Appendix
to Resolution No. 2186
of Senate of Wroclaw Medical University
of 1 July 2020

Syllabus for academic year: 2020/2021 Training cycle: Recruitment 2016/2017			
Description of the course			
Module/Course	Laserotherapy	Group of detailed education results	
		Group code	Group name
Faculty	English Division, Faculty of Dentistry		
Major	Faculty of Dentistry		
Unit realizing the subject	Department of Oral Surgery		
Specialties			
Level of studies	Uniform magister studies □* 1st degree studies □ 2nd degree studies □ 3rd degree studies □ postgraduate studies □		
Form of studies	X full-time X part-time		
Year of studies	V	Semester IX	X Winter □ Summer
Type of course	X obligatory □ limited choice □ free choice / elective		
Course	X major □ basic		
Language of instruction	□ Polish X English □ other		
* mark □ with an X			

Number of hours														
Form of education														
Unit teaching the course	Lectures (L)	Seminars (SE)	Auditorium classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated Conditions (CSC)	Practical Classes with Patient (PCP)	Specialist Classes – magister studies (SCM)	Foreign language Course (FLC)	Physical Education obligatory (PE)	Vocational Practice (VP)	Self-Study (Student's own work)	E-learning (EL)
Winter Semester														
Direct (contact) education				25										
Online learning (synchronous)														
Distance learning (asynchronous)														

Summer Semester														
Direct (contact) education														
Online learning (synchronous)														
Online learning (asynchronous)														
TOTAL per year: 25														
Direct (contact) education														
Online learning (synchronous)														
Online learning (asynchronous)														

Educational objectives (max. 6 items)

C1. Learning the basics of the operation and use of lasers in dentistry. Learning the physical fundamentals and types of tissue response to laser light.

C2. Differences between devices, differences between wavelength, absorption by particular tissues, frequency in impulse, impulse power and pulse length.

Properties of lasers in dentistry and the principles of low-, medium- and high-power lasers.

Principles of safe work.

C3. Use of lasers in the prevention and diagnosis of caries, the development of defects in enamel and dentine, treatment of diseases of the liver, mucosal diseases, treatment of inflammation of peri-rectal tissues and endodontic treatment.

C4. The influence of laser radiation on cell metabolism (biostimulation) and photodynamic therapy in dentistry.

C5. Familiarize students with instrumentation and techniques of diode laser, CO2 laser, Nd: YAG laser, Er: YAG laser, Er laser, Cr: YSGG.

Education result matrix for module/course in relation to verification methods of the intended education result and the type of class

Number of course education result	Number of major education result	Student who completes the module/course knows/is able to	Methods of verification of intended education results (forming and summarising)	Form of didactic class ***enter the abbreviation*
W 01	**(F.W6.)**	Student knows the physical and operating principles of low- and high-power lasers; Knows the modes and effects of the laser	Oral answer, test	CC
W 02	**(F.W 15)**	Student knows and understands the principles of safe work, can classify individual lasers, distinguish between their principles and indications for work.	Oral answer, test	CC

W 03	**(F.W19)**	Student knows the theory of caries, hard tissue development, indications and principles of periodontal diseases, application of lasers in endodontics, surgery and implantology	Oral answer, test	CC
W 04	**(F.W22)**	Student knows and understands the principles of laser biostimulation and photodynamic therapy for the treatment of mucosal disorders, periodontal treatment, peritonitis and conservative and endodontic treatment.	Oral answer, test	CC
U 01	**F.U6**	Interpretes the results of additional tests. Is able to use knowledge of dental anatomy and radiology then planning treatment	Direct observation of student demonstrating the skill assessed.	CC
U 02	**F.U7**	Determines the indications for performing the procedure. Can propose and indicate appropriate clinical management.	Direct observation of student demonstrating the skill assessed.	CC
U 03	**F.U18**	Sets the treatment for dental diseases of the stomatoghathic system	Direct observation of student demonstrating the skill assessed.	CC
K 01	**D.K01**	Actively takes part in the procedures	Direct observation of student demonstrating the skill assessed.	CC
K 02	**D.K02**	Cooperates in a group during patient examination, surgery and directly during the postoperative period	Direct observation of student demonstrating the skill assessed.	CC

** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning .

Please mark on scale 1-5 how the above effects place your classes in the following categories: communication of knowledge, skills or forming attitudes:
Knowledge: +++
Skills: +
Social competences: ++

Student's amount of work (balance of ECTS points)	
Student's workload (class participation, activity, preparation, etc.)	**Student Workload (h)**
1. Contact hours:	25
2. Online learning hours (e-learning):	
3. Student's own work (self-study):	15
Total student's workload	40
ECTS points for module/course	1,5
Comments	

Content of classes (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)

Lectures
Not applicable.

Seminars
Not applicable.

Practical classes
1.Physical principles. Principles of laser operation. Tissue reaction to laser light (reflection, absorption, diffusion, transmission). Laser modes, photothermal, photo ionization, photochemical, phototoxic, photomechanical and photostimulation.
2. Classification of lasers used in dentistry (diode lasers, CO2 lasers, Nd: YAG lasers, Er: YAG lasers, Er, Cr: YSGG lasers). Beam diameter control, working modes. Principles of safe work.
3.Laser as a tool for caries diagnosis. Influence of laser radiation on enamel.
Application of laser in caries prevention. Application of laser in the development of enamel and dentine defects.
4. Laser biostimulation; Influence of radiation on cell metabolism, application techniques, indications). Photodynamic therapy (mechanism of action, indication). The use of photoactive disinfection in the treatment of mucosal disorders, in the treatment of periodontal diseases, in the treatment of periapical papillary inflammation, in conservative and endodontic treatment.
5. Lasers for endodontic treatment. The use of lasers in the treatment of periodontal disease and oral mucosal diseases. Application of lasers in dental surgery and implantology.

Other
...

Basic literature (list according to importance, no more than 3 items)
1.Peterson, Ellis, Hupp, Tucker .: Contemporary Oral and Maxillofacial Surgery,2003
2.C.E. Mish: Contemporary Implant Dentistry, Mosby, 2008,Edition 3
3. S.J.Froum, W. Blackwell: Dental Implant Complication, Springer, 2007
Additional literature and other materials (no more than 3 items)

1.Wray D. [et al.]: Textbook of general and oral surgery. Churchill Livingstone, 2003
2.Fragiskos, Fragiskos D.: Oral surgery.: Springer 2007, ISBN-13: 978-3540251842
3.Koerner K.R.: Manual of minor oral surgery for the general dentistry. Blackwell, 2006

Didactic resources requirements (e.g. laboratory, multimedia projector, other…)
Multimedia projector, models with teeth and toothless, lasers, protective goggles

Preliminary conditions (minimum requirements to be met by the student before starting the module/course)

1. Presence of the student list from Dean's office
2. Acquaintance of instruction book of work in Oral Surgery Department

Conditions to receive credit for the course (specify the form and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be med by the student to pass it and criteria for specific grades)

1. Receipt of a positive assessment of oral answers
2. Passing the test
3. Positive assessment of skills by the teacher

Grade:	**Criteria** (only for courses/modules ending with an examination)
Very Good (5.0)	
Good Plus (4.5)	
Good (4.0)	
Satisfactory Plus (3.5)	
Satisfactory (3.0)	
	Criteria (only for courses/modules ending with e credit)
Credit	

Grade:	**Criteria** (examination evaluation criteria)
Very Good (5.0)	
Good Plus (4.5)	
Good (4.0)	
Satisfactory Plus (3.5)	
Satisfactory (3.0)	
Unit realizing the subject	
Unit address	
Telephone	
E-Mail	

Person responsible for module	Prof. dr hab. Marzena Dominiak
Coordinator	Lek. dent. Artur Pitułaj
Telephone	71 784 02 51
E-Mail	Jolanta.pilarska@umed.wroc.pl

List of persons conducting specific classes				
Full name	**Degree/scientific or professional title**	**Discipline**	**Performed profession**	**Form of classes**
Artur Pitułaj	Lek. dent.	Oral Surgery	Dentist	Clinical classes
Artur Błaszczyszyn	Dr n. med.	Oral Surgery	Dentist	Clinical classes
Paweł Popecki	Lek. dent.	Oral Surgery	Dentist	Clinical classes
Kinga Grzech-Leśniak	Dr n. med.	Periodontology	Dentist	Clinical classes
Daniel Selahi	Lek. dent.	Oral Surgery	Dentist	Clinical classes
Barbara Sterczała	Lek. dent.	Oral Surgery	Dentist	Clinical classes

Appendix
to Resolution No. 2186
of Senate of Wroclaw Medical University
of 1 July 2020

Jakub Hadzik	Dr n. med.	Oral Surgery	Dentist	Clinical classes

Date of Syllabus development

……..

Syllabus developed by

……..

Signature of Head of teaching unit

……

Signature of Faculty Dean

……