COURSE OUTLINE

DENTAL LABORATORY TECHNOLOGY PROGRAM

Applied Dental Biomaterials Science

222 DLTP

Course Director : DR. ALAA E. EL-ARABY

2007 – 2008
(1428-1429)
Credit Hours:
2 credit hours
Didactic : 2 credit hours

Duration
1 year course

Pre-requisites
DLTP 121

Course Description:
This course will provide both didactic and simulated clinical experiences in the general consideration and properties needed to understand specific dental material. Particular emphasis will be placed on applications, terminology, and classifications for each type of dental material. The properties of materials are divided into important physical, chemical, mechanical, and biologic properties with particular emphasis on the value of the Dental Technician in selecting the appropriate materials for specific dental procedures.

This course is designed to introduce the student to the properties and manipulative techniques of further advanced dental materials used in the dental laboratory.

Through 30 weekly lectures, the student will be able to understand the composition and the properties of dental materials.

Course Objectives:
Upon completion of this course, the dental technician should be able to:

1. Apply the basic dental materials principles to each system.
2. Select and know the main characteristics of each material as well as their intended use.
3. Correctly manipulate and understand the technical considerations for each material.
4. Be qualified in the handling, care, and storage of all types of materials in the dental lab.
Course outline

**Lecture 1**
Introduction to the Course

**Lecture 2**
Impression materials: Hydrocolloids

**Lecture 3**
Impression Materials: Elastomeric Materials

**Lecture 4**
Impression Materials: Rigid Materials

**Lecture 5**
Dental Gypsum Products: Plaster, Stone, and Improved Stone

**Lecture 6**
Dental Gypsum Products: Investments

**Lecture 7**
High-expansion Investment

**Lecture 8**
Other Die Materials
Lecture 9
Precious Metal Casting Alloys (I)

Lecture 10
Precious Metal Casting Alloys (II)

Lecture 11
Dental Casting: Base-Metal Casting Alloys

Lecture 12
Dental Casting: Wax Patterns and Spruing

Lecture 13
Dental Casting: Investing and Burnout

Lecture 14
Dental Casting: Melting

Lecture 15
Dental Casting: Casting Defects

Lecture 16
Dental Casting: Soldering, Welding and Electroplating

Lecture 17
Abrasion, Finishing and Polishing
Lecture 18
Orthodontic Wires

Lecture 19
Dental Porcelain

Lecture 20
Porcelain Technique

Lecture 21
Color and Appearance

Lecture 22
Selection of Shade

Lecture 23
Shade matching in the Dental Lab.

Lecture 24
Dental Implant

Lecture 25
All ceramic restorations I

Lecture 26
All ceramic restorations II
Lecture 27
Polymeric denture base I (heat cured)

Lecture 28
Polymeric Denture base II (Properties)

Lecture 29
Polymeric Denture base III (chemically cured)

Lecture 30
Polymeric denture base IV (other denture base materials)

Lecture 31
Restorative composite resin

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Student Evaluation:

The students shall have two written continuous assessments, one written mid term exam, and one final exam. Oral examinations shall be given in addition to the written examinations.

The assessments and the midterm counts for 60% of the grade. The final exam shall count for 40% of the grade.

Principal Reference

- Contemporary Dental Materials, Dhuru
- Handouts shall be given.