

**The University of Jordan**  
**Faculty of Dentistry**  
**Department of Conservative Dentistry and Prosthodontics**  
**2014/2015**

**Course Title:** Conservative Dentistry 4 Crown & Bridge (practical)

**Course Code:** 1302420

**Semester:** 1<sup>st</sup> and 2<sup>nd</sup> semesters/ 4<sup>th</sup> year

**Prerequisite:** None

**Credits:** 2 credit hours

**Department:** Conservative Dentistry

**Module Coordinator(s):** Dr Firas Shaini

**Instructor (s):**

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**Course Objectives:**

The objectives of this course are:

- To improve the manual dexterity of the students in performing various intra-coronal and extra-coronal tooth preparations related to fixed prosthodontics.
- The students should be able to successfully prepare full coverage and partial coverage restoration on acrylic teeth in a clinically simulated setting.
- The students should learn to use the instruments and materials pertinent to fixed prosthodontics.
- To provide the students with the fundamental practical skills of fixed prosthodontics necessary to be able to deal with patients that needs indirect restoratives in a clinical setting.
- To provide the students with fundamentals for restoring endodontically treated teeth.
- To introduce the students to the laboratory steps in constructing indirect restorations.
- Use management and clinical self-evaluation skills in delivering clinical dental care.

**Learning Outcomes:**

Successful completion of this course should lead to the following learning outcomes:

**A. Knowledge and understanding, student should:**

- Understand the biological, mechanical and esthetic principles of tooth preparation for fixed prosthodontics
- Discuss the different materials used in impression making and final cementation and the use of each one according to the clinical situation
- Understand the importance of provisional restorations to prosthodontic therapy, as well as the different materials and methods used for their fabrication
- Get introduced to the casting procedures and porcelain build up for porcelain fused to metal restorations

**B. Intellectual skills, with ability to:**

- Consolidate the biological, mechanical and esthetic principles of tooth preparation for fixed prosthodontics in different clinical scenarios
- Troubleshoot the errors pertaining to inaccuracies in indirect restoratives construction
- Recognize the requirements of a successful working cast made for fixed prosthodontics
- Recognize the different cements used for luting indirect restoratives, understand their properties, and application for a successful cementation step

**C. Subject specific skills, with ability to:**

- Prepare various teeth for full coverage cast metal, porcelain fused to metal, or all ceramic crowns
- Prepare various teeth for inlays and onlays
- Perform prefabricated and cast posts on mounted extracted natural teeth
- Use and apply the different techniques of impression making
- Successfully complete a wax up for a full coverage restoration
- Perform various provisional restorations using various techniques

**D. Transferable skills, with ability to:**

- Understand the importance of a comprehensive treatment plan that considers various options for teeth replacement, teeth coverage and protection. In addition to the importance of consultation with other specialties, referral and team work.

**Teaching Methods:**

**Duration:** 30 weeks in 1<sup>st</sup> and 2<sup>nd</sup> semesters (4<sup>th</sup> year), 60 hours in total.

**Practical sessions:** one 2-hour session every week (including one-hour midterm and final practical exams).

**Course Content:**

Week #	Date	Exercise
1	14-16/9	Introduction and instructions
2	21-23/9	Finish line and taper
3	28-30/9	Cast metal crown preparation L6

4	5-7/10	<i>Eid Al-Adha Holiday (estimated)</i>
5	12-14/10	Cast metal crown preparation L6
6	19-21/10	Cast metal crown preparation U6
7	26-28/10	Cast metal crown preparation U6
8	2-4/11	PFM crown preparation U6
9	9-11/11	PFM crown preparation U6
10	16-18/11	PFM crown preparation L6
11	23-25/11	PFM crown preparation U4
12	30-2/12	PFM crown preparation U1
13	7-9/12	All ceramic crown preparation U1
14	14-16/12	All ceramic crown preparation U3
15	21-23/12	Impressions, provisionals and working cast tutorial <b>QUIZ</b>
16	28-30/12	Midterm exam (PFM crown preparation L6)
<b>Second semester</b>		
17		Prefabricated posts
18		Cast posts
19		Primary impression making
20		PFM bridge preparation L4-L6
21		Secondary impression making <b>QUIZ</b>
22		Wax up L5
23		Provisional crowns
24		Provisional bridges
25		Provisional bridges
26		Working casts <b>QUIZ</b>
27		$\frac{3}{4}$ crown preparation U4
28		Onlay preparation L6
29		Delivery and cementation
30		Free exercise
31		Final exam (PFM crown preparation U6)

### **Requirements:**

- Instruments and materials (needed for all labs):
  - Basic examination set (mirror, cotton pliers and probe)
  - Periodontal probe
  - Maxillary and mandibular phantom jaws

- Acrylic teeth (the tooth to be prepared in that session+ the teeth mesial and distal to that tooth). Teeth have to be fixed to the jaws using screws; fixing teeth with wax or superglue is not acceptable.
- Diamond cutting burs (tapered chamfer, tapered shoulder, needle, and wheel burs)
- In addition to the above, the following labs require more materials to be prepared:
  - **Lab # 17 (prefabricated posts):**
    1. **Extracted, root canal treated molars mounted in a plaster block**
    2. Gates glidden sizes (2-5) with rubber stops
    3. K-files
    4. Clean glass slab and cement spatula
    5. Endo ruler (ring)
    6. High speed carbide fissure bur
  - **Lab # 18 (cast posts):**
    1. **Extracted, root canal treated anterior teeth mounted in a plaster block**
    2. High speed diamond chamfer/shoulder burs
    3. Items # 2-5 from lab #17
    4. Vaseline
    5. 2 clean dappen dishes
    6. A small paint brush
  - **Lab # 19 (primary impression making):**
    1. Different sizes of maxillary and mandibular stock trays (for dentates)
    2. Plastic mixing bowl and spatula for alginate
    3. Mandibular jaw with the lower 1<sup>st</sup> premolar removed (fill in the socket with wax) and intact # 4 and # 6 on the same side
  - **Lab # 20 (PFM bridge preparation L4-L6):**
    1. You have to prepare the same teeth you took an impression for in lab #20
  - **Lab # 21 (Secondary impression making):**
    1. Bring the jaw and prepared teeth from lab #21
    2. Retraction cord packer
    3. Cutter
    4. Different sizes of stock trays (for dentates)
    5. Glass slab
    6. Cement spatula
  - **Lab #22 (Wax up L5):**
    1. **The diagnostic cast you made in lab # 20**
    2. Waxing instruments kit (every 2-3 students from different groups can share the instruments)
    3. Tooth brush

- **Lab # 23 (Provisional crowns):**
  1. Dental scissors
  2. Ruler
  3. A small rubber dish for mixing acrylic
  4. Cement spatula
  5. Vaseline
  6. Acrylic bur
  7. A small camel paint brush
  8. 2 clean dappen dishes
  
- **Lab # 24 & 25 (Provisional bridges):**
  1. **The diagnostic wax up performed in lab # 24**
  2. Cutter
  3. Items # 3-8 from lab # 25
  
- **Lab # 27 & 28 (3/4 crown preparation)**
  1. Tapered fissure carbide bur

#### Evaluation system:

- The system will be based on the evaluation of the quantity as well as the quality of the work
- **60 marks** will be calculated from the daily projects and quizzes. Each project or quiz will be graded out of 10 marks.
- **40 marks** will be the average of the midterm and final exams.
- **Quizzes:**
  - During the course, students will be given 3 predetermined quizzes of 5-10 minutes each.
  - *Pop-quizzes are also given to evaluate students' preparation for the lab.*
  - The quiz will evaluate the knowledge of the students in fixed prosthodontics, especially in the aspects that are directly related to the clinical work.
  - The quiz can be in the form of MCQs, short essay questions, or short questions about a diagram or a photo.
  - The quizzes will be held after 5 minutes from the beginning of the lab, to allow for all students to be present. Any student who comes after the end of the quiz will be considered absent for the quiz and he/she will lose the allocated marks of that quiz.
- **One mark** will be deducted from the 60 marks for the daily projects, each time these violations are committed:
  - Coming late more than 5 minutes to the start time of the lab
  - Leaving the allocated work place dirty or untidy
  - Failing to get ready for the lab; either bringing the required materials, or preparing necessary pre-lab reading

- Leaving the lab without being excused
- Students get the chance at the end of the course (in the free exercise sessions) to repeat the lowest 2 grades they achieved throughout the course. The marks that CAN NOT be repeated are: quizzes, zeros, provisionals and the wax up exercise!

#### Attendance:

- Students are allowed 15% absence according to the laws of the university. This stands for 4 sessions for 4<sup>th</sup> year students in this practical course.

#### References and reading materials:

- **Fundamentals of Fixed Prosthodontics;** Shillingburg, Herbert T.; Hobo, Sumiya; Whitsett, Lowell D.; Brackett, Susan E, 3<sup>rd</sup> edition, Quintessence Publishing (IL)
- **Contemporary Fixed Prosthodontics;** Rosenstiel S F, Land M F, Fujimoto J, 4<sup>th</sup> edition, Mosby

#### APPINDEX

- Final and midterm exam evaluation criteria

## PFM crown preparation evaluation criteria

Please rate your preparation for the following categories:

<b>Margin placement</b>	<b>Finish, Margins and Walls</b>	<b>Taper</b>	<b>Axial reduction</b>	<b>Occlusal reduction</b>
<ul style="list-style-type: none"> <li>Even with or 0.5 mm occlusal to FGM or CEJ</li> </ul> <p style="text-align: right;"><b>8</b></p>	<ul style="list-style-type: none"> <li>Margins are continuous, well defined</li> <li>Margins and walls are smooth</li> </ul> <p style="text-align: right;"><b>8</b></p>	<ul style="list-style-type: none"> <li>Taper fully visible (5-8°)</li> </ul> <p style="text-align: right;"><b>8</b></p>	<ul style="list-style-type: none"> <li>Sufficient tissue removal for metal and porcelain (1.5-2 mm)</li> <li>Rounded angles and smooth curves</li> </ul> <p style="text-align: right;"><b>8</b></p>	<ul style="list-style-type: none"> <li>1.5-2 mm reduction on functional cusps</li> <li>1-1.5 mm reduction on non-functional cusps</li> <li>Reduction is following occlusal morphology</li> </ul> <p style="text-align: right;"><b>8</b></p>
<ul style="list-style-type: none"> <li>Slightly over-extended, not more than 0.5 mm apical to FGM or CEJ</li> <li>Slightly under-extended, not more than 1 mm occlusal to FGM or CEJ</li> </ul> <p style="text-align: right;"><b>5</b></p>	<ul style="list-style-type: none"> <li>Margins or walls are slightly rough, but the finish line is continuous</li> </ul> <p style="text-align: right;"><b>5</b></p>	<ul style="list-style-type: none"> <li>Taper present but near parallel</li> <li>Moderately over-tapered (8-16°)</li> </ul> <p style="text-align: right;"><b>5</b></p>	<ul style="list-style-type: none"> <li>Moderate under or over removal of tooth structure</li> <li>Moderate lack of rounded angles and smooth curves</li> </ul> <p style="text-align: right;"><b>5</b></p>	<ul style="list-style-type: none"> <li>Moderate under or over reduction</li> <li>Lack of general occlusal morphology</li> </ul> <p style="text-align: right;"><b>5</b></p>
<ul style="list-style-type: none"> <li>Significantly over-extended, more than 0.5 mm apical to FGM or CEJ</li> <li>Significantly under-extended, more than 1 mm occlusal to FGM or CEJ</li> </ul> <p style="text-align: right;"><b>2</b></p>	<ul style="list-style-type: none"> <li>Finish line is very rough or not continuous</li> <li>Walls are very rough</li> </ul> <p style="text-align: right;"><b>2</b></p>	<ul style="list-style-type: none"> <li>Severely over-tapered walls (&gt;16-20°)</li> <li>Undercuts visually present</li> </ul> <p style="text-align: right;"><b>2</b></p>	<ul style="list-style-type: none"> <li>Severe under or over reduction of the tooth structure</li> <li>Very sharp line or point angles</li> </ul> <p style="text-align: right;"><b>2</b></p>	<ul style="list-style-type: none"> <li>Significant under or over reduction</li> <li>Functional (&lt;1mm, or &gt;3mm)</li> <li>Non-functional (&lt;0.5mm, or &lt;2.5mm)</li> <li>Flat occlusal reduction</li> </ul> <p style="text-align: right;"><b>2</b></p>

- **2 points will be deducted for each traumatized surface of the adjacent teeth.**
- **If your rating matched our rating, you will get 5 marks bonus to your final exam grade 😊.**