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**TBILISI HUMANITARIAN TEACHING UNIVERSITY**

***SILLABUS***

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| ***Name of educational course*** | ***Phantom Endodontics*** |
| ***Code of educational course*** | *STOM0402DM* |
| ***Status of educational course*** | ***C****ompulsory course*  *for the one-cycle higher educational Programme-Dentistry* |
| ***ECTS*** | ***4 credits. Total: 100 hours***  *Contact Hours–46 hours (Class Meeting Time Period: 15L/27 Pr) + 4 hours (Midterm:2h and Final Examinations 2h):*  *Individual Work-54 hours* |
| ***Lecturer*** | *Lika Elisbarashvili, THTU invited lecturer,*  *593510005*  *Consultation days: according to consultation schedule* |
| ***Goal of educational course*** | *The goal of the course is teaching the students the techniques of Endodontics that is the art of treatment of tooth root implying consistent observation of all stages of internal preparation of tooth cavity and consideration of laws of aseptic. The course aims at study of anatomy and topography of teeth groups, number of their roots and root canals, description and characterization of sequence of endodontic manipulations.* |
| ***Precondition for admission*** | *Phantom odontology* |
| ***System of students’ assessment*** | ***The assessment system allows:******A) Five types of positive assessment:*** *a.a)* ***(A) Excellent*** *- 91-100 points of the assessment;*  *a.b)* ***(B) Very good*** *- 81-90 points from maximum marks;*  *a.c)* ***(C) Good*** *- 71-80 points from maximum marks;*  *a.d)* ***(D) Satisfactory*** *- 61-70 points from maximum marks;*  *a.e)* ***(E) Sufficient*** *- 51-60 points from maximum marks.*  ***B) Two types of negative assessment:***  ***b.a) (FX) Did not pass*** *- 41-50 points from maximum marks, which means that a student needs harder work to pass and is granted one additional attempt with independent work;*  ***b.b) (F) Fail-*** *40 points and less from maximum marks, which means the performance a student is not sufficient and he/she has to learn the subject from the beginning.*  *Bb) (F) - Fifty points and less than maximum score, which means that the work performed by the student is not enough and he has to learn the subject from the beginning.  1. In case of one of the negative assessments: (FX) Did not pass, the Teaching University shall appoint an additional exam within at least 5 days after the final exam results are announced and reflected in the exam table. 2. The assessment received at the additional exam is the student's final assessment, which does not reflect the negative points received at the basic final exam. If the student receives at the additional exam from 0 to 50 points, (F) -0 score will be recorded in the student’s final examination record list.*  ***The assessment system at the Tbilisi Humanitarian Teaching University is divided into the following components:*** *Out of the total score (100 points) the intermediate assessment makes totally 60 points that are distributed as follows:* ***A student’s activity during the educational semester*** *-30 points;* ***Intermediate exam*** *- 30 points;* ***and the final exam*** *- 40 points. The limit of minimum competence in the component of intermediate assessments totals at least* ***18 points.*** *The limit of minimum competence of the final assessment is* ***50%*** *of the total sum of the final assessment, i.e.* ***20 points out of 40 points.*** |
| ***Content of educationla course*** | *See Appendix 1* |
| ***Assessment forms/methods/***  ***criteria/activities*** | ***Activity - 30 scoring points.***  ***Verbal presentation of theoretical material - 24 scoring points.***  *Is assessed 12 times during the current verbal exam during the supervision, each is assessed with a maximum of 2 scoring points.*  *Assessment criteria:*  *2 scoring points: The student demonstrates complete, convincing and detailed knowledge of the material, freely uses specific terminology, discusses logically, actively uses information from the past material, is interactive*  *1 scoring point: The student demonstrates imperfect, unconvincing knowledge of the material, has difficulty in reasoning logically.*  *0 scoring point: The student has not used the material, is passive, the material is not reviewed.*  *Situational task review - 4 scoring points, once during the supervision*  *The criteria for participating in reviewing situational tasks are:*  *4 scoring points - the student understands the situation well, demonstrates the theoretical knowledge he / she uses in making decisions;*  *4 scoring points - the student understands the situation well, demonstrates the theoretical knowledge he / she is not able to make independent decisions;*  *2 scoring points - the student understands the situation , demonstrates the general theoretical knowledge he / she is not able to make correct decisions;*  *1 scoring point - the student understands the situation, but due to lack of theoretical knowledge makes intuitive decisions*  *0 scoring point - the student does not understand the situation at all or does not participate at all.*  *Discussion/debates - 2 scoring points, once during the supervision*  ***Assessment criteria:***  *2 scoring point: A student is well prepared, he/she is able to express his/her own opinion around the discussion topic, to organize and hold debates, identification of opposition and logical mistakes in the reasoning of participants, assessment of discussion products.*  *1 scoring point: A student is not prepared well, he/she is able to express his/her own opinion around the discussion topic, to organize and hold debates, identification of opposition and logical mistakes in the reasoning of participants, assessment of discussion products.*  *0 scoring point: A student is prepared, but he/she does not take part in the discussion.*  ***Preliminary quiz is combined: - 30 scoring points***  *It is performed in the form of testing - maximum scoring points 15, there are 15 test tasks, each correct answer is praised by 1 scoring point, and the incorrect answer - 0 scoring point.*  *c) verbal exam - 15 scoring points - each ticket containing closed questions will be given 3 closed questions / topics, each closed question / topic is evaluated with 0-5 scoring points.*  ***Criteria for evaluating a 5-scoring point verbal exam:***  ***5 scoring points*** *The answer is complete; the issue is conveyed accurately and exhaustively; The terminology is kept. The student has a thorough knowledge of the past material provided by the program, has a good mastery of both basic and supplementary literature, demonstrates a good ability to analyse and generalize.*  ***4 scoring points:*** *The answer is complete but shortened; Terminologically correct; The issue is exhaustively conveyed; There is no substantial error; The student is well versed in the past material provided by the program; Has the mastery of the basic literature, demonstrates the ability to analyse generalize.*  ***3 scoring points:*** *The answer is incomplete; The issue is satisfactorily conveyed; The terminology is imperfect; The student possesses the material provided by the program, but with a few errors noted, weak analysis of the issue presented by him/her.*  ***2 scoring points:*** *The answer is incomplete; The terminology is erroneous and inaccurate; Relevant material on the issue is presented partially; The student has insufficiently mastered the basic literature; Several substantive errors are noted. Due to insufficient theoretical training, the student finds it difficult to analyse the material in practice and draw valid conclusions.*  ***1 scoring point:*** *The answer is not perfect; The terminology is not used, or is not relevant; The answer is fundamentally wrong. Only separate fragments of the relevant material are presented. The student is unable to analyse practical material.*  ***0 scoring point:*** *The answer to the question is not relevant or not given at all.*  ***Final exam combined- 40 scoring points***  *It is conducted in the written (test) form Maximum. 25 - scoring points*  *The test consists of 25 closed-end questions. For each question there are four answers given, and among them only one answer is correct.*  *The correct answer shall be circled around.*  *Each correctly circled test shall be assessed by 1 scoring point,*  *Each incorrectly circled /marked/non-filled test shall be assessed by 0 scoring point.*  *Verbal - 15 scoring points - each ticket containing closed questions will be given 3 closed questions / topics, each closed question / topic is evaluated with 0-5 scoring points.*  ***Criteria for evaluating a 5-scoring point verbal exam:***  ***5 scoring points*** *The answer is complete; the issue is conveyed accurately and exhaustively; The terminology is kept. The student has a thorough knowledge of the past material provided by the program, has a good mastery of both basic and supplementary literature, demonstrates a good ability to analyse and generalize.*  ***4 scoring points:*** *The answer is complete but shortened; Terminologically correct; The issue is exhaustively conveyed; There is no substantial error; The student is well versed in the past material provided by the program; Has the mastery of the basic literature, demonstrates the ability to analyse and generalize.*  ***3 scoring points:*** *The answer is incomplete; The issue is satisfactorily*  *demonstrated; The terminology is imperfect; The student possesses the material provided by the program, but with a few errors noted, weak analysis of the issue presented by him/her.*  ***2 scoring points:*** *The answer is incomplete; The terminology is erroneous and inaccurate; Relevant material on the issue is presented partially; The student has insufficiently mastered the basic literature; Several substantive errors are noted. Due to insufficient theoretical training, the student finds it difficult to analyse the material in practice and draw valid conclusions.*  ***1 scoring point:*** *The answer is not perfect; The terminology is not used, or is not relevant; The answer is fundamentally wrong. Only separate fragments of the relevant material are presented. The student is unable to analyze practical material.*  ***0 scoring point:*** *The answer to the question is not relevant or not given at all.* |
| ***Mandatory literature*** | 1. *B. Surash Chandra , V. Gopi Krishna/Grossman’s Endodontic Practice, 2010* 2. *Nisha Garg /Textbook of ENDODONTICS, 2014* |
| ***Additional***  ***literature*** | *Clinician’s Manual of Oral and Maxillofacial Surgery, ed 3 (Kwon PH and Laskin DM, eds). Chicago: Quintessence, 2001.* |
| ***Study results. Field competences*** | ***Knowledge***   1. *Student describes Techniques of the upper and lower teeth and the dental root extraction,* 2. *Student describes odontogenic-inflammatory diseases of the soft tissues and lymphatic system of the maxillofacial area,* 3. *Student determines odontogenic diseases of the maxillodental system (periodontitis, periostitis, osteomyelitis);* 4. *Student determines methods of their examination and specificities of the treatment.*   ***Skills***   1. *Student performs different procedures: the techniques of extraction of upper and lower teeth and roots of the tooth and its complications, odontogenic diseases of the maxillodental system (periodontitis, periostitis, and osteomyelitis).* 2. *Student applie sprofessional, ethical and legal norms of the medical field which he/she will follow in his/her subsequent activities.* 3. *Student draws conclusions based on the history, clinical picture and additional examination, and subsequently to select the right direction of treatment.*   ***Responsibilities***   1. *Student recognizes the necessity of continuous medical education and demonstrates permanent readiness for obtaining the latest information in his/her field.* |
| ***Teaching methods and forms*** | *Lecture*  *Teachback*  *Critical Reflection*  *Situated Learning*  *Role Play*  *Storytelling* |

***Appendix 1***

***Content of educational course***

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| ***Week*** | ***Teaching method*** | ***Number of hours*** | ***Topic of practical or laboratory training of Lecture/work in the working group*** | ***Literature*** |
| ***I*** | ***Lecture*** | *2* | *Aims and Scope of endodontics*  *Anatomy of Dental Pulp; Pulp Chamber ; Root Canal;*  *Functions of Pulp; Age Changes in the Pulp; Pulpal Calcifications/Pulp Stones/ Denticles ; Calcific Metamorphosis ; Supportive Elements ; Innervation of Pulp;*   1. *NishaGarg /Textbook of ENDODONTICS, 2014****Pp.7-19, 169-171*** |  |
| ***Practical training\seminar*** | *1* | *Syllabus presentation* |  |
| ***II*** | ***Lecture*** | *1* | *Anatomy of periodontium , Cementum, periodontal ligament , alveolar process ,gingiva, Functions of periodontium*   1. *B. Surash Chandra , V. Gopi Krishna/Grossman’s Endodontic Practice,2010 Pp 36-41* |  |
| ***Practical training\seminar*** | *2* | * *History of endodontics* * *Histology of Dental Pulp ;* * *Supportive Elements ;* * *Innervation of Pulp ;* * *Anatomy of Dental Pulp ;* * *Pulp Chamber;* * *Root Canal ;* * *Functions of Pulp ;* * *Age Changes in the Pulp ;* * *Pulpal Calcifications/Pulp Stones/Denticles;* * *Calcific Metamorphosis* |  |
| ***III*** | ***Lecture*** | *1* | *Endodontic microbiology, Classification of microorganisms, Microbial Virulence and Pathogenicity ; Factors Influencing the Growth and Colonization of Microorganisms ; Microbial Ecosystem of the Root Canal.*   1. *NishaGarg /Textbook of ENDODONTICS, 2014****Pp. 51-61*** | *1/2/3* |
| ***Practical training\seminar*** | *2*  *1* | *Alveolar process, Gingiva, Cementum, Periodontal ligament,interstitial fluid, cells of periodontal ligament, fibers of periodontal ligament, innervation* |  |
| ***IV*** | ***Lecture*** | *1* | *Asepsis in Endodontics, Instrument Processing, Procedures/Decontamination Cycle; Disinfection; Antiseptics*   1. *NishaGarg /Textbook of ENDODONTICS, 2014****Pp. 109-120*** |  |
| ***Practical training\seminar*** | *2* | *Classification of microorganisms, Microbial Virulence and Pathogenicity ; Factors Influencing the Growth and Colonization of Microorganisms ; Microbial Ecosystem of the Root Canal.* |  |
| ***V*** | ***Lecture*** | *1* | *Isolation System in Endodontics*  *NishaGarg /Textbook of ENDODONTICS, 2014****Pp. 122-130*** |  |
| ***Practical training\seminar*** | *2* | *Rationale for Infection Control; Cross-infection ; Objective*  *of Infection Control; Universal Precautions; Classification of*  *Instruments; Instrument Processing Procedures/Decontamination*  *Cycle; Disinfection ; Antiseptics; Infection Control Checklist.* |  |
| ***VI*** | ***Lecture*** | *1* | *Classification of endodontal instruments*  *Standartization of Instruments, Endodontic instruments Hand-operated endodontic instruments and Nonrotary endodontic instruments*   1. *NishaGarg /Textbook of ENDODONTICS, 2014****Pp. 145-155*** |  |
|  | ***Practical training\seminar*** | *2* | *Isolation of Teeth, Equipment and Accessories of Rubber dam, optidam, optradam* |  |
| ***VII*** |  | *2* | *Intermediate exam* |  |
| ***VIII*** | ***Lecture*** | *1* | *Endodontic instruments, Rotary endodontic instruments used with a handpiece, instruments used for filling root canals.*   1. *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 155 – 168*** |  |
| ***Practical training\seminar*** | *2*  *1* | *Classification of endodontic instruments , standardization of endodontic instruments, Color coding of endodontic instruments , broaches and rasps, reamers, K- files , k – flex file, Hedstrom files , modification in H file, C+, Golden medium file, sonic an ultrasonic handpieces* |  |
| ***IX*** | ***Lecture*** | *1* | *Guidelines for Access Cavity Preparation of anterior teeth, Internal anatomy, Common canal configuration, variations in the internal anatomy of teeth.*  *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 171 – 202*** |  |
| ***Practical training\seminar*** | *2* | *Gates- Glidden Bur, flexogates , Peeso reamer, Nity rotary Instruments,profile system, protaper files,Quantic Files, hand spreader, finger spreader,hand plugger, finger plugger, lentulo spirals* |  |
| ***X*** | ***Lecture*** | *1* | *Guidelines for Access Cavity Preparation of posterior teeth*   1. *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 203 – 211*** | *1/2/3* |
| ***Practical training\seminar*** | *2* | *Common canal configuration,Variations in Development, Variation in Shape of Pulp Cavity, Variation in Pulp Cavity due to Pathology, Variation in Size of Root, Access Cavity Preparation of incisors and canines* |  |
| ***XI*** | ***Lecture*** | *1* | *Cleaning and Shaping of Root Canal System, Apical to coronal technique, Significance of Working Length and working width*  *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 235-258*** | *1/2/3* |
|  | ***Practical training\seminar*** | *2* | *Access Cavity Preparation of Maxilla and Mandible premolars and molars* |  |
| ***XII*** | ***Lecture*** | *1* | *Cleaning and Shaping of Root Canal System, coronal to apical technique*  *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 259-280*** |  |
|  | ***Practical training\seminar*** | *2* | * *Different Methods of Working Length Determination ;* * *Radiographic Method of Working Length Determination;* * *Grossman Method/Mathematical Method of Working Length Determination;* * *Electronic Apex Locators* * *Mechanical Objectives of Root Canal Preparation* * *Clinical Objectives of Biomechanical Preparation* * *Different movement of instruments* * *Techniques of root canal preparation* * *Conventional technique* * *Step back technique* * *Modified step back technique* |  |
| ***XIII*** | ***Lecture*** | *1* | *Irrigant solutions applied in endodontal practice*  *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 211-225*** | *1/2/3* |
|  | ***Practical training\seminar*** | *2* | * *Crown Down Pressureless Technique;* * *Hybrid Technique of Canal Preparation (Step Down/Step Back) ;* * *Double Flare Technique ;* * *Modified Double Flared Technique ;* * *Balanced ForceTechnique ;* * *Reverse Balanced Force Preparation ;* * *Types of Crown Down Hand* * *Instrumentation Techniques ;* * *Modified Manual Step Down Technique* |  |
| ***XIV*** | ***Lecture*** | *1* | *Intracanal medicaments applied in endodontal practice*  *NishaGarg /Textbook of ENDODONTICS, 2014* ***Pp. 225-235*** | *1/2/3* |
|  | ***Practical training \seminar*** | *2* | * *Ideal Requirements for an Irrigant;* * *Functions of Irrigants ;* * *Factors that Modify* * *Activity of Irrigating Solutions ;* * *Commonly used Irrigating Solutions;* * *Choice of an iIrrigant Solution ;* * *Normal Saline ;* * *Sodium Hypochlorite;* * *Hydrogen* * *Peroxide* * *Chlorhexidine ;* * *Chelating Agents;* * *Ultrasonic Irrigation;* * *Newer Irrigating Solutions;* * *Method of Irrigation* |  |
| ***XV*** | ***Lecture*** | *1* | *Summery* |  |
|  | ***Practical training\seminar*** | *2*  *1* | ***Presentations*** |  |
| ***XVI-XVII*** |  | *2* | ***Final Exam*** |  |
| ***XVIII-XiX*** |  |  | ***Additional exam*** |  |