Integrated Pre-clinical Education

1. IMPRINT

Academic Year	2022/2023
Department	Faculty of Dental Medicine
Field of study	English Dentistry Division
Main scientific discipline *(in accord with appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019)*	Medical science
Study Profile *(general academic / practical)*	General academic
Level of studies *(1st level /2nd level/ uniform MSc)*	Uniform MSc
Form of studies	Full-time program
Type of module / course *(obligatory / non-compulsory)*	Obligatory
Form of verification of learning outcomes *(exam / completion)*	Exam
Educational Unit / Educational Units *(and address / addresses of unit / units)*	Department of Dental Propaedeutics and Prophylaxis, 59 Nowogrodzka str., 02-006, Warsaw, phone: 22 625 66 02, e-mail: zpips@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	Leopold Wagner PhD DDS

Course coordinator *(title, First Name, Last Name, contact)*	Leopold Wagner PhD DDS, lwagner@wum.edu.pl
Person responsible for syllabus *(First name, Last Name and contact for the person to whom any objections concerning syllabus should be reported)*	**Module Preclinical operative dentistry:** Małgorzata Ponto-Wolska PhD DDS, malgorzata.ponto-wolska@wum.edu.pl **Module Dental materials science**: Krzysztof Wilk PhD DDS, krzysztof.wilk@wum.edu.pl **Module Preclinical endodontics**: Łukasz Zadrożny PhD DDS, lukasz.zadrozny@wum.edu.pl
Teachers	Małgorzata Ponto-Wolska PhD DDS malgorzata.ponto-wolska@wum.edu.pl , Krzysztof Wilk PhD DDS kwilk@wum.edu.pl, Łukasz Zadrożny PhD DDS lukasz.zadrozny@wum.edu.pl, Renata Lenkiewicz DDS rlenkiewicz@wum.edu.pl,

2. BASIC INFORMATION

Year and semester of studies	II year, III and IV semester	**Number of ECTS credits**	7,50

FORMS OF CLASSES	**Number of hours**	**ECTS credits calculation**
Contacting hours with academic teacher		
Lecture (L)	-	-
Seminar (S)	30	1
Discussions (D)	93	3,1
e-learning (e-L)	27	0,9
Practical classes (PC)	-	-
Work placement (WP)	-	-
Unassisted student's work		
Preparation for classes and completions	75	2,5

3. COURSE OBJECTIVES

C1	**Module Dental materials science** 1. Acquiring knowledge about dental office equipment and instruments used in various fields of dentistry. 2. Acquiring knowledge about the properties of the surface layers of tooth tissues and biomaterials. 3. Acquisition of knowledge regarding the degradation of biomaterials in oral conditions. 4. Acquiring the skills to use dental equipment and apparatus as well as the use of instruments. 5. Acquiring skills to work with auxiliary and basic materials.
C2	**Module Preclinical operative dentistry** 1. Obtaining knowledge of methods of using dental materials in conservative dentistry in the reconstruction of mineralized tissues. 2. Obtaining knowledge of the properties of mineralized tissues and preparation methods of adhesive systems. 3. Obtaining abilities to choose dental rebuilding materials based on their properties.

	4. Obtaining abilities to use dental materials and adhesive systems for filling preparation in phantom models.
C3	**Module Preclinical endodontics** 1. Obtaining knowledge regarding performing endodontic procedures. 2. Obtaining knowledge of performing endodontic treatment at the phantom model. 3. Obtaining knowledge of tooth reconstruction after endodontic treatment at the phantom model.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING *(concerns fields of study regulated by the Regulation of Minister of Science and Higher Education from 26 of July 2019; does not apply to other fields of study)*

Code and number of effect of learning in accordance with standards of learning *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019)*	**Effects in the field of preclinical science.**
Knowledge – Graduate* knows and understands:	
C.W23.	dental office equipment and instruments used in dental procedures
C.W24.	definition and classification of basic and auxiliary dental materials
C.W25.	composition, structure, bonding, properties, application and use of dental materials
C.W26.	surface properties of hard dental tissues and dental biomaterials
C.W27.	the phenomenon of adhesion and the mechanisms of producing an adhesive bond and the procedure of adhesive preparation of the surface of enamel, dentin and dental biomaterials
C.W28.	basic clinical procedures of tooth hard tissue reconstruction and endodontic treatment as well as methods and technical and laboratory procedures for prosthodontic restorations
C.W29.	mechanisms of degradation (corrosion) of dental biomaterials in the oral cavity and their influence on the biological properties of materials
Skills– Graduate* is able to:	
C.U9.	perform endodontic treatment and reconstruct the lost mineralized tissues in the phantom tooth
C.U10.	use adhesive techniques
C.U.11.	select restorative, prosthetic and bonding biomaterials based on the properties of the materials and clinical conditions
C.U12.	reproduce anatomic occlusal relations and analyze the occlusion

** In appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects of learning in time**
Knowledge – Graduate knows and understands:	
K1	-

Skills– Graduate is able to:	
S1	-
Social Competencies – Graduate is ready for:	
SC1	-

6. CLASSES

Form of class	Class contents	Effects of Learning
	Module Dental materials science	
L1 – lecture 1	division, requirements, and mechanical-physical, chemical, and functional properties of dental materials	C.W24., C.W25.
L2 – Lecture 2-3	requirements, division and use of impression materials, composition, properties, procedure, beneficial and disadvantageous features of hydrocolloid, zinc-eugenol oxide and elastomers, impression decontamination methods, types, classes, use and properties of plaster, catalysts, and inhibitors of setting reaction, mixing and casting the models	C.W25.
L3 – lecture 4	composition, division, properties and use of dental wax and refractory masses	C.W25.
L4 – lecture 5	composition, properties and use of acrylic resins, pressure-molded materials - handling and application	C.W25., CW.28.
L5 – lecture 6	division, composition, properties, and application of metal alloys	C.W25.
L6 – lecture 7	requirements, division and use of temporary and priming materials, composition, properties and manner of dealing with zinc-sulfate oxide cements, zinc-eugenol oxide, chemo, and light curing masses as well as provisional cements, primer varnishes, zinc phosphate, polycarboxylic cements, glass ionomer cements, primer polymers and calcium hydroxide materials	C.W25.
L7 – lecture 8-9	types, structure, division, properties, favorable and unfavorable features, indications and contraindications to the use of materials for permanent fillings	C.W25.
L8 – lecture 10-11	adhesion phenomenon, types, and properties of bonding systems	C.W25., C.W26., C.W27.
L9 – lecture 12	types of materials used to fill root canals, advantages, and disadvantages	C.W25., C.W28.
L10 – lecture 13	division, composition, mechanism of action and legal conditions for the use of teeth whitening materials	C.W25.
L11 –lecture 14	types, composition, properties, and use of dental ceramics, laboratory procedures	C.W25., C.W28.
L12 – lecture 15	abrasive and polishing materials, polyester strips, formed shapes and dies, single-wall and ring matrices, elastic wedges and elastics, application and procedures	C.W25., C.W28.
S1 – seminar 1-3	wax to acrylic and metal conversion procedure, polymerization, polycondensation, casting technologies	C.W28.

S2 – seminar 4-6	the use of polymers containing artificial fibers in various fields of dentistry	C.W25., C.W28.
S3 – seminar 7-9	CAD/CAM technology	C.W28.
S4 – seminar 10-15	surface degradation of materials in the oral cavity, surface preparation of basic materials, electropolishing, biological inertness. Written test	C.W26., C.W27., C.W29.
PC1 – Practical classes 1-12	making plaster models from rubber molds, mixing plaster and impressior masses, taking an impression with alginate mass, casting the model with class III plaster, development of a plaster model, implementation of a to whitening splints made of thermoformed materials.	C.W25., C.W28., C.U11.
CP2 – Practical classes 13-27	modeling the upper canine in a 1: 1 ratio of model wax, embedding models in class II plaster, waxing, preparation of acrylic material, hot polymerization of acrylic, metal crown foundation modeling from casting wax, embedding in refractory mass, mechanical preparation of acrylic models	C.W25., C.W28., C.U11.
PC3 – Practical classes 28-30	preparation and mixing of materials for temporary, permanent and root canal filling in various forms: powder/liquid, powder/distilled water, paste/paste, capsules, syringes. Written test	C.W25., C.W28., C.U11.
	Module Preclinical operative Dentistry	
L 13 - Lecture 15-21	anatomical reconstruction of lost mineralized tooth tissues – morpholo gy of permanent teeth, types of cavities classes, anatomical reconstru-ction of missing mineralized tissues, shaping of: chewing surface for proper occlusion, approximate walls with the reconstruction of contact points, labial, and tongue surfaces in the aspect of periodontal diseases protection	C.W28.
S5 – Seminar 16-17	procedures for using adhesive materials, materials and methods used for filling class V cavities, choosing the color of the filling material	C.W25., C.W26., C.W27., C.W28.
S6 – Seminar 18	materials and methods used for filling class I cavities	C.W25., C.W28., C.U11.
S7 - Seminar 19	materials and methods used for filling class II cavities	C.W25., C.W28., C.U11.
S8 – Seminar 20	materials and methods used for filling class III cavities	C.W25., C.W28., C.U11.
S9 – Seminar 21	materials and methods used for filling class IV cavities written test	C.W25., C.W28., C.U11.
PC4 – Practical Class 31-33	preparation of class V cavity, using adhesive techniques and application of light-cured composite material, final preparation. Additionally, classes on the Simodont device.	C.U9., C.U10., C.U11.
PC5 – Practical Class 34-39	preparation of class I cavities – 3 times, using adhesive techniques and application of light-cured composite material, application of liner and amalgam, application of chemically cured composite material, final preparation. Additionally, classes on the Simodont device.	C.U9., C.U10., C.U11., C.U12.
PC6 – Practical Class 40-45	preparation of class II cavities – 3 times, using additional techniques and adhesive systems, application of light-cured composite material, application of temporary filling from glass-ionomer, final preparation	C.U9., C.U10., C.U11., C.U12.
PC7– Practical Class 46-51	preparation of class III cavities – 2 times, using additional techniques, using adhesive techniques and application of light-cured composite material, final preparation	C.U9., C.U10., C.U11., C.U12.
PC8– Practical Class 52-57	preparation of class IV cavities – 2 times, using additional techniques, using adhesive techniques and application of light-cured composite material, final preparation written test	C.U9., C.U10., C.U11., C.U12.

PC9– Practical Class 58-63	preparation of class II cavities – 2 times, using additional techniques and adhesive systems, application of light-cured composite material, final preparation. Classes on high fidelity fantoms.	C.U9., C.U10., C.U11., C.U12
	Module Preclinical endodontics	
L14- Lecture 22-24	endodontium – the structure and functions, etiology of pulp diseases, teeth reconstruction after root canal treatment	C.W28.
L15 - Lecture 25-26	mechanical and chemical preparation of root canals	C.W28.
L16 - Lecture 27	materials and metods applied for root canal obturation	C.W28.
S10 – Seminar 22-24	instruments applied for mechanical canal preparation- stainless steel, NiTi, procedures of hand, mechanical and ultrasonics instruments aplication (files K, H, S, C, pulpremover, Endostar, Pro Taper, SAF System, TiLOS).	C.W23., C.W28.
S11 – Seminar 25-27	chambers and canals morphology in different teeth groups	C.W28.
S11 – Seminar 28-30	methods of working lenght determination. Written test	C.W28.
PC9– Practical Class 64-69	technic application of K and H files in straight and curved canals on phantom models	C.U9.
PC10– Practical Class 70-73	praparation of curved canals on phantom model with stainless steel instruments- complications (elbow, zip, ledge preparation)	C.U9., C.U10., C.U11., C.U12.
PC11– Practical Class 74-85	reaching pathency and mechanical praparation of canals at Phantom model (step-back, traditional, crown-down techniques)	C.U9.
PC12– Practical Class 86-90	canals obturation with single cone with ZOE and synthetic sealants, and lateral gutapercha compaction	C.U9.
PC13– Practical Class 91-93	application of liner and reconstructive meterials and required accesories to restore a tooth after root canal treatment. Written test	C.U9., C.U10., C.U11., C.U12.

7. LITERATURE

Obligatory

Module Dental materials science
1.Dental materials: properties and manipulation. Powers JM, Wataha JC. St. Luis. Mosby/Elsevier. 2013
2.Craig's restorative dental materials. Sakaguci RL, Powers JM. Philadelphia. Elsevier Mosby. cop. 2012
Module Preclinical operative Dentistry
1. Essentials of Operative dentistry. Sherwood IA. Jaypee Brothers Medical Publishers. 2010
Module Preclinical endodontics
1. Clinical endodontics. A textbook 3rd Edition. Tronstad L. Georg Thieme Verlag. 2009

Supplementary

1. Applied dental materials. McCabe JF, Walls AWG. Oxford. Blackwell Publishing. corp. 2008

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
C.W23. – C.W29. C.U11.	6 written tests (2 for each module)	Achieving the expected learning outcomes of at least 55%
C.U9. - C.U12.	Observation and assessment of practical skills	Completing each completed task.

9. ADDITIONAL INFORMATION *(information essential for the course instructor that are not included in the other part of the course syllabus e.g. if the course is related to scientific research, detailed description of, information about the Science Club)*

Course completion: weighted average of grades from individual modules of equal importance (50%) of knowledge and skills, in case of failing the written test, the student is entitled to one repeat data.
2-part practical exam (OSCE): part 1 in the winter semester - 6 stations (2 each from the module materials science, preclinical conservative dentistry, and ergonomics) and part 2 in the summer semester - 2 stations from the preclinical endodontics module. The exam is credited with obtaining at least 55% points and a positive evaluation of each completed task. The points obtained from both parts of the OSCE are summed. In the event of obtaining more than 55% of points, with no positive evaluation of all tasks, the repeat deadline is treated as a supplement to 1 deadline without increasing the number of previously obtained points. Obtaining less than 55% of the points results in an unsatisfactory grade in the 1st period. The OSCE repeat exam concerns only the performance of tasks that have not received a positive mark.
Test exam in the summer session - 60 questions covering issues from 4 modules (single-choice test). Rating scale: 2 (<55%), 3 (55 - 63%), 3.5 (64 -72%), 4 (73-81%), 4.5 (82-90%) and 5 (91- 100%). The exam will be in the CBI computer room.
The final grade for the Integrated pre-clinical education subject is the average of the practical and theoretical grades, provided that both exams are passed.
The teaching supervisors are: Małgorzata Ponto-Wolska PhD DDS, malgorzata.ponto-wolska@wum.edu.pl, Krzysztof Wilk PhD DDS, krzysztof.wilk@wum.edu.pl, Łukasz Zadrożny PhD DDS, lukasz.zadrozny@wum.edu.pl
A student may be absent once during the classes if he/she completes all the planned tasks in the next week or may also take it on the teacher's duty.
In a justified situation, a student may be late for classes up to 15 minutes.
It is forbidden to use cell phones or other electronic devices during the classes, the student may bring to the classroom only things permitted by the teacher.
A student in the training room must wear an apron, disposable gloves, a surgical mask, pinned hair or a cap, and changed footwear.
Department's website: https://propedeutyka-stomatologiczna.wum.edu.pl