27. DENTAL MATERIALS (StIII-STMT)

**STUDY PROGRAMME**
Integrated studies in dentistry

**DEPARTMENT**
Department of dentistry

**NAME OF SUBJECT**
DENTAL MATERIALS

**STATUS OF THE SUBJECT**
Compulsory

**Condition**
Prosthodontics-preclinics (exam)

<table>
<thead>
<tr>
<th>Year of studies</th>
<th>Winter term (hrs/week)</th>
<th>Summer term (hrs/week)</th>
<th>No. of tests</th>
<th>No. of seminars</th>
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**Methods of teaching**
Theoretical teaching, Practical teaching

**GOAL**
To introduce students with basic knowledge of characteristics of dental materials and basic principle of their clinical application.

**PURPOSE**
Students will acquire basic knowledge about the characteristics and clinical application of dental materials. They will be trained to select the adequate dental material with special emphasis on the identification of biocompatible materials that will not be harmful to the patient.

**SKILLS**
Training of methods and techniques of application of dental materials with special emphasis on working-time, setting time, consistency, mixing procedure ...

**CONTENT OF THE SUBJECT**

**Theoretical teaching – methodical units**

1. Standards for dental materials. EU directive, CE Mark, ISO standards, GCP, GMP standard


5. Interatomic forces. Influence of intermolecular forces on the physical properties of the material.


7. Chemical reactions while setting of dental materials. Neutralization as a basic chemical reaction in the process of cement solidification. Chelation as the main reaction in the process of solidification of zinc oxide-eugenol paste, EBA and polycarboxilate cements.


10. Materials for application in dental restoration manufacturing using modern technologies and computer-guided systems. Acquiring practical knowledge about types of material and their application.


12. Dental amalgam. Requirements, classification, amalgamation, clinical characteristics, the process of clinical work with amalgam, method of packaging, dosage and the factors that affect the quality of amalgam fillings. Materials for endodontic procedure.


16. Dental alloys. Classification, distribution alloys: standards, the content of precious metal, the chemical composition. Requirements for dental alloys. Different types of alloys used in dental practice.


Practical teaching – methodical units

2. Examination of physical properties of dental materials. Investigation of fatigue, fracture toughness and impact strength, viscosity and viscoelasticity.
4. Elastomeric impression materials. Practical work with hydrocolloids, silicones and polyether.
7. Acrylic materials for denture base. Practical work with acrylic material for denture base.
8. Acrylic materials for direct relining of the dentures (hard and soft acrylic reliners). Practical work with acrylic materials for direct and indirect relining of the denture.
9. Dental cements. Practical work with different types of dental cement.
10. Practical work with materials for application in dental restoration manufacturing using modern technology and computer–guided systems. Acquiring practical knowledge about the types of material and their application.
12. Dental amalgam. Practical work with dental amalgam.
14. The materials in endodontics. Practical work with materials which are used in endodontics. Materials for temporary filling. Practical work with materials for temporary fillings.

RECOMMENDED READING

Compulsory

Additional

Evaluation of students’ work – Points per individual activity

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<th>Seminar paper</th>
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Pre-exam obligations

List of teachers and Assistants

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<tr>
<th>Associate</th>
<th>Assistant</th>
<th>Lecturer</th>
<th>Assistant Prof.</th>
<th>Associate Prof.</th>
<th>Full Professor</th>
<th>Scientist</th>
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<tr>
<td>1. Doc. dr Tatjana Puskar</td>
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<td>2. Prof. dr Aleksandar Đorđević Faculty of Natural Sciences</td>
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<td>3. Doc. dr Igor Stojanac</td>
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<td>4. Doc. dr Milan Drobac</td>
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<td>5. Doc. dr Igor Budak Faculty of Technical Sciences</td>
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<td>6. Doc. dr Sebastian Balša Faculty of Technical Sciences</td>
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<td>7. Doc. dr Bojana Milekić</td>
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<td>8. Doc. dr Bramislava Petronjević</td>
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<td>9. Asist res Michal Potran</td>
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Head of the Department
Prof. Dr Đorđe Petrović