

### Course Title

Clinical Digital Communication with the Dental Laboratory

### Department/Chair Offering the Course

Department of Removable Prosthodontics

### Department/Chair Address

University of Zagreb School of Dental Medicine, Gundulićeva 5, HR-10000 Zagreb

### Course Status

Elective Course

### Year of Study

5th Year

### Semester

Winter Semester

### Number of ECTS Credits

1 ECTS

### Course Leader

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### Other Teaching Staff Involved

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### Number of Teaching Hours

	Winter Semester	Summer Semester	Total (Both Semesters)
Lectures	15	-	15
Seminars	15	-	15
Practicles	-	-	-
Total	30	-	30

1 class = 45 minutes

### Type of Practical Work

This course has no practicals.

## Course Objectives and Purpose

The aim of the course is to teach students about the diversity of digital technologies, how to work with them, and the methods of transferring obtained information to the dental laboratory. The course also aims to demonstrate the use of digital technologies in the dental laboratory and the return process of the obtained results to the dental clinic for trial or final delivery. Furthermore, the goal is to train students to achieve a satisfactory level of communication with the dental laboratory in order to achieve high-quality dental outcomes.

## Course Enrollment Requirements

There are no prerequisites for enrollment in this course for students in the 5th year of the integrated undergraduate and graduate study of Dental Medicine. The course is elective and students enroll in it by their own choice.

## Program-Level Learning Outcomes to which this Course Contributes:

- Knowledge, skills, and competencies related to professionalism, ethics, and law
- Knowledge, skills, and competencies related to communication and social skills
- Knowledge, skills, and competencies related to fundamental knowledge and the ability to retrieve information from the literature
- Knowledge, skills, and competencies related to the collection of clinical information
- Knowledge, skills, and competencies related to diagnosis and treatment planning
- Knowledge, skills, and competencies related to therapy, establishment, and maintenance of oral health
- Knowledge, skills, and competencies related to preventive measures and health promotion

## Expected Learning Outcomes

1. Describe analog and digital procedures in the dental profession
2. Describe methods for assessing the color of dental structures
3. Describe procedures for digital scanning of the oral cavity
4. Describe digital and laboratory procedures
5. Describe the process of digital design and fabrication of prosthetic, orthodontic, and surgical restorations
6. Describe the process of digital planning of implant therapy
7. Describe forms of communication with the dental laboratory
8. Describe the protocol for using various modules on the digital spectrophotometer and interpreting the obtained results
9. Describe the procedure for using digital photography equipment and methods of documentation

## Course Content

### Lectures

	Lecture Topics in Winter Semester	Number of Teaching Hours
1.	Introductory lecture, basics of digital technologies, importance of proper information transfer to the dental laboratory	1

2.	Photography using a digital camera and mobile device	1
3.	Procedure for clinical digital tooth shade determination	1
4.	Procedure for laboratory digital tooth shade determination	1
5.	Intraoral digital impression taking	1
6.	Procedure for laboratory digital scanning of a plaster model	1
7.	Digital design of future restorations	1
8.	3D printing of models and temporary restorations	1
9.	Digital fixed prosthodontic restorations	1
10.	Digital removable prosthodontic restorations	1
11.	Digital orthodontic restorations	1
12.	Digital planning of implant therapy	1
13.	Digital implant restorations	1
14.	Virtual patient	1
15.	Final lecture and recap	1

1 class = 45 minutes

#### Seminars

	Seminar Topics in Winter Semester	Number of Teaching Hours
1.	Introduction to various types of digital technologies, comparison with analog technologies	1
2.	Basics of dental photography – digital camera settings, exposure, aperture, shutter speed, ISO sensitivity	1
3.	Basics of dental photography – mobile device settings, ambient lighting conditions, setting applications	1
4.	Use of a digital spectrophotometer in clinical practice	1
5.	Procedure for digital tooth shade measurement from a digital photograph	1
6.	Protocol for digital impression taking and handling of equipment	1
7.	Overview of different types of digital data transfer from the dental office to the dental laboratory	1
8.	Use of digital software for designing future restorations	1
9.	Fabrication of a PMMA printed model	1
10.	Digital fixed prosthodontic demonstration of clinical cases	1
11.	Digital removable prosthodontic demonstration of clinical cases	1
12.	Digital orthodontic demonstration of clinical cases on a virtual model	1
13.	Digital surgical demonstration of implant therapy planning software	1
14.	Application of digital software for virtual planning of the patient's future appearance	1
15.	Recapitulation of acquired knowledge	1

1 class = 45 minutes

### Student Obligations

The student is required to attend all lectures and seminars and submit a seminar paper on a course-related topic before the exam.

### Monitoring Student Progress

Student performance is monitored through attendance records and written and oral exams.

### Examination Method

Written and oral exam

### Exam Dates

	Extraordinary Exam Period			Regular Exam Period – WINTER	Extraordinary Exam Period		Regular Exam Period – SUMMER		Regular Exam Period – AUTUMN	
	November	December	January	February	April	May	June	July	August	September
P e r i o d s	x	x	x	04.02.2026. 18.02.2026.	x	x	10.06.2026. 24.06.2026.	08.07.2026.	26.08.2026.	16.09.2026.

### Required Literature

- Masri R, Driscoll CF. Clinical Applications of Digital Dental Technology. New Jersey; Wiley-Blackwell, 2015.
- Duarte Jr S (urednik). QDT 2020 - Quintessence of Dental Technology 2020. Zagreb; Quintessence Publishing, 2020.
- Ahmad I, Al-Harbi F. 3D Printing in Dentistry 2019/2020. Zagreb; Quintessence Publishing, 2018.