

**Course title: Experimental evaluation of glass ionomer cements**

**Department: Department of endodontics and restorative dental medicine**

**Address: Gundulićeva 5, 10000 Zagreb, Croatia**

**Total ECTS points: 3**

**Course leader: Professor Katica Prskalo, DDM, MSc, PhD**

**Course associates: /**

### **Teaching plan**

	<b>No. classes</b>
<b>Lectures</b>	4
<b>Seminars</b>	5
<b>Practicals</b>	6
<b>Total</b>	15

1 class = 45 minutes

### **Course description**

Glass ionomer cements (GICs) are restorative materials of diverse clinical applications thanks to numerous types and subtypes that are results of variations in material composition. The course will cover the composition and structuring of GIC, GIC bioactivity, GIC properties, clinical application of GIC, and the role of GIC in caries prevention and treatment, with an emphasis on experimental evaluation.

### **Learning outcomes**

After completing the course the student will be able to:

1. Critically evaluate glass ionomer cement (GIC) as a type of restorative material and also in relation to other restorative materials.
2. Apply the acquired knowledge about GIC in research and different clinical situations
3. Understand, interpret, compare and explain the advantages and disadvantages of GIC
4. Apply knowledge in new situations

### **Course content**

Lectures

	<b>Lecture topics</b>	<b>Number of classes/hours</b>
<b>1.</b>	Definition, composition, chemical reaction during setting of the GICs	1
<b>2.</b>	Bonding of glass ionomer cement to tooth hard tissues	1
<b>3.</b>	Advantages and disadvantages of GIC	1

<b>4.</b>	GIC classification	1
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1 class = 45 minutes

#### Seminars

	<b>Seminar topics</b>	<b>Number of classes/hours</b>
<b>1.</b>	Evaluation of GIC adhesion bonding to dental tissues	1
<b>2.</b>	Evaluation of mechanical properties of GIC	1
<b>3.</b>	Fluorides in GIC	1
<b>4.</b>	GIC biocompatibility	1
<b>5.</b>	Polymerization shrinkage of GIC	1

1 class = 45 minutes

#### Practicals

	<b>Practicals topics</b>	<b>Number of classes/hours</b>
<b>1.</b>	Demonstrations of working with the Olympus stereozoom microscope (Olympus Optical Co., Hamburg, Germany), digital camera, and Olympus DPSOft 3.2 program for digital data processing and image analysis.	1
<b>2.</b>	Microscopic analysis of teeth sections restored with glass ionomer restorations.	1
<b>3.</b>	Evaluation of bonding strength in enamel and dentin at different hard tissue conditioning procedures	1
<b>4.</b>	Analysis of adhesion and cohesion fractures	1
<b>5.</b>	Determination of GIC microhardness	1
<b>6.</b>	Evaluation of the degree of remineralization of caries lesion restored with glass ionomer cement according to clinical criteria and by the comparison of Diagnodent findings before and after the remineralization procedure.	1

1 class = 45 minutes

#### Literature

1. Prskalo, Katica. Glass ionomer cements // Restorative dental medicine / Tarle, Zrinka (ur.). Zagreb: Medicinska naklada, 2021. str. 165-184.
2. Davidson L Carel, Mjör A Ivar. Advances in glass-ionomer cements. Chicago: Quintessence Publ Co., 1999.

3. Mount J Graham. An atlas of glass-ionomer cements. A clinical guide. 3rd edition. London: Martin Dunitz. 2002.
4. Relevant articles published in peer-reviewed journals.

### **CV (*curriculum vitae*) and bibliography of course leader**

Katica Prskalo graduated in 1986 from the School of Dental Medicine in Zagreb. Since 1989 she has been working at the Department of Endodontics and Restorative Dentistry of the School of Dental Medicine in Zagreb, today as a full professor, and a specialist in dental and oral pathology with periodontology.

During her work so far, she has dealt with various dental disciplines. She graduated in the field of removable prosthetics. She completed her postgraduate studies in Gnatology, and in her later work, is more concerned with restorative dental materials.

She participates in pre-clinical and clinical undergraduate studies, postgraduate professional and doctoral studies as well as in the continuing education program. In undergraduate studies, she is the head of the courses Karijesologija and Cariology. Within the postgraduate professional study, she is the head of the course Glass ionomer Cements and within the doctoral study she is a head of the course Experimental evaluation of glass ionomer cements.

She is the author and co-author of several scientific, professional, and review papers and a supervisor of graduate and postgraduate theses. She actively participates in international and domestic conferences. She is a member of several professional and scientific associations.

She actively participates in the work of the Croatian Chamber of Dental Medicine in the implementation of the license renewal exam, and in the work of the National Health Council.

#### **Bibliography:**

<https://www.bib.irb.hr/pretraga?operators=and|Prskalo,%20Katica%20%2814811%29|text|profile>