



MEDICAL UNIVERSITY - VARNA
“Prof. dr Paraskev Stoyanov”

FACULTY OF DENTAL MEDICINE

Approved with protocol No 3/17.06.2025.

Approve:

DEAN:

/Prof. Stefan Peev, DMD, PhD, DSc/

CURRICULUM

“DENTAL IMPLANTOLOGY”

Speciality “DENTAL MEDICINE”

Educational qualification degree “MASTER”

Professional qualification “DOCTOR OF DENTAL MEDICINE”

| Education forms | Semester | Horarium-acad. hours per week | Horarium-acad. hours totally |
|-------------------------------|--------------------|----------------------------------|---------------------------------|
| Lectures | IX,X | 2/2 | 60 |
| Practical exercises | IX,X | 2/2 | 60 |
| Total hours | | | 120 |
| Extracurricular employment | | | 90 |
| Forms of control | Ongoing control | | Exam – X semester |
| Credits (ECTS) | | | 7 |

ABSTRACT:

The education in dental implantology aims to introduce the dental students in the fundamentals of discipline, as well as the basic and established diagnostic methods, treatment and prevention in dental implantology. The practical education includes simulation and clinical training course.

Forms of education, control and assessment

Assessment: ongoing assessment, participation in seminars, colloquium results, test results, practical exam, theoretical exam.

Methods of education: lectures, seminars, discussions, treatment planning, simulation exercises, practical exercises, multimedia presentations.

EVALUATION CRITERIA:

Basis for forming the mark - complex:

1. Evaluation of the student's activity during the practical exercises
2. Colloquium results
3. Practical exam
4. Semester exam result

Criteria in forming the final mark:

1. Practical work results
2. Test
3. Exam result

After completing the course, students should have the following knowledge, skills and competencies:

- **Knowledge** about fundamentals in dental implantology, clinical anatomy, treatment planning, implant surgery and prosthetics, soft-tissue management, prevention and treatment of complications in dental implantology.
- **Skills** for planning the implant therapy.
- **Competencies** for carrying out the implant therapy – planning, surgery, prosthetics, maintenance.

PROGRAM OF LECTURES AND EXERCISES

Lecture program:

| IX SEMESTER | |
|-------------|---|
| 1. | Subject of dental implantology. Development of dental implantology |
| 2. | Bone structure. Extracellular matrix of bone. Bone cells. |
| 3. | Implant-tissue interface. Implant-bone interface. Evolution of the implant-bone interface. Peri-implant healing processes. Implant-soft tissue interface. Osteoperception. |
| 4. | Factors influencing the formation of osseointegration of the implant. Biocompatibility of the implant surface Bioinert metals. Bioinert ceramics Bioactive and biodegradable calcium-phosphate ceramics |
| 5. | Modification of the implant surface |
| 6. | Macroscopic design of the implant |
| 7. | Influence of the surgical technique on the formation of an osseointegration interface Adaptation of the implant to the osteotomy cavity. |
| 8. | Condition of the residual bone for implant placement. Bone density. Volume of the residual bone. Ensuring an adequate rest period before functional loading of the implants |
| 9. | Classification of dental implants. Intraosseous implants |
| 10. | Subperiosteal implants Transdental implants Orthodontic implants. Transient (temporary) implants |
| 10. | Terminology of intraosseous screw implants. Implant body. |
| 11. | Terminology of intraosseous screw implants. Crestal module and apical region. |
| 12. | Stages of implant therapy. Indications. Risk factors. Systemic risk factors. |
| 13. | Local risk factors. |
| 14. | Examination of local status. Clinical examination. |
| 15. | Image diagnostics in dental implantology. |
| 16. | Planning of an implant-supported prosthetic structure. Rule guidance for implant placement. |

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| 17. Planning of an implant-supported prosthetic structure. Selection of an appropriate size of the implants. |
| 18. Planning of an implant-supported prosthetic structure. Restoration of large edentulous areas and total edentulation. Preparation of the patient |
| 19. Clinical anatomy |
| 20. Basic protocols of implant placement |
| 21. Instrumentation and equipment. |
| 22. Simplified surgical protocol. Anesthesia. Flap incision and elevation. Types of sutures and suture material. |
| 23. Simplified surgical protocol. Osteotomy. |
| 24. Modified osteotomy. |
| 25. Second surgical stage. |
| 26. Stability of implants. Measuring the stability of implants. |
| 27. Deficiency of residual bone. |
| 28. Treatment with dental implants in conditions of deficit of residual bone. |
| 29. Bone augmentation. |
| X SEMESTER |
| 1. Bone restorative materials. Autogenous bone and autogenous platelet concentrates. |
| 2. Bone restorative materials. Allogeneic bone repair materials. |
| 3. Bone restorative materials. Xenogenic bone repair materials |
| 4. Bone restorative materials. Alloplastic materials. |
| 5. Guided regeneration. Guided bone regeneration as a method of bone augmentation. |
| 6. Barrier membranes |
| 7. Guided bone regeneration carried out simultaneously with placement of intraosseous implants |
| 8. Implant placement in the subantral bone. Classification of subantral deficiency. Subantral bone augmentation methods. |
| 9. Elevation of the sinus floor. Sinus floor lift with crestal access Elevation of the sinus floor with lateral access Elevation of the sinus floor with lateral access - specific complications. |
| 10. Piezosurgery in dental implantology |

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| 11. Bone block grafting Longitudinal split-osteotomy of the alveolar crest with one-time placement of implants |
| 12. Transposition and lateralization of Nervus alveolaris inferior with simultaneous placement of intraosseous implants. |
| 13. Implantation in post-extraction areas. |
| 14. Immediate functional loading of osseointegratable implants. |
| 15. Soft tissue management Surgical methods for augmentation of peri-implant soft tissues |
| 16. Transfer elements |
| 17. Non-removable implant-supported prosthetic structures. Prosthetic components for fixed structures. |
| 18. Selection of superstructures for fixed structures. |
| 19. Contours and contacts. |
| 20. Evaluation of the aesthetic result of the restoration |
| 21. Removable prosthetic constructions on implants |
| 22. Complications in dental implantology. Perioperative complications |
| 23. Technical complications |
| 24. Biological complications - peri-implant mucositis and peri-implantitis. Diagnosis Pathogenesis of peri-implantitis. |
| 25. Risk and modifying factors for the development of peri-implant diseases |
| 26. Treatment of plaque-induced inflammatory processes of peri-implant tissues. Cumulative interceptive supportive therapy.. |
| 27. Methods for mechanical cleaning of the implant surface |
| 28. Chemical decontamination. Systemic and local antibiotic treatment |
| 29. Resective and regenerative therapy in the treatment of peri-implantitis |
| 30. Digital workflow in dental implantology. |

Practical classes/ Exercises

Practical classes/Exercises in Dental Implantology

IX SEMESTER

15 practical classes/exercises, each of 2 academic hours

1st practical class:

TOPIC: Image diagnostics

Interpretation of cone beam tomography

2nd practical class:

TOPIC: Image diagnostics

Interpretation of cone beam tomography

PRACTICAL WORK ON SIMULATION MODELS

3rd practical class:

SUBJECT: Treatment of partial edentulous region

Fabrication of a surgical guide

4th practical class:

SUBJECT: Treatment of partial edentulous region

Placement of implants on a simulation model. Incisions and flap techniques.

5th practical class:

SUBJECT: Treatment of partial edentulous region

Placement of implants on a simulation model. Osteotomy guidance rules

6th practical class:

SUBJECT: Treatment of partial edentulous region

Placement of implants on a simulation model. Implant placement and flap suturing

7th practical class:

TOPIC Treatment of partial edentulous region

Placement of implants on a simulation model

8th practical class:

TOPIC Treatment of partial edentulous region

Implants' second stage surgery – healing abutment placement.

Transfer impression taking.

9th practical class:

SUBJECT: Treatment of partial edentulous region

Casting of a laboratory model with a gingival mask

10th practical class:

SUBJECT: : Treatment of partial edentulous region

Fixation of models into an articulator and abutments' selection.

11th practical practical class:

SUBJECT: Treatment of partial edentulous region

Suture placement practice

12th practical class

SUBJECT: Treatment of partial edentulous region

Suture placement practice

13th practical class:

SUBJECT: Treatment of partial edentulous region

Prosthetic construction placement

14th practical class:

SUBJECT: Treatment of partial edentulous region

Semestrial practical work presentation and assessment

15th practical class:

SUBJECT: Treatment of partial edentulous region

Colloquium

Practical classes/Exercises in Dental Implantology

X SEMESTER

15 practical classes/exercises, each of 2 academic hours

1st practical class:

SUBJECT: Type 2 Implant placement

Fabrication of a surgical guide

2nd practical class:

SUBJECT: Type 2 Implant placement

Work on models - implant placement with simultaneous guided bone regeneration.

3rd practical class:

SUBJECT: SUBJECT: Type 2 Implant placement

Work on models - implant placement with simultaneous guided bone regeneration.

4th practical class:

TOPIC: Drawing up a treatment plan

Clinical case preparation

5th practical class:

SUBJECT: Drawing up a treatment plan

Clinical case preparation

6th practical class:

SUBJECT: SUBJECT: Drawing up a treatment plan

Clinical case preparation

7th practical class:

TOPIC Implant surgery

Placement of implants – assistance

8th practical class:

TOPIC Implant surgery

Placement of implants - assistance

9th practical class:

SUBJECT: Implant surgery

Placement of implants - assistance

10th practical class:

SUBJECT: Implant surgery

Placement of implants - assistance

11th practical class:

SUBJECT: Implant surgery

Placement of implants - assistance

12th practical class:

SUBJECT: Soft tissue management

Fabrication of an individually modified healing abutment

13th practical class:

SUBJECT Transfer elements

Fabrication of an individually modified transfer element

14th practical class:

SUBJECT: Digital protocols

Computer-aided planning : working with computer-aided planning software

15th practical class:

SUBJECT: Digital protocols

Computer-aided planning : working with computer-aided planning software

TEST

Recommended literature for self preparation:

Dental implantology

St. Peev, E. Sabeva, Kr. Chapanov

Sofia, 2023

Synopsis for semestrial exam in dental implantology

1. Subject of dental implantology
2. Development of dental implantology
3. Bone structure
4. Extracellular matrix of bone
5. Bone cells
6. Implant-tissue interface. Implant-bone interface.
7. Evolution of the implant-bone interface. Peri-implant healing processes.
8. Implant-soft tissue interface. Osteoperception
9. Factors influencing the formation of osseointegration of the implant. Biocompatibility of the implant surface
10. Bioinert metals
11. Bioinert ceramics
12. Bioactive and biodegradable calcium-phosphate ceramics
13. Modification of the implant surface
14. Macroscopic design of the implant
15. Influence of the surgical technique on the formation of an osseointegration interface
16. Adaptation of the implant to the osteotomy cavity
17. Condition of the residual bone for implant placement. Bone density.

18. Condition of the residual bone for implant placement. Volume of the residual bone.
19. Ensuring an adequate rest period before functional loading of the implants
20. Classification of dental implants. Intraosseous implants
21. Subperiosteal implants
22. Transdental implants
23. Orthodontic implants. Transient (temporary) implants
24. Terminology of intraosseous screw implants. Implant body
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27. Local risk factors
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31. Planning of an implant-supported prosthetic structure. Selection of an appropriate size of the implants
32. Planning of an implant-supported prosthetic structure. Restoration of large edentulous areas and total edentulation.
33. Preparation of the patient
34. Clinical anatomy
35. Basic protocols of implant placement
36. Instrumentation and equipment
37. Simplified surgical protocol. Anesthesia. Flap incision and elevation. Types of sutures and suture material.
38. Simplified surgical protocol. Osteotomy
39. Modified osteotomy
40. Second surgical stage
41. Stability of implants
42. Measuring the stability of implants
43. Deficiency of residual bone
44. Treatment with dental implants in conditions of deficit of residual bone.
45. Bone augmentation

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48. Bone restorative materials. Xenogenic bone repair materials
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51. Barrier membranes
52. Guided bone regeneration carried out simultaneously with placement of intraosseous implants
53. Implant placement in the subantral bone. Classification of subantral deficiency. Subantral bone augmentation methods
54. Elevation of the sinus floor. Sinus floor lift with crestal access
55. Elevation of the sinus floor with lateral access
56. Elevation of the sinus floor with lateral access - specific complications.
57. Piezosurgery in dental implantology
58. Bone block grafting
59. Longitudinal split-osteotomy of the alveolar crest with one-time placement of implants
60. Transposition and lateralization of Nervus alveolaris inferior with simultaneous placement of intraosseous implants
61. Implantation in post-extraction areas
62. Immediate functional loading of osseointegratable implants.
63. Soft tissue management
64. Surgical methods for augmentation of peri-implant soft tissues
65. Transfer elements
66. Non-removable implant-supported prosthetic structures. Prosthetic components for fixed structures
67. Selection of superstructures for fixed structures
68. Contours and contacts
69. Evaluation of the aesthetic result of the restoration
70. Removable prosthetic constructions on implants
71. Complications in dental implantology. Perioperative complications
72. Technical complications
73. Biological complications - peri-implant mucositis and peri-implantitis. Diagnosis

74. Pathogenesis of peri-implantitis
75. Risk and modifying factors for the development of peri-implant diseases
76. Treatment of plaque-induced inflammatory processes of peri-implant tissues. Cumulative interceptive supportive therapy.
77. Methods for mechanical cleaning of the implant surface.
78. Chemical decontamination. Systemic and local antibiotic treatment.
79. Resective and regenerative therapy in the treatment of peri-implantitis
80. Digital workflow in dental implantology.

Protocol of:

Department Council No. 88 date: 08.06.2020

Faculty Council No. date:

Prepared the program: _____

Head of Department: _____

/prof. Dr. Borislav Chaushev, MD/

