SYLABUS

Subject:	**Dental Materials, Technologies and Devices 2**		
Study programme:	Dental Medicine	**Semester:**	*3.semester*
Valuation:	exam	**Obligation:**	*obligatory*
Number od hours:	1 h.lectures and 1 h.practicals/week		14 hours

Place: Department of Stomatology and Maxillofacial Surgery
1 st Department of Stomatology
Department of Dentistry and Maxillofacial Surgery and Specialized Hospital for Head and Neck Diseases, Academy of Košice, n.o.

Monday PH 15:00 - 16:30 ECW

Week	Lectures	***Practicals***
1.	Dental materials : physical, chemical and biological demands put to filling materials. Biocompatibility of dental materials. Dental materials: role of the filling, classification, temporary and permanent filling materials.Temporary filling materials characteristics, division, indications.Materials used to preserve pulp vitality. **17.02.2025**	Seminars will take place in PJ. Each student will be assigned with particular topics and according to schedule will prepare and give presentations (10min, 7-10 slides). Presentation must include the list of references used in the presentation.History and biocompatibility of dental materials. 1. Dental filling materials - characteristics, physical, chemical and biological requirements for temporary filling materials. 2. Dental filling materials - characteristics, physical, chemical and biological requirements for permanent filling materials. 3. Temporary filling materials - clasification 4. Temporary filling materials - indications and contraindications

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2.	Equipment in dental medicine - principles of technical manipulation, principles of health and safety manipulation. Amalgam - history, development, current status, properties, indications, preparing, basic working principles. **03.03.2025**	1.Classification of Cements for temporary restoration 2.Liners and bases 3.Amalgam: current status, basic working principles, carving, polishing.
3.	Esthetic filling materials: history, development, composition.Esthetic filling materials: properties,advantages, disadvantages,basic working principles.Esthetic filling materials: polymerizing lamps,basic labour protection. Precious metal alloys: (development, chemical ,mechanical,physical composition,structure, technological properties, corrosion, biocompatibility) Titanium in prosthetic: development, chemical ,mechanical,physical composition,structure, technological properties, corrosion, biocompatibility **17.03.2025**	**TEST** Materials used to preserve pulp vitality. Calcium hydroxide-characteristics, the possibilities of use in comservative dentistry. Amalgam- the history, development,current status. Composite filling materials,development, classification, composition, indications. Composite filling materials-characteristics, advantages, disadvantages, basic working principles.Esthetic filling materials: polymerizing lamps, basic labour protection.
4.	Impression materials ,development, mechanical, chemical , physical composition, technological thixotropy, biocompatibility) Usage of dental gypsum in dentistry: (development, chemical, mechanical, physical composition, structure, technological properties) Usage of dental waxes: (development, chemical, mechanical, physical composition, structure, technological properties) **31.03.2025**	1. Precious metal alloys - practical using in dentistry 2. Titanium in prosthetic 3. Usage prosthetic treatment for dental health 4. Division of Dental materials 5. Usage of Dental materials 6. Technological properties of Dental materials Impression materials (development, chemical, mechanical, physical composition, structure, technological properties, thixotropy, elasticity, biocompatibility)
5.	Investment materials(development, chemical, mechanical, physical composition, structure, technological properties) Polyacrylate cements - mechanical,physical,composition, composition,classification disadvantages, basic	Usage of dental gypsum in dentistry: (development, chemical, mechanical, physical composition, structure, technological properties) Usage of dental waxes: (development, chemical, mechanical, physical composition, structure, technological properties) Investment materials – (development, chemical, properties,

	14.04.2025	structure, technological properties) advantages working principles.
6.	Dental plastics – free monomers history, development, polymers, modified polymers, classification (Valplast, Flexplast), copolymers. Dental ceramics - metal ceramics, within metal ceramics. **28.04.2025**	1.Glassionomer cements 2. Glassionomer cements– com-development, chemical postition, indications composition, physical, mechanical and chemical properties, division 3. Glassionomer cements: propertiesadvantages disadvantages, basic, basic working principles, working principles Technology of 1. Dental plastics properties, manipulation, composition. 2. Elastomers, silicons, characteristics, usage as impressions materials 3. Materials for occlusion
7.	CAD –CAM ,indication, working procedures technology of manipulation. Endodontic materials - composition, properties, indication, usage of endodontic materials in dentistry **12.05.2025** **TEST FOR LECTURES**	CAD –CAM ,indication, working procedures technology of manipulation in dental practice> Consultations. Equipment in dental medicine.

Specific conditions for passing the subject:

Completion of 100% participation in practical exercises and lectures. Continuous review with a record of assessment during clinical teaching. Passing a test from lectures with a minimum rating of 60%.

Final test with a grade of at least 60%.

References:

Hubálková, H., Krňoulová, J.: Materiály a technologie v protetickém zubním lékařství, 2009

Manappallil, J.: Basic Dental Materials, 2003

Schmalz, G.: Biocompatibility of dental materials, 2004

Gladwin, M.: Clinical aspects of dental materials, 2012