




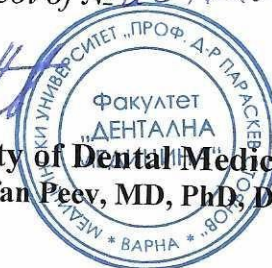
MEDICAL UNIVERSITY

"PROF. DR. PARASKEV STOYANOV" - VARNA

FACULTY OF DENTAL MEDICINE

Approved with a Protocol of № 23 / 13.03.2020г.

Approved: 
DEAN of Faculty of Dental Medicine:
/ Prof. Stefan Peev, MD, PhD, DSc/



EDUCATIONAL PROGRAMME

OF

"ORTHODONTICS"

Specialty "DENTAL MEDICINE"

Educational-qualification degree "MASTER"

Professional qualification "PHYSICIAN IN DENTAL MEDICINE"

	Semester	Horarium weekly	Total horarium
Lectures	VII, VIII, IX, X	2/1/1/1	75
Exercises	VII, VIII, IX, X	2/2/3/3	150
Total			225
Monitoring and evaluation forms	Mid semester exams, seminars, colloquiums		Examination – X semester
Credits (ECTS)		2+4+3+5	14
Extracurricular employment			195

Lecturer: Assoc. Prof. Dr. Hr. Arnautska, DMD, PhD

Varna, 2020

ANNOTATION

The programme in Orthodontics is focused on teaching dental students the basic concepts and procedures of orthodontic diagnosis, prophylaxis and treatment of patients who have malocclusion problems. The practical training of dental students in Orthodontics develops basic skills aiding in proper diagnosis and treatment of the most common malocclusions with a variety of appliances.

The programme in Orthodontics is designed to help dental students to be competent and skilled in:

- the basic concepts and procedures essential to the diagnosis of malocclusions
- the principles of dental arches and occlusion physiological development and recognition and assessment of temporary inner arch and interarch deviations.
- the methods of prophylaxis of different malocclusions from birth to permanent dentition formation
- treatment planning and treatment of patients who have relatively simple malocclusion problems -class I malocclusion and displaying of longitudinal records of patients.

The goal of Orthodontic programme is to equipped the dental students with the following contemporary knowledge and skills:

- **Knowledge** : Essentials of orthodontic science ,maxillofacial growth and development, anatomo-physiological norms in children and adults, classification, diagnosis ,prophylaxis and treatment of malocclusions
- **Skills** :recognition of inner arch discrepancies and occlusion deviation; orthodontic diagnostic concepts and analysis ,diagnostic records evaluation and case assessment;defining the aetiology and environmental factors impact of malocclusion development;orthodontic prophylactic methods; defining the need of multidisciplinary approach in treatment of malocclusions

- **Competence in:** clinical evaluation and diagnosis of orthodontic malocclusion; recognition of physiological stage sequence of dental arches development and occlusion; clinical case evaluation and assessment of any deviation from the physiological norms; defining inner arch and interarch discrepancies; application of various methods and approaches for orthodontic prophylaxis from birth to permanent dentition formation; necessity of multidisciplinary approach of treatment and referral to specialist orthodontist in more complex cases.

Training, control and grading:

Theoretical training: lectures, seminars discussions, clinical cases evaluation, practical exercises, multimedia presentations

Grading: current control, practical exams, theoretical exams, colloquiums, seminars, topic or case presentation

Grading standards:

Final grading is based on following complex criteria

1. Students' activity during practical exercises
2. Preparation and competence demonstrated during seminars and discussions
3. Colloquiums
4. Achievement in practical exam in orthodontics
5. Achievement in theoretical exam in orthodontics

PLAN OF LECTURES AND PRACTICAL EXERCISES TOPICS
LECTURES

Lectures in ORTHODONTICS -YEAR 4 – /7th semester/	
1. The scope of orthodontics. Interdisciplinary relations. Orthodontic terms. Historical review of orthodontics	2 academic hours
2. Diagnostic methods in orthodontics. Biometric dental cast analysis. Innerarch discrepancies - tooth size, segment analysis, dento-alveolar discrepancies	2
3. Biometric dental cast analysis. Occlusion analysis in primary, mixed and permanent dentition	2
4. Development of dental arches and occlusion. Prediction on development of dental arches and occlusion in primary, mixed and permanent dentition	2
5. Maxillofacial growth and development	2
6. Diagnosis in Orthodontics-photograph analysis. Renthgenographic methods for Orthodontic evaluation	2
7. Cephalometric radiography. Lateral cephalogram of the facial skeleton	2
8. Diagnosis in Orthodontics-clinical methods of evaluation	2
9. Methods for recording and assessment of major functions of the orofacial complex	2
10. Orthodontic appliances classification. Lingual plate-basic components	2
11. Lingual plate-planning and design	2
12. Appliances with mechanical mode of action-Angle appliance, Edgewise system and straight wire technique	2
13. Phases of orthodontic treatment with fixed technique	2
14. Fixed appliances with mechanical and functional mode of action-Pendulum, Rapid expander, Quadhelix	2
15. Extraoral appliances -EOA	2

Lectures in ORTHODONTICS-YEAR 4 /8th semester/	
1. Appliances with functional and combine mode of action- Monoblock, Activator, Lingual plate with inclined plane	2
2. Functional appliances - Frankel functional regulator, Klammt elastic open activator, Balters bionator	2
3. Norm in Orthodontics. Classification of malocclusions and dentofacial anomalies	2
4. Etiology of malocclusions and dentofacial anomalies	2
5. Tooth number, size and position discrepancies. Types, etiology, diagnosis, clinical evaluation and treatment.	2
6. Interdental space discrepancies-diastema and trema. Types, etiology, prevention, diagnosis, clinical evaluation and treatment	2
7. Innerarch transverse discrepancies Types, etiology, prevention, diagnosis, clinical evaluation and treatment	3

Lectures in ORTHODONTICS-YEAR 5 /9th semester/	
1. Innerarch sagittal discrepancies - protrusion, retrusion, mesial migration of posterior teeth-etiology, prevention, diagnosis, clinical evaluation and treatment	2
2. Interarch deviations-malocclusions-anterior crossbite. Class I - etiology, diagnosis, prevention	2
3. Sagittal discrepancies in occlusion - class II-distal occlusion- dentoalveolar and skeletal origin -etiology, prevention, diagnosis, clinical evaluation and treatment	2
4. Sagittal discrepancies in occlusion-class III-mesial occlusion- dentoalveolar and skeletal origin -etiology, prevention, diagnosis, clinical evaluation and treatment	2
5. Transverse discrepancies in occlusion - Laterognathia and laterodeviation of the mandible -etiology, prevention, diagnosis, clinical evaluation and treatment	2
6. Vertical discrepancies in occlusion-Open bite -etiology, prevention, diagnosis, clinical evaluation and treatment	2
7. Vertical discrepancies in occlusion-Deep bite -etiology, prevention, diagnosis, clinical evaluation and treatment	3

Lectures in ORTHODONTICS-YEAR 5 /10th semester /		
1. Concepts of primary and secondary prophylaxis during infancy, preschool and school period		2
2. Myogymnastics in Orthodontics. Primary and secondary prophylaxis. Prophylactic appliances		2
3. Orthodontic forces and soft tissues changes during orthodontic treatment		2
4. Multidisciplinary approach: Combine Treatment-Orthodontic-periodontal and Orthodontic-Prosthetic approach		2
5. Combine treatment- Orthodontic-surgical approach. Indications for extractions in Orthodontics		2
6. Relapse and retention in Orthodontics		2
7. Treatment planning and Prognosis in Orthodontics		3

PRACTICAL EXERCISES IN ORTHODONTICS

Topics of practical classes in ORTHODONTICS – WINTER 7th SEMESTER

Students in **year 4** dental medicine from the english speaking programme,
2 academic hours per week, 15 practical exercises

1. Mandibular impression. Pouring of plaster study casts and trimming
2. Maxillary impression. Pouring of plaster study casts and trimming
3. Record of centric occlusion. Moulding an orthodontic study casts with aid of rubber model bases
4. Exercise number 1: Bending of maxillary labial bow element to match form
5. Exercise number 2: Bending of retentive clasps elements to match form
6. Maxillary labial bow bending. U-shape and M-shape adjustment loops.
Theory and practice
7. Adams clasp. Schwarz clasp. Theory and practice
8. Coffin spring and active springs. Theory and practice
9. Attaching of labial bow, clasps and screws to the cast. Steps involved in preparing the cast for acrylicing. Demonstration in dental lab. Trimming and finishing of the appliance
10. Fitting the lingual plate. Instruction and recommendation to patient regarding wear time, hygiene and screw activation.
Seminar- various modification of the lingual plate
11. Construction bite for monoblock fabrication. Theory and practice.

- Demonstration. Monoblock modelling
12. Colloquim: lingual plate. Monoblock. Activator. Written examination
 13. Seminar: removable functional appliances - Klammt, Balters, Frankel and Schwarz appliances. Theory - categories of functional appliances, components approach. indications/contraindications for the use of the functional appliances. General principles. Bite registration. Biomechanics
 14. Seminar: Clinical methods of evaluation in orthodontics.
 15. Semester attestation.

Topics of practical classes in ORTHODONTICS – SUMMER 8th SEMESTER

Students in year 4 dental medicine from the english speaking programme,
2 academic hours per week, 15 practical exercises

1. An introduction to orthodontic assessment. Database of information (questionnaire (interview), medical/dental history, examination, collection of records). An orthodontic assessment form
2. Seminar- orthodontic clinical evaluation
3. Permanent dentition-dental cast analysis-evaluation of dental arches
4. Revision(verification) of the analysis
5. Permanent dentition-dental cast analysis-evaluation of the occlusion.
Revision(verification) of the analysis.
6. Seminar - Permanent dentition-dental cast analysis-evaluation of dental arches and occlusion
7. Mixed dentition-dental cast analysis-evaluation of the dental arches and occlusion. Moyers prediction method of analysis.
8. Mixed dentition-dental cast analysis-revision (verification) of the analysis
9. Primary dentition-dental cast analysis. Development of occlusion- terminal planes, arch forms, eruption sequencing
10. Midterm exam - Analysis of diagnostic records-cast analysis
11. Analysis of diagnostic records-periapical radiography, panoramic radiography
12. Analysis of diagnostic records-cephalometric analysis-hand tracing- commonly used cephalometric points and reference lines (planes)
13. Revision(verification) of hand tracing and measurements. Cephalometric evaluation and skeletal pattern

14. Diagnosis and treatment planning
15. Attestation

**Topics of practical classes in ORTHODONTICS –
WINTER 9th SEMESTER**

Students in year 5 dental medicine from the english speaking programme,
3 academic hours per week, 15 practical exercises

1. Clinical cases in orthodontics-clinical examination.development of an adequate diagnostic database. Diagnostic records
2. Clinical cases in orthodontics-biometrical analysis.formation of a problem list-the diagnosis from the database
3. Clinical cases in orthodontics-examination of new and current patients. Discussion on identified orthodontic problems and treatment planning
4. Seminar - craniofacial growth.prenatal and postnatal growth of the craniofacial skeleton. Principles of growth (part1), clinical cases
5. Seminar - craniofacial growth. Prenatal and postnatal growth of the craniofacial skeleton. Principles of growth (part2), clinical cases
6. Clinical cases in orthodontics-examination of new and current patients. Diagnostic records and biometrical analysis. Fitting the appliances. Instructions and recommendations to patients regarding wear time, hygiene, screw activation
7. Revision (theory and practice) -removable functional appliances. Categories of functional appliances, components approach. Indications/ contraindications for the use of the functional appliances. General principles. Bite registration. Biomechanics. Clinical cases
8. Colloquium (written examination) - removable functional appliances. Categories of functional appliances, components approach. Indications/ contraindications for the use of the functional appliances. General principles. Bite registration. Biomechanics. Clinical cases
9. Seminar - fixed appliances - TPA, lingual arch, RPE, quadhelix, pendulum. Components approach and modifications. Indications /contraindications for the use. General principles. Biomechanics. Clinical cases
10. Clinical cases in orthodontics-examination of new and current patients. Diagnostic records and biometrical analysis. Fitting the appliances.

- Instructions and recommendations to patients regarding wear time, hygiene, screws activation. Case presentation to the group
11. Seminar - extraoral anchorage and traction. General principles.
Biomechanics. Headgear, facemask, chin cup
 12. Monitoring and evaluation of patients orthodontic treatment progress.
Regular check ups. Patient files and diagnostic database storage.
 13. Monitoring and evaluation of patients orthodontic treatment progress.
Regular check ups. Patient files and diagnostic database storage.
 14. Monitoring and evaluation of patients orthodontic treatment progress.
Regular check ups. Patient files and diagnostic database storage.
 15. Semester attestation

**Topics of practical classes in ORTHODONTICS –
SUMMER 10th SEMESTER**

Students in year 5 dental medicine from the english speaking programme,
academic hours per week, 15 practical exercises

1. An orthodontic assessment - database of information(interview, medical/dental history, examination, collection of records). Analysis of diagnostic records-cast and cephalometric analysis
2. Patients admission and assessment. Regular orthodontic check up- monitoring progress. Questionnaire(interview). Impression taking procedure, pouring of dental cast, x-rays. Review of clinical methods in orthodontics. Photo analysis
3. Concepts of primary and secondary prophylaxis of malocclusion during pregnancy, infancy and toddlers. Nutrition in infancy period and deleterious oral habits in children as factors influencing development of malocclusion. Etiology, prevention and treatment.
4. Concepts of primary and secondary prophylaxis of malocclusion in preschoolers; preadolescents and adolescents (7-19 years old). Prophylactic programme. Regular orthodontic check up- monitoring progress
5. Seminar- myofunctional therapy in orthodontics(myogymnastics). Indications and instructions. Appliances in aid of orthodontic prophylaxis. Early loss and rampant caries of primary and permanent teeth as factors influencing development of malocclusion. Other etiological factors

6. Craniofacial malformations: cleft lip and palate - problems and management. Coordination of care. (central occlusion registration, analysis of diagnostic records, revision(verification))
7. Midterm exam (written examination) - orthodontic prophylaxis
8. Analysis of diagnostic records, revision(verification), discussion, regular orthodontic check up- monitoring progress
9. Seminar-combined surgical and orthodontic treatment. Indications for extractions of permanent teeth. Early (serial) extraction. Sequence (analysis of diagnostic records, revision (verification). Periodontal and prosthodontic considerations in comprehensive orthodontic treatment. (analysis of diagnostic records, revision(verification))
10. Midterm exam- development of dental arches and occlusion in the primary dentition. Stage sequencing. Ideal dental arch shape. Development of dental arches and occlusion in the mixed and permanent dentition. Stage sequencing
11. Bending technique review. Final discussion on topics choosed by students
12. Bending technique review. Final discussion on topics choosed by students
13. Practical exam
14. Orthodontic patients data records storage and safe - keeping. verbal and/or sample instructions to patients during the summer period
15. Attestation

REFERENCES:

Lectures of Department of orthodontics, FDM Varna
Orthodontic syllabus for students -Prof. Krumova V et al.
An introduction of orthodontics-Laura Mitchell et al.
Contemporary orthodontics – Prof. William Proffit et al.

CONSPECTUS

1. Brief historical overview on Orthodontics.
2. Normal human development during intrauterine period in view of orthodontics.
3. Development of dental arches and occlusion in primary dentition. Stage sequencing. Ideal arch pattern
4. Development of dental arches and occlusion in the mixed and permanent dentition. Stage sequencing
5. Normal occlusal relationship in the primary, mixed and permanent dentition
6. Human postnatal craniofacial growth
7. Influence of heredity and environmental factors on developing of malocclusion during the intrauterine period.
8. Delivery and nutrition in infancy period as factors influencing development of malocclusion.
9. Disturbances of teeth number as factor influencing development of malocclusion.
10. Deficiency in endocrine secretion and insufficient vitamin supply as factors influencing development of malocclusion.
11. Oral habits in children as factors influencing development of malocclusion.
12. Early loss and rampant caries of primary and permanent teeth as factors influencing development of malocclusion.
13. Childhood fracture and diseases of the jaw and TMJ and facial traumatic injuries as factors influencing development of malocclusion.
14. Airway obstruction and habitual mouth-breathing
15. Orthodontic clinical evaluation
16. Analysis of diagnostic records- cast analysis
17. Analysis of diagnostic records- frontal and profile photo
18. Analysis of diagnostic records-segment X-ray, OPG, and lateral cephalometric X-ray
19. Lateral cephalometric X-ray analysis
20. Functional examination data
21. Concepts of normal occlusion. Key terms of malocclusion.
22. Classification of malocclusion. Angle, Katz, Simon classification of malocclusion
23. Concepts of primary prophylaxis of malocclusion during pregnancy, infancy and toddlers.

24. Concepts of primary and secondary prophylaxis of malocclusion in preschoolers
25. Concepts of primary and secondary prophylaxis of malocclusion preadolescents and adolescents (7-19 years old)
26. Myofunctional therapy in orthodontics
27. Classification of orthodontic appliances- concepts and principles of action
28. Appliances in aid of orthodontic prophylaxis
29. Fixed edgewise orthodontic appliances-general description. Principles of treatment and sequencing mechanics
30. Extra-oral anchorage (EOA) appliances-general description. Principles of action and design
31. Lingual plate appliance-indication, design, modification, mode of action
32. Lingual plate - modifications
33. Functional appliances- Monoblock and Activator
34. Frankel appliance
35. Klammt appliance
36. Balters appliance
37. Acquired and developmental disturbances of the teeth shape, position and morphology. Clinical manifestation, diagnosis, prevention, treatment
38. Disturbances of teeth numbers. Clinical manifestation, diagnosis, prevention, treatment
39. Retained primary teeth, impacted permanent teeth. Clinical manifestation, diagnosis, prevention, treatment
40. Generalized spacing and median diastema. Clinical manifestation, diagnosis, prevention, treatment
41. Crowding and arch contraction. Clinical manifestation, diagnosis, prevention, treatment
42. Generalized spacing and arch expansion. Clinical manifestation, diagnosis, prevention, treatment
43. Protrusion (proclination). Clinical manifestation, diagnosis, prevention, treatment
44. Retrusion (retroclination). Clinical manifestation, diagnosis, prevention, treatment
45. Class II malocclusion. Clinical manifestation and diagnosis
46. Class III malocclusion. Clinical manifestation and diagnosis
47. Laterognathia. Clinical manifestation and diagnosis
48. Anterior and posterior open bite. Clinical manifestation and diagnosis
49. Deepbites. Clinical manifestation and diagnosis
50. Anterior crossbites. Clinical manifestation, diagnosis, prevention, treatment

51. Posterior crossbites. Clinical manifestation, diagnosis, prevention, treatment
52. Class II malocclusion. Prevention and treatment
53. Class III malocclusion. Prevention and treatment
54. Openbite. Prevention and treatment
55. Deepbite. Prevention and treatment
56. Laterognathia. Prevention and treatment
57. Periodontal and prosthodontic considerations in comprehensive orthodontic treatment
58. Combined surgical and orthodontic treatment
59. Indications for extractions of permanent teeth. Early (serial) extraction. Sequence
60. Biology of tooth movement. Periodontal ligament. The palatal mucosa changes in response to orthodontic appliances action
61. Post-orthodontic treatment relapse. Prevention. Retention

REFERENCES

1. Contemporary orthodontics- fifth edition-William R. Proffit, Henry W. Fields, JR. David M. Sarver 2012
2. Staley R., Essentials of Orthodontics: Diagnosis and Treatment, 2011
3. Mitchell L., An introduction to orthodontic, 2007

DEPARTMENT'S COUNCIL PROTOCOL № 31/02.03.2020

FACULTY'S COUNCIL PROTOCOL № 23/13.03.2020

DATE:

HEAD OF DEPARTMENT IN ORTHODONTICS:

ASSOC. PROF. DR. HRISTINA ARNAUTSKA, DMD, PhD

