The Undergraduate Programme in

Prosthetic Dentistry

1996-97
This book was a gift
from
Faculty of Dentistry
Preface

This document has been prepared as a record of the undergraduate programme in Prosthetic Dentistry for the academic year 1996-97. The main purpose of this was to facilitate discussions leading to the development of a new programme in Oral Rehabilitation to be introduced in the year 1997-98.

J.E. Dyson
July 1997
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Undergraduate Programme in Prosthetic Dentistry 1996-97
Course Objectives

The course was designed to provide the student with a knowledge of the principles and practice of:

1. Assessment of occlusion and mandibular function of dentate patients.
2. Diagnosis and treatment planning for partially dentate and edentulous patients taking into account the inter-relationship between prosthetic dentistry and other disciplines.
3. The clinical and laboratory use of dental materials relevant to prosthetic dentistry.
4. Removable partial dentures prosthodontics.
5. Complete denture prosthodontics.
8. Dental technology procedures related to prosthetic dentistry.
9. The planning of minor surgical procedures related to the provision of dentures.
10. Occlusal adjustment.
11. Infection control measures in prosthetic dentistry.

and an understanding of the basic principles of:

12. Implants.
13. Prosthetic treatment of patients with congenital and post-surgical defects involving oral and maxillo-facial structures.
14. Precision attachments.
15. Sectional dentures.

By the end of the course the student was expected to be able to:

1. Assessment of occlusion and mandibular function of dentate patients.
   a) Describe the occlusal and mandibular functions of "normal" dentate individuals.
   b) Perform a basic clinical examination, and detect the presence of disturbances of temporo-mandibular joint function.
   c) Make impressions of dentate arches with correct vestibular and posterior extension.
   d) Pour and trim study casts.
e) Make jaw relationship records to enable the casts to be mounted in a semi-adjustable articulator and to allow the articulator to be correctly adjusted.
f) Mount casts in the articulator and make appropriate articulator adjustments.
g) Assess the occlusion of articulated study casts and identify and describe occlusal discrepancies.
h) Describe the design of occlusal overlay appliances, overlay dentures and their role in the management of occlusal problems and protection of the dentition.

2. Diagnosis and treatment planning for partially dentate and edentulous patients.

a) Obtain an appropriate history and carry out suitable extra-oral and intra-oral examination of partially dentate and edentulous patients with regard to their prosthetic and other dental needs.
b) Plan and carry out (or when appropriate, refer for) further necessary diagnostic investigations.
c) State diagnoses of conditions relevant to the management of patients requiring dentures.
d) Recognize and understand the significance of anatomical features, pathological, functional and psychological conditions (including those associated with aging) which may affect the execution or outcome of prosthetic treatment.
e) Determine a suitable treatment plan, setting out the prosthetic and other items of treatment required in an appropriate order.
f) Recognize those prosthetic or other problems which are beyond the scope of their ability to treat and to arrange appropriate specialist referral.

3. The clinical and laboratory use of dental materials relevant to prosthetic dentistry.

a) State the principal constituents, clinical applications and behaviour of the types of materials commonly used in prosthetic dentistry.
b) Explain the reasons for selection of particular types of material for particular applications in prosthetic treatment.
c) Correctly handle the materials commonly used in prosthetic dentistry and explain the underlying reasons for manufacturers' instructions.
d) Recognize and account for errors, faults and discrepancies due to behavioral and structural aspects of materials used.
4. **Removable partial dentures prosthodontics.**

a) Survey study casts and prepare appropriate cast cobalt chromium framework and acrylic denture designs (including provisional and transitional denture designs) for partially dentate patients.

b) Plan and execute tooth preparation procedures necessary to accomplish the proposed denture design.

c) Design restorations for abutment teeth which provide for optimal placement of partial denture components.

d) Demonstrate an ability to provide appropriate motivational and post-insertion instructions to patients.

e) Carry out all the clinical procedures associated with the construction of cast cobalt chromium framework and acrylic dentures.

f) Carry out the clinical procedures associated with repairs, relining and modification (by artificial tooth addition [including immediate additions], clasp repair and addition etc.) of partial dentures.

g) Recognise problems associated with design, aesthetic and functional aspects of existing partial dentures.

5. **Complete denture prosthodontics.**

a) Make assessment of design, functional and aesthetic aspects of patients’ existing complete dentures.

b) Make an assessment of the expected prosthetic difficulties of complete denture provision, based on the history and examination of the edentulous patient.

c) Identify the need for, and carry out modification of existing dentures (e.g. use of tissue conditioners, occlusal correction etc.) prior to construction of new dentures.

d) Carry out all the necessary clinical and chairside procedures associated with the construction of complete dentures (including provision of appropriate patient instructions).

e) Identify the need for, and carry out the clinical procedures of relining or rebasing complete dentures.

f) Carry out the clinical procedures associated with the repair, border modification and occlusal correction of complete dentures.
g) Identify pathological conditions associated with the wearing of complete dentures and to plan (and, if appropriate, carry out) suitable corrective action.

h) Describe the rationale for, and techniques associated with, the use of replicas of existing dentures in the construction of new complete dentures.


a) Identify patients who would be appropriately treated by complete overdentures and provide appropriate counselling.
b) Select suitable teeth for use as overdenture abutments.
c) Carry out the preparation of teeth as domed overdenture abutments.
d) Describe the advantages, disadvantages and use of precision attachments and magnets in overdenture treatment.
e) Carry out the clinical procedures associated with the construction of complete overdentures on domed abutments.


a) Identify patients who would be appropriately treated by provision of partial or complete immediate replacement dentures.
b) Carry out the clinical procedures (including cast trimming) associated with the construction, insertion and maintenance of partial and complete immediate replacement dentures (where few natural teeth are immediately replaced and alveolotomy is not required).
c) Demonstrate an ability to provide patients with appropriate pre-treatment and post-insertion counselling.
d) Describe the indications for, contraindications to, and procedures of alveolotomy and alveolectomy in the context of immediate replacement denture treatment.

8. Dental technology procedures related to prosthetic dentistry.

a) Describe the laboratory procedures related to the construction and maintenance of partial and complete dentures (including overdentures and immediate replacement dentures).
b) Write clear laboratory instructions.
c) Carry out chairside procedures appropriate to general clinical practice including:
Pouring casts
Mounting/remounting casts in a semi-adjustable articulator
Making adjustments to the positions of teeth in wax dentures
Carrying out chairside occlusal and other necessary adjustments of dentures

9. The planning of minor surgical procedures relating to the provision of dentures.

a) Recognize anatomical and pathological conditions which require surgical treatment prior to denture construction.
b) Describe, in general terms, the minor surgical procedures which may be necessary prior to denture construction.
c) Counsel the patient on matters relating to pre-prosthetic surgery.
d) Prepare appropriate records (study casts, surgical template or wax up of artificial teeth etc.) and write referral notes which will effectively communicate the intended treatment to the oral surgeon.

10. Occlusal adjustment.

a) Describe the rationale of occlusal equilibration.
b) Prepare appropriate records for diagnosis and treatment planning in achieving a 'functional' occlusion.
c) Carry out occlusal adjustments to facilitate the provision of partial or complete dentures.

11. Infection control measures in prosthetic dentistry.

a) Demonstrate an awareness of infection control problems in prosthetic dentistry and a competence in standard infection control procedures.

12. Implants.

a) Describe the principles of osseointegration in relation to dental implants.
b) Describe, in general terms, the restorative aspects and role of osseointegrated dental implants in removable prosthodontics.
13. Prosthetic treatment of patients with congenital and post-surgical defects involving oral and maxillo-facial structures.

   a) Demonstrate a basic knowledge of the role of the prosthodontist in the treatment of patients with congenital and post-surgical defects involving oral and maxillo-facial structures.

14. Precision attachments.

   a) Give a general description and classification of the various types of precision attachments.
   b) Demonstrate an understanding of the principal advantages/indications and disadvantages/contraindications of precision attachments.

15. Sectional dentures.

   a) Describe the general principles of sectional dentures.
**Sessional Timetables**

**Year 2 Term 1**

Week 1: Orientation and Introduction to Prosthetic Dentistry

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**Partial Denture Phantom Head Course**

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Partial Denture Phantom Head Course (cont.)

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### Year 2 Term 3

Clinical - Partial Dentures

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<td>Immediate Replacement Dentures</td>
<td>Flat Try-in + Protrusive Record</td>
<td>Flat Plane Try-in</td>
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<td>Complete Dentures Opposed by Natural Standing Teeth</td>
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### Year 4 Term 2

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<td>Anterior Tooth Selection</td>
<td>Patient Treatment &amp; Assessment Clinic as timetabled separately</td>
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## Contents of seminars

### Year 2 Term 1 (year, term, day - whole week afternoon block)

- 2.1.1 Upper and Lower Impressions
- 2.1.2 Occlusion, Mandibular Movements & Positions
- 2.1.3 Articulators
- 2.1.4 Facebow Record and Jaw Relations

### Year 2 Term 3 (year, term, week)

- 2.3.1 Components of Partial Dentures
- 2.3.2 Survey and Design
- 2.3.3 Problems of the Free-end Saddle
- 2.3.4 Partial Dentures with Anterior Saddle
- 2.3.5 Mandibular Movements, Jaw Relations and Occlusion
- 2.3.6 Anatomy in relation to Impressions
- 2.3.7 Selection of Impression Materials
- 2.3.8 Partial Denture Aesthetics
- 2.3.9 Oral Hygiene and Sequelae of Partial Denture Wearing
- 2.3.10 Interim, Transitional and Overlay Partial Dentures

### Year 3 Term 2 (year, term, week)

- 3.2.7 Further Aspects of R.P.D. Design - Conservative Considerations
- 3.2.10 Further Aspects of R.P.D. Design - Periodontal and Orthodontic Considerations

### Year 3 Term 3 (year, term, week)

- 3.3.8 Additions to RPDs
- 3.3.9 RPD repairs -1
- 3.3.10 RPD repairs -2

### Year 4 Term 2 (year, term, week)

- 4.2.1 Retention and Support -1
- 4.2.2 Retention and Support -2
- 4.2.3 Jaw Relations and Records -1, Vertical Dimension
- 4.2.4 Jaw Relations and Records -2, Anteroposterior Jaw Relations
- 4.2.5 Anterior Tooth Selection and Positioning
- 4.2.6 Posterior Tooth Selection and Positioning
- 4.2.7 Complete Denture Occlusion
- 4.2.8 Denture Insertion and Maintenance
- 4.2.9 Diagnosis of the Complete Denture Patient
- 4.2.10 Preparation of the Mouth for Complete Dentures

### Year 4 Term 3 (year, term, week)

- 4.3.1 Duplication of Complete Dentures, Relining and Rebasing
- 4.3.2 Overdentures
- 4.3.3 Implants
- 4.3.4 Precision Attachments
- 4.3.5 R.P.D. Design and Treatment Planning Workshop -1
- 4.3.6 R.P.D. Design and Treatment Planning Workshop -2
- 4.3.7 R.P.D. Design and Treatment Planning Workshop -3
Contents of seminars - Year 2

Seminar: Year 2 Term 1 (afternoon block - Day 1)
Title: Upper and Lower Impressions

Selection of impression trays
stock trays/custom trays/disposable trays
selection of the correct size of impression tray

Materials for making an impression
alginate (Blueprint™/Jeltrate™ fast-set)
alginate adhesive
impression compound
beading wax (not recommended where the vestibular tissues need to be recorded accurately)

Clinical procedures in making an impression
patient position
patient preparation
tray modification
impression taking
impression removal
impression disinfection
impression handling

Requirements of impressions for study casts
what should maxillary/mandibular impression record?

Seminar: Year 2 Term 1 (afternoon block - Day 2)
Title: Occlusion, Mandibular Movements and Positions

Occlusion in partial dentures
overjet/overbite
freeway space
working side contacts
non-working/balancing side contacts
interferences

To identify occlusal interferences
articulating paper (red/blue), use of shimstock, occlusal indicating wax

Mandibular movements and positions
TMJ
hinge/rotational
sliding/translatory
ICP
RCP
protrusion
lateral excursion

Seminar: Year 2 Term 1 (afternoon block - Day 3)
Title: Articulators

Function of articulators
Classification of articulators
  hinge
  fixed value (average value)
  semi-adjustable
  fully-adjustable
  fossa-moulded

Semi-adjustable articulators
  arcon/non-arcon
  setting of Dentatus articulator

Seminar: Year 2 Term 1 (afternoon block - Day 4)
Title: Facebow Record and Jaw Relations

Use of facebow

Components of a facebow
  'U' shaped bow
  condylar rods
  bite fork
  anterior reference point indicator (orbital pointer)

Procedures in facebow registration
  locate the hinge axis
  maxillary teeth imprint
  facebow attachment
  orbital pointer

Standard method of jaw registration
  ICP
  RCP
  wax rim
  bite registration paste vs. wax

Seminar: Year 2 Term 3 Week 1
Title: Components of removable partial dentures

General principles of design
  support – retention – stability (bracing)

Saddles
  bounded/free-end (distal extension)
  flanged/flangeless ("gum-fitted")

Connectors
  major/minor (define and demonstrate)
  need for rigidity
  bars/plates

Classification of major connectors
  upper (advantages/disadvantages, patient preference)
    anterior palatal, mid-palatal, posterior palatal
  lower (advantages/disadvantages, patient preference)
    lingual bar, lingual plate, sublingual bar, dental bar ("Kennedy bar" when used in combination with lingual bar), buccal bar
Rests
principles of design
types - occlusal (marginal ridge) rests, cingulum rests, incisal rests

Retainers
direct and indirect retention
terminology - "clasp", "clasp arm", "clasp assembly"
general principles of clasp assembly design - retention, reciprocation, bracing,
encirclement, support, passivity
gingivally approaching (bar arm) clasps vs. occlusally approaching (circumferential)
clasps -
indications/contraindications

Bracing components
reciprocal arms, plate connectors, mesial/distal grips

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**Seminar: Year 2 Term 3 Week 2**

**Title: Survey and Design**

Preliminary ("ideal") design
path of insertion/removal
procedure

Survey the study casts
the surveyor
instruments
analyzing rod
undercut gauges (0.25 mm, 0.5 mm, 0.75 mm)
graphtite marker
wax knife
procedure of surveying
dead space
guide planes
retentive undercuts

Finalize the design

Plan tooth preparation
improvements to occlusal plane
rest seat preparation
alter survey lines
create undercuts
guide planes
embrasure widening

Design should be
simple
limited to one path of insertion/removal (except Kennedy Class IV)
hygienic
aesthetic

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**Seminar: Problems of the Free-end Saddle**

**Title: Year 2 Term 3 Week 3**

Problems of the free-end saddle vs. bounded saddle
Problems of the free-end saddle support (rotation towards the ridge) prevented by:
- wide extension of base
- maximize support by using altered-cast technique (muco-displacing impression)
- use teeth with small bucco-lingual width and small occlusal area
- RPA/RPI
- principles of action
- difference to conventional clasp-rest-reciprocal system
- advantages/limitations/contraindications

Retention (rotation away from the ridge) prevented by:
- indirect retention

Lateral/distal movement

Seminar: Year 2 Term 3 Week 4
Title: Partial Denture with Anterior Saddle

Problems of Kennedy class IV aesthetics
- flanged/flangeless saddles
- avoid claspng anterior abutment teeth
- tendency to rotate in function
  - upwards & forwards when biting with anterior teeth
  - downwards & backwards when chewing sticky food
difficulty in selecting the path of insertion
  - labial undercut
  - dead space

Rotational path of insertion
- principle
- surveying procedure

Indirect retention

Kennedy classes I, II & III situations with anterior modifications

Selection of abutment teeth for support

Seminar: Year 2 Term 3 Week 5
Title: Mandibular Movements, Jaw Relations and Occlusion

Mandibular movement
- hinge (rotatory)/translatory (sliding)
- border movement
  - sagittal plane
  - Posselt's envelope
  - horizontal plane
  - gothic arch
  - Bennett shift
  - Bennett angle
  - frontal plane
  - Christensen phenomenon
Jaw relations
ICP/RCP
  define
  when to use
vertical dimension
methods of registering jaw relationships

Articulators
  types of articulators - functions and limitations
    hinge
    fixed value (average value)
    semi-adjustable
    fully-adjustable
    fossa-moulded
facebows

Occlusion
  types of occlusion
    bilateral balanced occlusion
    group function (Unilateral balanced occlusion)
    canine guided (Mutually protected occlusion)

requirements for an optimal occlusion
adjustments to natural teeth
  MUDL/BULL
positioning the artificial teeth

Seminar: Year 2 Term 3 Week 6
Title: Anatomy of the Maxilla and Mandible in Relation to Impression

Maxilla
  surface structures
  residual ridge
  buccal sulcus
  labial and buccal fraena
  incisive papilla
  hamular notch
  maxillary tuberosity
  vibrating line
  fovea palatini
  torus palatinus

Mandible
  residual ridge
  buccal sulcus
  retromolar pad
  external oblique ridge
  mental foramen
  mentalis eminences
  lingual sulcus
  sublingual folds
  genial tubercles
  torus mandibularis

Musculature
  mylohyoid muscle
  buccinator
orbicularis oris
levator and depressor anguli oris
superior and inferior incisivi labii
levator labii superioris and depressor labii inferioris
mentalis
intrinsic and extrinsic muscles of the tongue
superior constrictor of the pharynx

Seminar: Year 2 Term 3 Week 7
Title: Selection of Impression Materials

Types of impression materials
thermoplastic impression material
impression wax
impression compound
rigid impression material
impression plaster
impression paste
elastic impression material
hydrocolloids
agar (reversible)
algin (irreversible)
synthetic elastomers
polysulphide rubber
polyether
silicone rubber

Requirements of impression materials

Considerations of selection of individual impression material
properties
advantages
limitations
uses

Factors influencing tissue displacement
displaceability of tissues
confinement of impression material in tray (spacing, perforations, extension)
viscosity (setting, time related)
rate of insertion

Seminar: Year 2 Term 3 Week 8
Title: Partial Denture Aesthetics

Framework
major connector
clap
minimizing the effect on appearance by:
concealment
camouflage
omission
substitution
rest
occlusal
cingulum
incisal
undercut
  mesio-buccal vs. distal-buccal

Base material
  flange
  characterization
  shade
  flangeless
  papillae

Artificial teeth
  size
  shade
  mould
  material
  position
  characterization

Alternative denture designs (brief introduction)
  precision attachments
  sectional dentures
  rotational path of insertion

**Seminar: Year 2 Term 3 Week 9**
**Title: Oral hygiene and Sequelae of Partial Denture Wearing**

Denture maintenance

Denture stomatitis
  fungal agent
  aetiology
  management procedures
  antifungal therapy
  correction of ill-fitting dentures
  efficient plaque control

Denture cleansing methods
  brushing
  immersion
    hypochlorite, alkaline peroxide, chlorhexidine
    (action, usage, advantages and disadvantages)

Effects of partial dentures on caries and periodontal disease
  rate of caries and periodontal disease of abutment teeth
  studies
  mechanism
  acrylic resin vs. cobalt chromium alloy
  prevention

Changes to the denture supporting alveolar process
  bone resorption
  prevention
Interim dentures
   “spoon” denture, Every denture

Transitional dentures
   definition
   indications
   principles of design
   prevention
   support
   retention
   stages in construction
   examples of commonly used transitional dentures

Overlay dentures
   definition
   indications
   clinical procedures
   temporary vs. permanent overlay dentures
Contents of seminars - Year 3

Seminar: Year 3 Term 2 Week 7
Title: Further Aspects of RPD Design - Conservative Considerations

Need for treatment planning
- critically assess prognosis of carious/fractured/non-vital teeth
- design RPD before commencing Cons treatment.
- incorporate undercuts, rest seats etc. in restoration

Seminar: Year 3 Term 2 Week 10
Title: Further Aspects of RPD Design - Periodontal and Orthodontic Considerations

Periodontal
- plaque - increase in quantity and pathogenicity
- Pretreatment assessment of plaque control
- Design of RPD to facilitate plaque control
- Consider physical ability of patient to effect plaque control

Orthodontic
- teeth could be moved before RPD treatment to improve
  - occlusion
  - aesthetics, and to
  - facilitate RPD design

Seminar: Year 3 Term 3 Week 8
Title: Additions to RPDs

Indications for addition of teeth or flange to
- existing RPD to replace teeth lost due to extractions/trauma
- existing transitional RPD to convert to CD
- existing RPD following minor surgery on alveolar ridges/soft tissues
- existing RPD following accidental fracture

Assessment of RPD for suitability for addition of teeth/flange

Seminar: Year 3 Term 3 Week 9
Title: RPD Repairs - 1

Causes of clasp fracture
- accidental
- faulty design
- attempts at adjusting clasp by bending or trimming

Repairs
- welding to framework?
- addition of wrought wire clasps
- stainless steel
- gold
Causes of base fracture
  accidental
  thickness insufficient
  deep notches for frena and muscle attachments etc.

Assessment of base for suitability for repair

Preparation of base for repair

Repair process
## Contents of seminars - Year 4

### Seminar: Year 4 Term 2 Week 1
**Title: Retention and Support (1)**

Retention, support and stability  
definition/importance/complaint of “looseness”  
factors:  
- border seal, close mucosal contact  
  (neuromuscular control, surface tension, gravity, atmospheric pressure)

Support  
- ideal support  
  keratinized mucosa, resilient submucosa, firmly bound down to underlying cortical bone, area of muscle attachment  
  topography of maxilla (areas contributing to support, 1°, 2°, R, N/C)

  topography of mandible (areas contributing to support, 1°, 2°, R, N/C)

### Seminar: Year 4 Term 2 Week 2
**Title: Retention and Support (2) - Impressions**

Importance of good impression in relation to retention/support  

Factors affecting the displacement of the mucosa  
mucosa, viscosity of material, tray design, timing  

Types (advantages and disadvantages)  
- "mucostatic"/mucodisplacing/selective pressure  

Technique used in this hospital (rationale of each step)  
- preliminary impression (compound moulding, trimming of border, alginate wash)  
  outline of custom tray  
- secondary impression (check and modify custom tray, ZnO/E vs. plaster)

Problems during impression taking and the management  
gagging  
flabby ridge, undercut

### Seminar: Year 4 Term 2 Week 3
**Title: Jaw Relations and Records (1) - Vertical Dimension**

Factors to be established  
occlusal plane, vertical dimension, anteroposterior jaw relations  

Importance of correct occlusal plane, consequences of errors  
- tilted laterally/anteroposteriorly  
too high/low

Importance of correct vertical dimension, consequences of errors  
too large/small
Importance of correct anteroposterior jaw relations, consequences of errors types of error possible

Check base and wax rim before taking jaw relations
  base: roughness, extension, fit, stability, rigidity, potential "heel clash"
  wax rim: simulate tooth position, soft tissue support, concept of "neutral zone"

Guides to establish occlusal plane (technique, advantages and disadvantages)
  level
    aesthetics, angle of mouth, yawn, retromolar pad to corners of mouth,
    parotid papilla
  lateral orientation
    interpupillary line
  anteroposterior orientation
    Camper's line, tongue, ridges, retromolar pad-angle of mouth

Guides to establish vertical dimension (technique, advantages and disadvantages)
  aesthetics
  measurement
  phonetics
  swallowing
  bite force
  comfort zone
  ridges
  old denture
  pre-extraction record

Seminar: Year 4 Term 2 Week 4
Title: Jaw Relations and Records (2) - Anteroposterior Jaw Relations

Importance of establishing centric occlusion at centric relation
  prosthetic convenience, reproducibility by dentist and patient

Factors influencing the centric jaw relationship records

Techniques (advantages and disadvantages)
  manipulation
  gothic arch tracing
  swallowing
  cephalometric

Materials
  wax
  ZnO/E
  plaster

Seminar: Year 4 Term 2 Week 5
Title: Anterior Tooth Positioning and Selection

Importance of anterior tooth positioning and selection

Anterior tooth positioning (advantages and disadvantages of the various techniques)
  aesthetics
    lip, vermillion border, nasolabial angle, aesthetic plane
    biometric guide ("set the teeth where they grew")
maxillary: incisal edges 8-10mm in front of the incisive papilla, rugae, inclination of ridge crest, tips of canines on a straight line drawn through centre of incisive papilla
mandibular: angle of mouth, modiolus

functional phonetics, smiling line, neutral zone
old record old dentures, pre-extraction record, photograph, radiographs

Anterior tooth selection

size interalar width, angle of mouth, face proportion, old dentures, pre-extraction record
shade single vs. variety of shades
age, personality, patient, relatives
? hair, eye, skin colour
characterization
mould inverted face
face proportion
arch shape
sex, personality, age

Seminar: Year 4 Term 2 Week 6
Title: Posterior Tooth Selection and Positioning

Importance of posterior tooth positioning and selection

Posterior tooth positioning (advantages and disadvantages)
biometric guide ("set the teeth where they grew")
maxillary: palatal gingival remnants, cheek
mandibular: ridge crest
functional phonetics, neutral zone
old record old dentures, pre-extraction record

Posterior tooth selection

size ski slope, no of teeth
shade mould (advantages and disadvantages)
30° vs. 20° vs. 0°
material (advantages and disadvantages)
aCRYLIC vs. porcelain

Seminar: Year 4 Term 2 Week 7
Title: Complete Denture Occlusion

Importance of complete denture occlusion

Hanau’s Quint (interrelationship)
condylar guidance, incisal guidance, cuspal angle, compensating curve, orientation
Occlusal scheme (advantages and disadvantages)
balanced occlusion, concept of “enter bolus exit balance”, non-working side (balancing side) contacts becoming non-working side interferences in function group function (“unilaterally balanced occlusion”)

Seminar: Year 4 Term 2 Week 8
Title: Denture Insertion and Maintenance

Final check
fit, extension, retention, stability, tooth positions, aesthetics, speech, vertical dimension,
jaw relationship

Check record (rationale, technique, material)

Occlusal adjustment
centric occlusion (MUDL rule)
lateral excursion (BULL rule)
protrusion

Instructions to patient
problems may be encountered (loose, pain, speech, mastication)
denture care (advantages and disadvantages)
removal at night time
mechanical (brushing)
chemical (peroxide, acid, enzyme, hypochlorite, chlorhexidine gluconate solution)
importance of review appointments

Seminar: Year 4 Term 2 Week 9
Title: Diagnosis of the Complete Denture Patient

Diagnosis
history (severity, timing, exclude other causes)
examination (patient, denture)
investigation

General causes
patient factor
psychological/biological
denture factor
tissue/polished/occlusal surface

Problems and management
pain of tissue
pain of muscle/TMJ
looseness
mastication
appearance
speech
others (tolerance, retching)

Adjustment vs. new dentures
extension (adjustment/addition)
fit (adjustment/reline)
retention (postdam)
teeth setting (reset)
Semenar: Year 4 Term 2 Week 10
Title: Preparation of the Mouth for Complete Denture

Importance of physical and psychological preparation of patient

Psychological
   explanation of limitations

Biological
   soft tissue
      redness, swelling, ulcer, hyperplasia, denture stomatitis, flabby ridges
      high fraenral attachment, vertically enlarged (fibrous enlargement of)
      maxillary tuberosity, shallow sulcus
   hard tissue
      uneven bone, undercut, horizontally enlarged maxillary tuberosity, sharp
      mylohyoid ridge, mentalis eminences, genial tubercules

Management
   non-surgical
      removal of cause
      tissue conditioning
   surgical
      excision, recontouring, vestibuloplasty, ridge augmentation

Semenar: Year 4 Term 3 Week 1
Title: Duplication of Complete Dentures and Relining/Rebasing

Denture duplication
   indications and contraindications
   clinical and laboratory procedures

Relining/rebasing
   indications and contraindications
   clinical and laboratory procedures

Semenar: Year 4 Term 3 Week 2
Title: Overdentures

Advantages
   preserve bone/proprioception
   improve support/stability/(retention)/aesthetics
   easy plaque control, less mobile, psychological, convertibility

Disadvantages
   still susceptible to caries, periodontal disease, wear
   undercut, over-contour, under-contour
   interocclusal clearance (high occlusal plane, easy base fracture)
   cost of endodontic therapy

Indications and contraindications

Use of magnets, bars and stud attachments

Clinical and laboratory procedures
**Seminar: Year 4 Term 3 Week 3**
**Title: Implants**

Definition, classification, history and development

Scientific background of titanium endosseous implants

Implants vs. other treatment options (advantages and disadvantages)

Clinical and laboratory procedures
  - assessment
  - stage I
  - post-stage I
  - stage II
  - post stage II
  - prosthesis construction
  - recall

Other applications and future development

**Seminar: Year 4 Term 3 Week 4**
**Title: Precision Attachments**

Definition
  - prefabricated (precision) and custom made (semi-precision) attachments

Classification
  - extra-coronal, intra-coronal, bars, studs, miscellaneous examples

Advantages
  - aesthetic, retentive

Disadvantages
  - extensive tooth reduction, stress on abutment
  - time/cost
  - need for high standard of laboratory support
  - difficult repair and maintenance

Clinical and laboratory procedures

**Seminar: Year 4 Term 3 Week 5-7**
**Title: RPD Design and Treatment Planning Workshops 1-3**

Case discussion
## Contents of Lectures

### Year 2 Term 2 (year, term, week)

- 2.2.1 Introduction to Principles of Removable Partial Dentures
- 2.2.2 Components of Removable Partial Dentures and Preliminary Design
- 2.2.3 Free-end Saddle Partial Dentures
- 2.2.7 Anterior Saddle Partial Dentures
- 2.2.8 Survey/Final Design/Tooth Preparation
- 2.2.9 Clinical & Laboratory Procedures
- 2.2.10 Casting Failures

### Year 3 Term 2 (year, term, week)

- 3.2.1 RPD Failures
- 3.2.3 Transitional Partial Dentures
- 3.2.5 Precision Attachments & Sectional Dentures
- 3.2.9 Partial Denture Revision

### Year 4 Term 1 (year, term, week)

- 4.1.1 Assessment of the Complete Denture Patient
- 4.1.2 Stages in Complete Denture Construction
- 4.1.3 The Complete Denture Base
- 4.1.4 Jaw Relationships for Complete Dentures
- 4.1.5 Complete Denture Aesthetics
- 4.1.6 Complete Denture Occlusion
- 4.1.7a Complete Dentures Using Duplication Techniques
- 4.1.7b Maintenance of Prostheses - Repairs, Relining and Rebasing
- 4.1.8 Immediate Replacement Dentures
- 4.1.9 Prosthodontic Treatment of the Institutionalized and Housebound Elderly
- 4.1.10 Complete Dentures Opposed by Natural Standing Teeth

### Year 4 Term 3 (year, term, week)

- 4.3.1-5 Implants 1-5
- 4.4.6 Prosthetic Treatment of Cleft Palates and Post Surgical Defects
Contents of lectures - Year 2

Lecture: Year 2 Term 2 Week 1
Title: Introduction to the Principles of Removable Partial Dentures
Lecturer: JE Dyson

Reasons for tooth loss and its effects on appearance and function

Sequelae to tooth loss
- bone resorption (rate of bone loss following extraction)
- loss of support of facial musculature
- overeruption, tilting and drifting of teeth and their effects on occlusion

Alternative methods of managing edentulous spaces
- "masterly inactivity"
- fixed prosthesis (principal advantages/disadvantages)
- removable prosthesis
- implant retained prosthesis

Objectives of RPD treatment

Specific indications for RPDs
- long edentulous span
- lost alveolar bone needs to be replaced
- patient preference, time/cost constraints
- where extensive tooth preparation/surgery are contraindicated

Potential harmful effects of RPDs
- caries
- periodontal disease
- alveolar bone loss
  (mucosa)

Minimizing potential harmful effects of RPDs
- replace only those teeth which need to be replaced
- minimal coverage of teeth and gingivae
- design to provide good SUPPORT and STABILITY (define)

General principles of design (mechanical)
- support
- retention
- stability (bracing)

Classification of saddles
- bounded / free-end (distal extension)
- flanged / flangeless ("gum-fitted")

Classification of RPDs
- by support
  - tooth (why preferred)
  - mucosa
  - tooth and mucosa (principal problems of free end saddles)

Kennedy Classification
- principles of the system
  - ignore teeth not being replaced
  - most posterior saddle determines the classification
class IV must cross the midline (no modifications)

examples of classes I, II, III and IV (with modifications)

Lecture: Year 2 Term 2 Week 2
Title: Components of Removable Partial Dentures and Preliminary Design
Lecturer: JE Dyson

General principles of design - provision of:
  support
  retention
  stability (bracing)

Saddles
  bounded/free-end (distal extension)
  flanged/flangeless ("gum-fitted")

Connectors
  major/minor (define and demonstrate)
  need for rigidity
  bars/plates

Classification of major connectors
  upper (advantages/disadvantages, patient preference)
    anterior palatal, mid-palatal, posterior palatal
  lower (advantages/disadvantages, patient preference)
    lingual bar, lingual plate, sublingual bar, dental bar ("Kennedy bar" when
    used in combination with lingual bar), buccal bar

Rests
  principles of design
  types - occlusal (marginal ridge) rests, cingulum rests, incisal rests

Retainers
  direct and indirect retention
  terminology - "clasp", "clasp arm", "clasp assembly"
  general principles of clasp assembly design - retention, reciprocation, bracing,
    encirclment, support, passivity
  gingivally approaching (bar arm) clasps vs. occlusally approaching (circumferential)
    clasps -
    indications/contraindications

Bracing components
  reciprocal arms, plate connectors, mesial/distal grips

Preliminary ("ideal") design
  path of insertion/removal
  procedure:
    outline saddles
    connect saddles
    provide resistance to movement towards the tissues (support)
    provide resistance to movement away from the tissues (retention)
    provide resistance to antero-posterior and lateral movement (bracing)
    provide resistance to rotations
    simplify the design
Kennedy classification
  class I
  class II

Difficulties
  support
  retention
  stability

Two rotations considered
  1) towards ridge
     problems to : teeth/bone
     design features : maximum coverage
          Applegate technique
          narrow occlusal table
          RPI/RPA
  2) away from ridge
     problems to : teeth/retention
     design features : indirect retention
          RPI/RPA

Distal movement
  MD grips - pros and cons

RPI system
  l-bar/Akers clasps
       contra-indications/indications

Options to replace anterior teeth:
  implant
  bridge
  RPD

Kennedy classification - class IV
  definition
  limitations and peculiarity of definition

Difficulties
  retention, stability (rotation)
  design features
      guideplane
      posterior tilt - labial undercut for flange
      indirect retention (re: class I/free-end saddles cases)
      rotational path of insertion
  aesthetics - dead spaces
  design features
flangeless denture
no direct retainers next to saddle
rotational path of insertion

Rotational path of insertion
principles
2 tilts: 0° tilt
posterior tilt
versatility of rest/clasp/reciprocal complex
difficulties when
flange required
additional saddle

Lecture: Year 2 Term 2 Week 8
Title: Survey, Final Design, Tooth Preparation
Lecturer: APLH Dias

Designing RPD
preliminary design - (very brief revision)
survey
final design

Survey
cast surveyor and its accessories
determining tilt of occlusal plane
path of insertion and removal of RPD
path of displacement
use of
analyzing rod
carbon marker
undercut gauges
tripodding cast

final design
modify preliminary design if required following information from surveying
cast
list tooth preparation required

tooth preparation
altering survey lines
guiding planes
occlusal/cingulum rest seats
embrasure widening

working Impressions, resurvey, finalize design
(C1 = clinical stage, visit no.  L = laboratory stage)

(C1)  History, examination and diagnosis
       preliminary impressions
       facebow record
   (L)  study casts
   treatment options
      no prostheses
      fixed prostheses
      removable prostheses
      implant supported prostheses
      overdentures with/without attachments
   preliminary design of RPD
   survey
   final design

(C2)  Tooth preparation, working impressions, working casts
       resurvey working cast, prescription to technician
   (L)  block undercuts, duplicate cast in refractory (+ stone cast)
   (L)  preparation of cast for laying of wax pattern
   (L)  wax pattern and addition of sprues
   (L)  investing and casting
   (L)  devesting, trimming and polishing framework

(C3)  framework try in
   (C + L) altered cast technique for free-end saddle RPDs
   (L)  addition of occlusal rims

(C4)  maxillo-mandibular relationship records
       facebow record if required
       selection of teeth, base shade
   (L)  articulating casts, setting up teeth, waxing up

(C4)  try-in
       protrusive record if required
   (L)  occlusal adjustments (if required), flasking, packing, processing and finishing

(C5)  issue of RPDs
       occlusal adjustments
       instructions to patient

(C6)  recall in 1 wk
       review RPD, adjustments as necessary
       recall at regular intervals
Outline of process of casting Co-Cr framework
   wax pattern, sprues
   investing
   casting
   casting machines

Defects in castings
   rough surfaces
      air bubbles on wax pattern
         moving/vibrating wax pattern after investing
         low W/P ratio
         prolonged heating
         temp of alloy too high
         high casting pressure
         foreign substance in mould cavity
   finning
      too rapid heating

incomplete casting
   insufficient venting
   Incomplete elimination of the mould
      low W/P ratio
      insufficient heating of the alloy

porosity
   solidification shrinkage
      localized shrinkage porosity
   microporosity

gas
   pinhole porosity
   gas inclusions
   subsurface porosity
   air entrapped in mould

oversized or undersized castings
   casting too large
      excessive mould expansion
   casting too small
      insufficient mould expansion

distorted casting
   distortion of wax pattern
Contents of lectures - Year 3

Lecture: Year 3 Term 2 Week 1
Title: RPD Failures
Lecturer: WC Chung

Sequela of denture wearing

Destiny of partial denture

RPD failure
- aesthetic failure - patient’s expectation
  - poor design of components
  - poor tooth selection/set-up
- design failure - inadequate/over design
- technical failure - inadequate mouth preparation
  - poor impression technique
  - processing faults
- mechanical failure - tooth/base bonding failure
  - fatigue failure of components
  - casting defects
- biological failure - caries of abutment teeth
  - periodontal disease
  - accelerated residual ridge resorption

Procedures to prevent failure
- adequate ODT
- good study models
- survey and design
- adequate patient/mouth/teeth preparation
- well executed techniques
- good communication with technician

Lecture: Year 3 Term 2 Week 3
Title: Transitional Partial Dentures
Lecturer: JE Dyson

Definition

Indications
- some remaining teeth have poor prognosis - but that:
  - immediate extractions not required

Types
- to allow conversion to more extensive partial denture
- to allow conversion to complete denture
  - tooth (tooth/mucosally) supported
  - mucosally supported

Principles of design
- appropriate major connector (to allow attachment of additional teeth/saddles)
  - this may, however, unavoidably compromise remaining dentition
- appropriate base extension (border seal of converted denture)
Special requirements of impressions
   extension
   recording of supporting soft tissues

Jaw relationships
   establishment of:
     occlusal plane
     vertical dimension
   ICP vs. CJR
   recording techniques

Extending/convertiong transitional partial dentures
   clinical procedure
   laboratory procedures

Examples of clinical cases treated by transitional partial dentures

Lecture: Year 3 Term 2 Week 5
Title: Precision Attachments and Sectional Dentures
Lecturer: JE Dyson

Precision attachments

Introduction
   general description
   use on natural tooth abutments and implants
   historical background
     e.g. Chaye's attachment (1906)
   role in restorative dentistry

Nomenclature (definitions)
   precision attachments (prefabricated attachments)
   semi-precision attachments (custom made attachments)

Parts
   matrix, patrix

Joint
   "fixed", movable, "stress-breaking" joint (springs)

Retention
   friction
   locking mechanism

Classification
   intracoronal
     advantages/disadvantages
     examples of prefabricated and custom made types
   extracoronal
     advantages/disadvantages, examples
   studs
     types, applications, examples
   bars
     types, applications, examples
   miscellaneous
     screws, posts, bolts, hinges etc., examples and applications
Magnets

use in overdentures

Advantages of precision attachments
aesthetics
retention, support, stability

Disadvantages of precision attachments
tooth preparation
expense/time
technique sensitive
requires careful treatment planning and preparation
difficult to maintain and repair

Sectional dentures
principles
use of multiple paths of insertion, examples
problems/dangers associated with unilateral designs

Lecture: Year 3 Term 2 Week 9
Title: Partial Denture Revision
Lecturer: APLH Dias

Principles of designing RPD

Sequence of designing RPD
mark missing teeth
indicate probable undercuts
outline saddle/s
support saddle - occlusal rests etc.
retain saddle - direct retainers (clasps, precision attachments)
- indirect retention
bracing
major connector

Surveying
brief description

Components of RPDs
saddles
occlusal rests and similar components
direct retainers
connectors
Contents of lectures - Year 4

Lecture: Year 4 Term 1 Week 1
Title: Assessment of the Complete Denture Patient
Lecturer: WC Chung

Complaint
looseness, slacking
inability to chewing
pain
poor appearance

History
dental-extraction, reasons of tooth loss, denture history
medical

Examination
extra-oral - angular cheilitis, sunken cheeks, lip eversion
intra-oral - arch form and resorption
denture bearing area - mucosal type, flabby ridge
anatomic landmarks and their significance
pathology - papillary hyperplasia, denture granuloma
radiographic - bone quality
id nerve
retained roots
pathology

Diagnosis
report of findings

Treatment plan
removal of retained roots
surgical corrections of anomalies/pathologies
tissue conditioning
new/duplication denture

Prognosis
prediction of outcome of treatment plan

Lecture: Year 4 Term 1 Week 2
Title: Stages in Complete Denture Construction
Lecturer: WC Chung

Clinical stages
stage 1 - ODTP, primary impression
stage 2 - working impression
stage 3 - jaw relationship records and facebow record
tooth shade and mould selection
stage 4 - flat plane try in
protrusive record and condylar inclination setting
stage 5 - balanced try in
base shade selection
stage 6 - delivery
check record

Laboratory stages
stage 1 - study casts
  custom trays
stage 2 - boxing of working impressions
  working models
  heat cured acrylic permanent bases
  wax occlusal rims
stage 3 - mounting
  teeth set-up in flat plane
stage 4 - teeth set-up in balance
stage 5 - process and finish in base acrylic
stage 6 - remount of lower cast

Lecture: Year 4 Term 1 Week 3
Title: The Complete Denture Base
Lecturer: JE Dyson

Requirements of the complete denture base (definitions)
  retention
  support
  stability

Retention
  outline of past theories
  description of current concept of the mechanism of retention
  need for border seal and close mucosal fit
    means of achieving these
    posterior border seal for mandibular and maxillary denture bases

Support
  factors influencing support
  quality of underlying tissues
    anatomical considerations
  area of coverage
  displacement of tissues
    impression technique
    displaceability of tissues

Stability
  (quality not only dependant on the bases)
  destabilising forces
    tongue, lips, cheeks etc.
  characteristics of the ridge
  use of overdenture abutments as aids to stability

Techniques in base construction
  preliminary impressions
    methods used and rationale
    choice of materials
  preliminary casts
  design of custom trays
  secondary impressions
    methods used and rationale
    choice of materials
  production of secondary casts
  production of acrylic base
Posselt’s envelope - revision

Changes when patient becomes edentulous

3 considerations:
- antero-posterior (horizontal)
  - most retruded/most anterior/uppermost position of condyle
  - brief introduction of centric relation/centric occlusion
  - reproducibility/prosthetic convenience
- transverse
  - brief discussion
- vertical dimension (discussed in detail)
  - importance
  - problems related to incorrect VD
  - detailed discussion:
    - what is VD?
    - where is VD?
    - how to arrive at the 'correct' VD?
  - commonly used clinical methods
    - measurement
    - aesthetics - looks good
    - phonetics - sounds good
    - complete zone - feels good
    - others

Objectives in establishing a patient’s appearance
- realism
- “beauty”
- compatibility with functional aspects

Dental factors influencing appearance
- soft tissue support
- vertical dimension of occlusion
- occlusal plane
- tooth size, shape, shade, characterization
- tooth arrangement
- “gumwork” (contour, shade)

Use (and limitations) of pre-extraction records
- photographs
- study casts
- previous immediate replacement dentures
- radiographs

Concept of “harmony” in relation to appearance
Selection of artificial tooth mould
size
guides to selection:
terlar width = distance between tips of canines (arranged in arch)
bizygomatie width/16 = width of central incisor
distance between corners of mouth = distance between tips of canines
shade
factors:
colour (value, hue, chroma), gloss, opacity, fluorescence
shape
facial shape as guide to selection
J. Leon Williams classification
square, tapering, ovoid
(+ square-tapering, tapering ovoid, square-tapering-ovoid)
J.H. Lee classification
W/W, N/N, W/N, N/W

Arrangement of artificial teeth
biometric guides
anatomical landmarks, relationship to ridges, incisive papilla
asymmetry
rotations, tilting, spacing

Relationship and perception of size, lightness and position of anterior teeth

Simulated soft tissues ("gumwork")
shade
contour (gingiva, interdental papillae, mucosa)
characterization

Common problems with complete denture aesthetics (examples) and their avoidance
"small white teeth"
teeth set too far back on ridge
regular, symmetrical tooth arrangement
"gumwork" without contour
"candy pink" acrylic
knife edged papillae
intact incisal edges

Lecture: Year 4 Term 1 Week 6
Title: Complete Denture Occlusion
Lecturer: TW Chow

Definition of occlusion

Differences between natural and artificial occlusion

Jaw relationship - must be correct

While occlusion is tooth-to-tooth contact, tooth position re: biometric guide is important in setting of teeth.
upper occlusal plane
level
orientation
lower occlusal plane
  level - tongue control

'Balanced' occlusion/articulation
  concept
determinants
  Hanau's quint
  Thielmann's "equation"
  clinical significances
  Bull rule
'unilateral balance' (group function) – a type of this used in this hospital
protrusive balance
  concept
  limitations

Occlusion for patients with skeletal
  class II
  class III

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**Lecture: Year 4 Term 1 Week 7a**
**Title: Complete Dentures using Duplication Techniques**
**Lecturer: JE Dyson**

Rationale for using a duplication technique
  enables desirable features in existing dentures to be selectively reproduced
  more predictable outcome
  reduced number of clinical appointments

Disadvantages
  ?laboratory work more demanding
  ?cost
  may be difficult if the previous dentures are grossly unsatisfactory

Specific indications
  dentures are worn down but otherwise satisfactory
  particular features of existing dentures are identified as desirable
  replacement for immediate replacement dentures
  elderly patients with poor adaptability
  convenience in domiciliary treatment

Techniques (clinical and laboratory stages)
  assessment of existing dentures
  methods of production of replicas
    silicone moulds, agar, alginate
    use of flasks, impression trays, soap box for duplication
    production of replicas in cold cured acrylic, wax or acrylic + wax teeth
  impressions
    modification of borders
    open vs. closed-mouth ("functional") impressions
  modifications to occlusal plane, lip support, VD
  jaw relationship records
    CJR
    ?situations where ICP of old dentures can be accepted
  tooth selection
    shade and mould
  setting the teeth
Case presentations

**Lecture: Year 4 Term 1 Week 7b**
**Title:** Maintenance of Prostheses - Repairs, Relining and Rebasings
**Lecturer:** APLH Dias

Role of patient
- regular and efficient cleaning of prostheses
- keeping periodic review appointments
- consult clinician if and when problems arise

Role of clinician
- regular check of:
  - prosthesis
  - oral hard and soft tissues
  - remedy, identified problems, reinforce OHI etc.

- repairs
  - fractured base
  - dislodged/fractured teeth
  - assess prosthesis for suitability for repair

- reline
  - assessment of prosthesis for reline
  - reline
  - clinical procedure
  - laboratory procedure

**Lecture: Year 4 Term 1 Week 8**
**Title:** Immediate Replacement Dentures
**Lecturer:** JE Dyson

Indications
- where all remaining teeth have very limited prognosis

Alternative approaches to treatment
- clearance followed by 3 month healing period
- transitional partial dentures later converted to complete dentures (preferred)
- overdentures

Advantages of immediate replacement dentures against 3 month healing period
- no period of "toothlessness"
- prevention of development of abnormal habits
- appearance of natural teeth can be reproduced
- protection of extraction sites
- (jaw relationship of natural teeth can be reproduced) - not a valid advantage

Disadvantages
- 3 month period without posterior teeth
no period of denture wearing experience prior to insertion
multiple extractions in one (final) stage
technical requirements
cost

Technique (c = clinical, l = laboratory stages)
(c) preparation
   clearance of posterior teeth
(c) preliminary impressions
(l) pour casts, clinician designs custom trays, construction of custom trays
(c) secondary impressions (ZnO/E, ZnO/E + alginate, elastomeric material)
(l) pour casts, construct wax rims on stabilized bases
(c) contour rims, jaw relationship records
(l) mount, set up posterior teeth in wax
(c) try in posterior teeth
(l) cut teeth off cast and replace, clinician trims casts and plans surgery, complete
   flange, process and finish
(c) extractions, surgery, denture insertion, patient instruction

Follow-up and patient instructions
24 hours
   inspection and adjustment
1 week
   inspection and adjustment, suture removal, check record
over next 3 months
   periodic inspection and adjustment, use of tissue conditioner
after 3 months
   localised reline or rebase

Case examples

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**Lecture: Year 4 Term 1 Week 9**
**Title: Prosthodontic Treatment of the Institutionalized and Housebound Elderly**
**Lecturer: JE Dyson**

The ageing society

Demographics
   Hong Kong’s elderly

General problems of the elderly
   social
   physical
   psychological

Problems of obtaining dental services in Hong Kong

Existing treatment programmes for the elderly overseas

Perceived treatment needs vs. normative needs and realistic needs

Special considerations when treating elderly living in a group

Common dental problems of the elderly
   tooth wear
   recession
root caries
advanced periodontal conditions
persistent use of unsatisfactory dentures

Patient and carer education

Treatment planning considerations
  general health, medical status, medications
  psychological aspects
  expectations and motivation
  physical limitations
  handicaps

Problems of delivery of dental care to institutionalized and housebound elderly

Basic equipment requirements

Minimizing the problem of equipment
  use appropriate techniques
  utilize on-site "equipment"
  improvise
  plan ahead

Appropriate restorative techniques
  glass ionomer cements

Appropriate prosthetic techniques
  partial denture types and designs
  complete dentures using duplication techniques

Case examples
  successes and failures

Lecture: Year 4 Term 1 Week 10
Title: Complete Dentures Opposed by Natural Standing Teeth
Lecturer: TW Chow

- includes opposing bridges and RPD

Difficulties
  stability
  aesthetics
  support/occlusal forces

Maxillary natural dentition vs. mandibular complete denture
  emphasis - extremely difficult
  treatment options:
    mandibular implant support overdenture
    mandibular implant support bridge
    maxillary clearance and C/-
    refer

Single maxillary complete denture vs. mandibular natural dentition
  concept/technique/procedures based on Winkler
  except 'unilateral balance' rather than 'bilateral balance'.
  occlusal analysis
mounted casts
occlusal plane analysis
diagnostic wax up
template for tooth reduction

Limitations should be recognized

Lecture: Year 4 Term 3 Weeks 1-5
Title: Implants 1-5
Lecturer: TW Chow

The course covers essential aspects of modern implantology using some of the teaching materials by Nobel Biocare (formerly Nobelpharma) and the cases treated in the Hospital. The course is designed to give the undergraduate an overview and understanding of osseointegrated implants. Technical details are mentioned to illustrate principles

A) Introduction
History
Discovery of Ti
Histology - bone/Ti oxide interface
Surgical and prosthodontic principles
System: Brånemark
  components: fixture (wide/narrow/regular platforms)
  abutment - various types
  prosthesis = suprastructure
    bridge
    overdenture
    single tooth
surgery: 2-stage technique
prosthodontic: various, new components constantly evolving
  screw retained/cemented

B) Treatment planning
Medical history
  importance
  absolute contraindications
  relative contraindications
Reminder
  reasons for replacement of teeth
  options: none/bridge/RPD/implants
  others: orthodontics/surgery
Diagnostics wax up - work backwards!
Ridge (bone) assessment:
The 2 “Q”s
  quality
  quantity
Radiographs/imaging techniques
  OPG
  PA
  Scanora
  CT scan
C) **Implants for edentulous patients**
   - Initial assessment
   - Make a good set of dentures first
   - Final assessment
   - Biomechanical considerations
   - Surgical stent
     - video on surgery
     - video on prosthodontics procedures
     + commentary by lecturer

D) **Implants for partially dentate patient**
   - Emphasis on TREATMENT PLAN
   - Assessment of ridge/saddle/space
   - Surgical stent
   - Anatomical precautions
     - video on surgeries in maxilla and mandible
     - video on prosthodontic procedures
     + commentary by lecturer

E) **Single tooth implant**
   - Treatment plan - important!
   - System - Ceraone
   - Surgical and prosthodontic aspects discussed in some detail to illustrate the
difficulties and the level of care necessary.
   - Illustrated by cases treated in the Hospital

F) **Maintenance**
   - Plaque control extremely important
   - Gadgets/aids for cleaning

G) **Complications**
   - Briefly mentioned. Importance in adhering to protocol emphasized. Reinforced
   the message: obtain proper training before attempting implants, start off with
   specialists.

H) **Concluding remarks**

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**Lecture:** Year 4 Term 3 Week 6
**Title:** Prosthetic Treatment of Cleft Palates and Post-Surgical Defects
**Lecturer:** WC Chung

Maxillofacial prosthetics as a sub-specialty of prosthodontics

Team personnel

Origin and nature of defects

Cleft palate
   - infant orthopedics
   - feeding appliance
   - speech appliance
   - definitive prosthetic rehabilitation
Immediate surgical prosthesis
    rationale - function/hygiene/psycho-social

Procedures
    preoperative guidelines
    intra-operative procedures
    post-operative guidelines

Hollow bulb obturator

Facial prosthesis

Functional reconstruction
    titanium mesh
    implant supported prosthesis
Reading List

Year 2

General Reading


Year 2 Term 3

Seminar 2.3.1: Components of Partial Dentures


Seminar 2.3.2: Surveying and Design


Seminar 2.3.3: Problems of the Free-End Saddle


**Seminar 2.3.4: Partial Dentures with Anterior Saddle**


**Seminar 2.3.5: Mandibular Movement, Jaw Relations and Occlusion**


**Seminar 2.3.6: Anatomy in Relation to Impressions**


**Seminar 2.3.7: Selection of Impression Materials**

1981.  
Ch. 4 : Obtaining the impression. p. 72-93.

Seminar 2.3.8 : Partial Denture Aesthetics

1.* Clark R.K.F. (ed.) An introduction to clinical prosthodontics. HKU Press,  
2. Suggested chairside procedures for natural esthetics in complete dentures.  
Dentsply International Inc. 1978.

Seminar 2.3.9 : Oral Hygiene and Sequelae of Partial Denture Wearing

1.* Clark R.K.F. (ed.) An introduction to clinical prosthodontics. HKU Press,  
2. Bergman : Periodontal reactions related to removable partial denture : A  
literature review.  
3. Bergman & Ericson : Cross-sectional study of the periodontal status of  
removable partial denture patients.  
patients treated with removable partial dentures.  

Seminar 2.3.10 : Interim, Transitional and Overlay Dentures

1.* Clark R.K.F. (ed.) An introduction to clinical prosthodontics. HKU Press,  
1981.
Ch. 19 : The removable partial overdenture. p. 300-308.
Ch. 21 : The interim prosthesis and the treatment prosthesis. p. 326-333.

**Supplementary Reading**

Dental Technology.

Clinical Removable Partial Prosthodontics.

Partial Removable Prosthodontics.

Removable Partial Denture Construction.

Dental Laboratory Technology : Prosthodontic Techniques.
Sowter, John B., (University of North Carolina) 1968.

Partial Dentures.

Removable Denture Prosthodontics, 2nd ed.

* Compulsory Reading
Seminars Year 4 Term 2

**Seminar 4.2.1 : Retention and Support (1)**


**Further reference:**


**Seminar 4.2.2 : Retention and Support (2) - Impressions**


**Seminar 4.2.3 : Jaw Relations and Records (1) - Vertical Dimension**


Seminar 4.2.4: Jaw Relations and Records (2) - Anteroposterior Jaw Relations


Seminar 4.2.5: Anterior Tooth Positioning and Selection


Seminar 4.2.6: Posterior Tooth Selection and Positioning.


Seminar 4.2.7: Complete Denture Occlusion


**Seminar 4.2.8 : Denture Insertion and Maintenance**


**Seminar 4.2.9 : Diagnosis of the Complete Denture Patient**


**Seminar 4.2.10 : Preparation of the Mouth for Complete Denture**

Seminar 4.3.1: Duplication of complete dentures and refining/rebasing


Seminar 4.3.2: Overdentures


Seminar 4.3.3: Implants


**Seminar 4.3.4: Precision attachments**


**Seminars 4.3.5-7: R.P.D. design and treatment planning**

*Practical sessions on design and treatment planning. Students advised to review the reading material recommended for the 2nd year course.*