دانشگاه علوم پزشکی

و خدمات بهداشتی درمانی ایران

معاونت آموزشی

مركز مطالعات و توسعه آموزش علوم پزشکي

واحد برنامه ریزی آموزشي

**چارچوب طراحی «طرح دوره نظری- عملی«**

**Course Title**: Fundamentals of Dental Materials

**Type and Number of Credits**: Theoretical, 1 credit

**Course Coordinator**: Dr. Atieh Sadat Hashemian

**Prerequisites/Co-requisites**: None

**Program and Level of Study**: **Doctor of Dental Surgery (D.D.S.)**

**Course Coordinator Information:**

* **Academic Rank**: Assistant Professor
* **Specialty**: Dentist - PhD in Dental Biomaterials
* **Workplace**: International Campus, Faculty of Dentistry, Iran University of Medical Sciences
* **Contact Information**:  
  **Email**: atieh.h999@gmail.com

**General Description of the Course:**

In the "Fundamentals of Dental Materials" course, the classification of materials used in dentistry, descriptions of material properties, and methods for their use are taught. By the end of the course, the student should have comprehensive knowledge of dental materials, considering their function, composition, and properties.

**General Objectives/Competency Focus Areas:**

The student should be familiar with the definition, classification of materials, their general properties, the characteristics of each material used in dentistry, and how to apply them.

**Specific Objectives/Core Competencies:**

**By the end of this course, students are expected to:**

* Understand the classification of materials and their various properties.
* Know the classification and characteristics of impression materials, the fundamentals of restorative dental materials, and adhesives.
* Explain the types of dental cements, the classification of dental alloys, and the physical properties of alloy systems.
* Explain the fundamentals and applications of dental ceramics.
* Understand the fundamentals and applications of dental waxes and acrylic resins.

**Educational Approach:**

* **☐ Virtual**
* **⬛ In-person**
* **☐ Hybrid**

**Teaching-Learning Methods Based on the Chosen Educational Approach:**

**Virtual Approach**:

* ☐ Flipped Classroom
* ☐ Digital Game-Based Learning
* ☐ Interactive e-Learning
* ☐ Problem-Based Learning (PBL)
* ☐ Others (Specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**In-Person Approach**:

* ⬛ Interactive Lecture (Q&A, quizzes, group discussions, etc.)
* ⬛ Small Group Discussions
* ☐ Team-Based Learning (TBL)
* ☐ Problem-Based Learning (PBL)
* ☐ Scenario-Based Learning
* ☐ Peer Teaching
* ☐ Game-Based Learning
* ☐ Others (Specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Hybrid Approach**: A combination of methods from the virtual and in-person approaches will be used. Please specify: \_\_\_\_\_\_\_\_\_\_

**Course Calendar for "Fundamentals of Dental Materials"**

| **Day & Time** | **Sundays, 10-11 AM** |  |
| --- | --- | --- |
| Session | Topic |  |
| 1 | Definition of Tooth Structure, Surrounding Tissues, Mechanism of Decay, and Preventive Materials | 01/07/1403 |
| 2 | Definition and Classification of Materials, Electrical and Thermal Properties of Dental Materials | 08/07/1403 |
| 3 | Mechanical Properties of Dental Materials, Optical Properties | 22/07/1403 |
| 4 | Polymer and Polymerization Process | 29/07/1403 |
| 5 | Overview of Restorative Dental Materials (Composite) | 06/08/1403 |
| 6 | Overview of Adhesives | 13/08/1403 |
| 7 | Classification of Alloys and Physical Properties of Alloy Systems | 20/08/1403 |
| 8 | Overview of Restorative Dental Materials (Amalgam) | 27/08/1403 |
| 9 | Overview of Dental Ceramics | 04/09/1403 |
| 10 | Introduction to Dental Cements | 11/09/1403 |
| 11 | Impression Materials and Their Types | 18/09/1403 |
| 12 | Gypsum and Investments in Dentistry | 25/09/1403 |
| 13 | Waxes and Acrylic Resins in Dentistry | 02/10/1403 |

**Student Responsibilities and Expectations:**

* Regular attendance in class
* Active participation in class

**Student Evaluation Method:**

Written multiple-choice exam on specified dates.

| **Evaluation Method** | **Score** |
| --- | --- |
| Mid-term Exam | 8 points |
| Final Exam (Written, multiple-choice) | 12 points |

**References:**

1. **Craig’s Restorative Dental Materials**
2. **Introduction to Dental Materials by Richard van Noort**
3. **Dental Materials: Foundations and Applications by Powers**