

Laser Dentistry

Seminar/Lab./Clinic Academic year 1,2 credits 2·2·10

[Keywords] Dental LASER, Conservative treatment

[Academics] Takashi Saito

[Course aims]

LASER is an acronym for Light Amplification by Stimulated Emission of Radiation. It has been widely used for examination within medical and dental treatment.

The aims of this course are to acquire the knowledge and skills necessary to conduct basic and clinical research in LASER dentistry. This course deepens the student's understanding of preventative methods, examination, diagnosis, treatment, and maintenance of caries and other oral hard tissue diseases, using dental LASER. These aims are achieved through lectures and laboratory training to create qualified laser dentistry specialists who are further able to acquire knowledge and skills necessary to give correct treatment using LASER, based on different cases presented in clinical training.

[Course objectives]

The goals of this course are for students to be able to:

1. Explain the general characteristics of LASER, including the oscillation principle and types of LASER.
2. Explain the characteristics of diverse types of LASER.
3. Explain the action of LASER in body tissue.
4. Explain the hard tissue-transpiration, soft tissue-resection, pain relief, wound healing and other effects using LASER.
5. Understand and perform safety management of LASER.
6. Understand and perform conservative treatment using Er:YAG LASER.
7. Understand and perform conservative treatment using CO₂ LASER.
8. Understand and perform conservative treatment using Diode LASER .
9. Explain the application of LASER in dental-related fields (LASER-Welding, CAD/CAM system).
10. Understand and use the techniques for basic and clinical research in LASER dentistry.

[Course content]

Class	Theme	Content	Academics
1 S 2	Learn the basics of LASER.		Takashi Saito
3	Learn the safety management of LASER.		Takashi Saito
4	Learn the practices of in vitro research and related analytical methods.		Takashi Saito
5	Learn the practices of in vitro research and related analytical methods.		Takashi Saito
6	Learn how to present studies at scientific conferences and write papers.		Takashi Saito
7	Hold a journal club.		Takashi Saito
8	Hold a clinical conference.		Takashi Saito
9	Hold seminars with external lecturers.		Takashi Saito
10	Practical training in LASER dentistry using dental models such as extracted teeth and artificial teeth.		Takashi Saito
11	Perform conservative treatment using LASER on patients under		Takashi Saito

Class	Theme	Content	Academics
	our supervision.		

[Class implementation method]

Combination of face-to-face learning and distance learning

Class implementation depends on the implementation policy of each department (graduate school) or school.

[Grading policies]

Your overall grade in class will be decided based on class attendance and reports.

[Textbook]

Students will be informed of which textbook to use.

[Reference book]

Students will be informed of which reference book to use.

[Remarks]

Students must experience at least half of the clinical cases needed to become a specialist.

[Preparation for course]

Students must understand the course objectives and prepare appropriately for classes.