and mandibular teeth.
5. Processed complete denture (maxillary and mandibular).

Preclinical partial denture course requirements

1. Classification of partially edentulous casts.
2. Surveying of different classes on master cast.
3. Preparation of guide planes on ivory posterior teeth.
4. Preparation of seats on anterior and posterior ivory teeth.
5. Waxing up the different designs of RPD.
Lectures Outline

First semester (complete denture course)

Lecture #1:

*Introduction to the course*
- Terminology of Prosthodontic terms
- Some of the extra-oral anatomical landmarks of importance to complete denture construction
- Objectives of complete denture

Lecture #2:

*Maxillary anatomical landmarks*
- Primary and secondary stress bearing areas
- Sites of relief in the maxillary arch
- Peripheries and outline of maxillary denture

Lecture #3:

*Mandibular anatomical landmarks*
- Primary and secondary stress bearing areas in the mandible
- Sites of relief in the mandibular arch
- Outline of mandibular denture
- Parts of the complete denture
- Denture surfaces

Reference for Lectures No: 1, 2 and 3

- Handout

Lecture #4:

*Impression trays*
- Terminology: the tray, the impression, primary and final impressions
- Parts and different types of the stock trays
- Spacer and stoppers
- Parts and shapes of the trays
- Methods of construction of special trays

Reference:

- Morrow, Rhoads, dental laboratory procedures, mosby 1985 Vol., (1)

Lecture #5:

*Record Bases and occlusal rims*
a. Requirements of the record bases  
b. Materials of the record bases  
c. Technique of construction  
d. Types of the occlusal rims  
e. Requirements of the occlusal rims  
f. Construction and specifications of the maxillary occlusal rim  
g. Construction and specifications of the mandibular occlusal rim

Reference:  
• Dental laboratory technology, chapters 5  
• Handout

Lecture #6:  
✓ Articulators and Face bows  
a. Articulator  
  o Definition, functions, types of articulators  
b. Face-bows  
  o Definition, type and uses of Face-bows  
  o Registration of maxillary face-bow record  
  o Introduction to the mandibular movements.

Reference:  
• Text Book of complete denture 5th Ed., JR., and Thomas O. Rahn. Charles M. Hartwell. JR., Chapter number 2, 3 and 4 pages from 47 – 115

Lecture #7:  
✓ Individual arrangement of anterior teeth  
a. Requirements of artificial teeth arrangement  
b. The dentogenic concept  
c. Guideline for setting of artificial teeth.  
d. Role of the anatomical landmarks in setting  
  o The incisive papilla  
  o The modulus  
  o The retro molar pad  
  o The neutral zone  
e. Relation of the artificial teeth to the ridge  
f. Relation of the teeth to the long axis and to the occlusal plane  
g. Relation of the teeth to each other  
h. The vertical and horizontal overlaps

Reference:  
• Textbook of complete dentures 5th Ed., Author O. Rahn, Charles M. Heartwell, JR. chapter 13-14 and 15. Pages from 323-352.  
• Handout.

Lecture #8:
✓ **Individual arrangement of posterior teeth**
   a. Relation of posterior teeth to the alveolar ridge on the master cast
   b. Relation of posterior teeth to the occlusal plane
   c. Axial inclinations of upper and lower posterior teeth
   d. Factors help in denture stability
   e. Arrangement of the teeth for cases of abnormal jaw relations

Reference:
- Textbook complete dentures 5th Ed., by Rahn, and Heartwell 1993 chapter 15 pages 351-352
- Denture laboratory technology section No. 9 page 52 (1968)
- Handouts

Lecture #9:
✓ **Waxing-up of complete denture**
   a. Definition
   b. Objectives
   c. Waxing-up procedure
   d. Common faults from waxing-up

Reference:
- Morrow, Rudd, Rhoads. Dental laboratory procedures Mosby 1985 volume (1)
- Hand out.

Lecture #10, 11:
✓ **Laboratory procedures for complete denture construction**
   a. Flaking of dentures
   b. Preparation of mode
      i. Wax elimination
      ii. Application of tin foil substitute
   c. Preparing and packing acrylic resin
   d. Processing of dentures
      i. Slow processing (long cure)
      ii. Rapid processing (short cure)
   e. Deflasking of denture
      i. Removing the mold
      ii. Removing the denture and cast
   f. Laboratory remount procedure
   g. Recovering the complete denture from the cast
   h. Finishing and polishing the complete denture
   i. Processing errors

Reference:
- Textbook of complete dentures, 5th Ed., page 373-383
- Lamb, D.J. problems and solutions in complete denture prosthodontics
Second semester (partial denture course)

Lecture #1.
✓ An introduction to Removable Partial Dentures.
  a. Definition and types of Removable partial dentures.
  b. Indications for fixed restorations.
  c. Indications for removable partial dentures
  d. Results of neglecting the restoration of partial loss of natural teeth.

Reference:
• McCraken’s Removable Partial Prosthodontics, Chapter (1). pp. 3-10 & Chapter (12) pp. 214-220

Lecture #2
✓ Objectives and Components of Removable Partial Denture.
  a. Objectives of removable partial denture.
  b. Major components of a removable partial denture
  c. Over viewing of RPD construction

Reference:
• Lecture Hand-out

Lecture #3
✓ Classification of Partially edentulous arches.
  a. Requirements of an acceptable method of RPD classification.
  b. Kennedy classification of partially edentulous arches
  c. Applegate’s rules for applying kennedy classification
  d. Classification depending on distribution of food.

Reference:
• McCracken's Removable Partial Prosthodontics, Chapter (3), pp 19-23

Lecture #4
✓ Surveying of partially edentulous casts.
  a. Definition and objectives of surveying
  b. The component parts of a surveyor (Ney Surveyors)
  c. Differences between Ney and Jelenko surveyors.
  d. Uses of the surveyor
  e. Tripooding the casts
  f. Step-by-step procedure of surveying the diagnostic cast.
  g. Factors determining the path of insertion
Lecture #5

✓ **Abutment teeth preparation (I. Posterior teeth preparation)**
  a. Definition and functions of guide planes
  b. Preparation of guide planes
     i. Guide planes on abutment teeth adjacent to tooth-supported edentulous areas.
     ii. Guide planes on abutment teeth adjacent to distal extension areas.
  c. Definition of a rest
  d. Rest seat preparation
  e. Function of rests
     i. Requirements of rests
     ii. Occlusal rest (mesial & distal and long occlusal rest).

Lecture #6

✓ **Abutment teeth preparation (II Anterior teeth preparation)**
  b. Rests on anterior teeth
     i. Cingulum rest
     ii. Incisal rest
  c. Recontouring
     i. Definition
     ii. Reasons for recontouring
  d. Dimpling

Reference:
  • McCracken’s Removable Partial Prosthodontics, Chapter (6), pp. 67-78 & chapter (14) pp.255-269]

Lecture #7

✓ **Denture base and teeth for removable partial dentures.**
  a. Denture bases
     i. Definition, functions and types of denture bases.
     ii. Metal denture base-indications, advantages and disadvantages
     iii. Acrylic resin denture base-indication, advantages and disadvantages.
     iv. External and internal finish line
  b. Artificial teeth.
     i. Anatomic teeth-advantages and disadvantages
     ii. Non-anatomic teeth-advantages and disadvantages
     iii. Acrylic teeth-advantages and disadvantages
     iv. Tube teeth-advantages and disadvantages
     v. Metal pontics
     vi. Acrylic teeth with gold occlusals
Lecture #8
✓ Direct Retainers (General Consideration & Supra bulge direct retainers)
  a. Intra-coronal direct retainers
  b. Extra-coronal direct retainers
     i. Basic Requirements of Clasps
     ii. Factors that determine the amount of retention provided by a particular clasp arm.
  c. Supra bulge direct retainers
     i. Type B
     ii. Indications

Reference:
  • McCracken’s Removable Prosthodontics, chapter (9) pp. 127-143

Lecture #9
✓ Infra bulge Direct Retainers
  a. Rules that apply to bar-type clasps
  b. Advantages, indications, and contraindications of bar clasps
  c. Type of bar clasps
  d. RPI system
  e. Comparison between supra and infra bulge direct retainers

Reference:
  • McCracken’s removable partial prosthodontics, chapter (7), pp. 79-117

Lecture #10
✓ Indirect Retainers
  a. Definition and principles of indirect retainers
  b. Ideal location of indirect retainer
  c. Factors influencing the effectiveness of an indirect retainer
  d. Forms of indirect retainer

Reference:
  • McCracken’s Removable Partial Prosthodontics, Chapter (7) pp. 79-177

Lecture #11, 12
✓ Connectors
  a. Major Connectors
     i. Definition, general characteristics and location.
  b. Maxillary major connectors-type and indications of use of each type

Reference:
  • McCracken’s Removable Partial Prosthodontics, chapter (8), pp 119-125
c. Mandibular major connectors-type, indications and contra-indications of use of each type.
d. Minor connectors
   i. Functions, forms and location of minor connector

Reference:
• McCraken’s Removable partial prosthodontics, chapter (5), pp 35-66

Lecture #13
✓ Laboratory procedures of removable partial denture construction
a. Drawing the RPD design on the master cast
b. Reading the master cast
c. Wax block out of the master cast
d. Duplication and construction of a refectory cast
e. Waxing up the metal framework on the refractory cast
f. Spruing
g. Investing
h. Burnout of wax pattern
i. Metal casting
j. Finishing and polishing the metal framework

Reference:
• McCraken’s removable prosthodontics chapter (18) pp 319-355