

**Faculty of Oral & Dental Medicine**  
**Laser Applications for Medicine & Periodontology**

**Information :**

**Course Code :** MPDR 551      **Level :** Undergraduate      **Course Hours :** 2.00- Hours

**Department :** Faculty of Oral & Dental Medicine

**Instructor Information :**

| Title              | Name                                  | Office hours |
|--------------------|---------------------------------------|--------------|
| Professor          | Gihan Abdelfattah Abdelaal Omar       | 2            |
| Assistant Lecturer | Mona Ahmad Saeed Mokhtar Mohamed Nour | 4            |
| Assistant Lecturer | SARA ZAKARIA FAHIM FANOS              | 2            |
| Assistant Lecturer | Rana Mohamed Ashrf Hazem Ibrahim      | 12           |
| Teaching Assistant | Dina Nasser Tawfik Mahmoud Gibriel    | 2            |

**Area Of Study :**

1. To demonstrate general understanding of laser use in dentistry
2. To improve the health and well being of patients through the proper use of laser technology.
3. To overview the research and clinical aspects of the safe and effective uses of lasers in dentistry

**Course outcomes :**

**a. Knowledge and Understanding: :**

|      |  |
|------|--|
| 1 -  | 1. Understand the scientific and clinical principles of lasers in dentistry.               |
| 2 -  | 2. Learn basic concepts of laser physics and segmentation of wavelengths.                  |
| 3 -  | 3. Understand the nature of light, the light spectrum and laser wavelengths.               |
| 4 -  | 4. Understand the basic elements of laser - tissue interaction.                            |
| 5 -  | 5. Become familiar with different types of laser used in dentistry                         |
| 6 -  | 6. Acquire thorough knowledge of laser set up, delivery system and power settings.         |
| 7 -  | 7. Acquire thorough knowledge of laser applications used in dental soft tissue management. |
| 8 -  | 8. Acquire thorough knowledge of laser applications used in dental hard tissue management. |
| 9 -  | 9. Become familiar with laser use protocols.   |
| 10 - | 10. Learn laser safety and infection control in the dental practice.                       |

**b. Intellectual Skills: :**

|     |  |
|-----|--|
| 1 - | 1- Make decisions regarding proper proper laser type, mode, and frequency. |
| 2 - | 2- Understand the wide advantages of using laser in the dental office.     |

**c. Professional and Practical Skills: :**

|     |   |
|-----|---|
| 1 - | 1- Gain experience with the use of lasers through hands-on clinical simulation. |
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|--|--|
| 2 -  | 2- Laser applications used in dental soft tissue management.   |
| 3 -  | 3- Laser applications used in dental hard tissues.   |
| 4 -  | 4- Learn how to successfully integrate laser use in treatment diagnosis.   |
| <b>d.General and Transferable Skills :</b> |  |
| 1 -  | 1- Regularly assess one's knowledge and skills, and seek additional information to correct deficiencies and enhance performance. |
| 2 -  | 2- Implement and monitor infection control and environmental safety programs according to current standards.                     |

| <b>Course Topic And Contents :</b>             |                     |                |   |
|--|---------------------|----------------|---|
| <b>Topic</b>                                   | <b>No. of hours</b> | <b>Lecture</b> | <b>Tutorial / Practical</b>                       |
| Introduction to the course                     | 3                   |                | "Introduction to DD and description of the lesion |
| The Nature of Light                            | 3                   |                | "Periapical RL "A Pericoronal RL                  |
| The Wonderful World of Dental Lasers           | 3                   |                | "Solitary well defined RL "A Solitary ill defined |
| Laser generation                               | 3                   |                | "Anter-radicular RL "A Multilocular RL            |
| Laser-tissue interaction                       | 3                   |                | "Multiple separate RL "A Generalized RL           |
| Laser in dentistry(advantages and limitations) | 3                   |                | "DD Excercises on RL lesions                      |
| The family tree of lasers in dentistry         | 3                   |                | "Mixed lesions related to teeth (periapical and p |
| The family tree of lasers in dentistry(cont)   | 3                   |                | "Mixed lesions not related to teeth               |
| Clinical cases, soft tissue                    | 3                   |                | "RO lesions                                       |
| Clinical cases, soft tissue(cont.)             | 3                   |                | "DD Excercises on mixed and RO lesions            |
| Clinical cases, hard tissue                    | 3                   |                | "Clinical Demonstration                           |
| Clinical cases, hard tissue(cont)              | 3                   |                | "Clinical Demonstration                           |
| Laser safety                                   | 3                   |                | "Clinical Demonstration                           |
| Laser regulations                              | 3                   |                | "Clinical Demonstration                           |

| <b>Teaching And Learning Methodologies :</b> |
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| Lectures                                     |
| Open . Discussion lectures                   |
| Demonstrations                               |

videos

Case studies

Work sheets

Report back sessions

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|-----------------------|-------------------|---------|-------------|
| Class work            | 20.00             |         |             |
| Final Examination     | 50.00             |         |             |
| Midterm exams         | 30.00             |         |             |

**Recommended books :**

- Atlas of Laser Applications in Dentistry Coluzzi DJ, Convissar RA. 2007
- Dental Applications of Advanced Lasers 2004 Edition Jeffrey G. Manni