DISCIPLINE SHEET

1. Study program

1.1.	"CAROL DAVILA" UNIVERSITY OF MEDICINE AND PHARMACY BUCHAREST
1.2.	FACULTY OF DENTISTRY
1.3.	DEPARTMENT I
1.4.	DISCIPLINE Dental Prosthesis Technology
1.5.	STUDY DOMAIN: Health, sectoral regulated within the European Union
1.6.	STUDY LEVEL: I (Bachelor's degree) and II (Master's degree)
1.7.	STUDY PROGRAMME: DENTAL MEDICINE IN ENGLISH

2. Discipline

2.1.	Discipline name according to the study curriculum: DENTAL PROSTHESIS TECHNOLOGY II				
2.2.	Discipline code: MD02S10EN				
2.3.	Discipline type (FD/SD/CD): SD				
2.4.	Discipline optionality (COD/ED/FAD): COD				
2.5.	Lectures tenure: Lucian-Toma Ciocan (DDS, DMD, PhD) – University Professor Camelia Ionescu (DMD, MSc, PhD) - Lecturer Irina Ioana Donciu (DMD, MSc, PhD) – Lecturer Vlad Gabriel Vasilescu (DMD, PhD) - Lecturer				
2.6.	Practical classes / seminar tenure: Lucian-Toma Ciocan (DDS, DMD, PhD) – University Professor Irina Ioana Donciu (DMD, MSc, PhD) – Lecturer Camelia Ionescu (DMD, MSc, PhD) – Lecturer Vlad Gabriel Vasilescu (DMD, PhD) – Lecturer Daniela Aurelia Pîrvu (DMD, PhD) - Lecturer Cătălin – Constantin Andrei (DDS, DMD, PhD) - Assist. Prof. Ștefan Tudoran (DDS, DMD, PhD) - Assist. Prof.				
2.7. Year of study	II	2.8. Semester	II	2.9. Evaluation (E/C/V)	E

3. Estimated total time (hours/ semester of teaching and training activity /individual study)

I. University training						
3.1. Number of hours per week	6	from which:	3.2. lecture	2	3.3. practical class/ seminar	4
3.4. Total hours in the study curriculum	84	from which:	3.5. lecture	28	3.6. practical class/ seminar	56
II. Preparation/ individual study						
Time distribution						hours
Study of lecture materials, textbooks, books, study of the minimum recommended bibliography						24
Additional documentation activity in the library, on online platforms						14

Specific preparation activities for projects, practical classes, preparation of assignments, reports	**18**
Preparation for presentations or evaluations, preparation for the final examination	**4**
Tutoring activity	**4**
Other activities	**2**
3.7. Total hours of individual study	**66**
3.8. Total hours per semester (3.4.+3.7.)	**150**
3.9. Number of credits	**5**

4. Prerequisites

4.1. curriculum	Notions of morphology and function of the masticatory system (*Anatomy, Embryology, Physiology*) Notions of technology for obtaining single and multiple teeth fixed prostheses (*Dental Prosthesis Technology I*)
4.2. proficiencies	**Scientific skills:** **-** Ability to use specialized terminology appropriately and in context - The ability to apply the specialized knowledge previously obtained in the medical-biological sciences to evaluate and diagnose the pathology of the structures of the masticatory system. - The ability to correctly interpret and apply the fundamental notions regarding the mechanisms of operation of the masticatory system. - The ability to reproduce the morphology of the teeth (manual skills). **Digital skills:** - Ability to use a computer at a basic level: surfing the internet, using an e-learning platform, editing text, making presentations. **Language skills:** It is recommended to know English at level B1-B2 to be able to access the additional international bibliography.

5. Conditions

5.1. for lecture activity	**Location:** The courses take place in an amphitheater equipped with modern multimedia equipment (video projector, sound system, internet connection) to allow the presentation of dynamic visual supports (diagrams, 3D animations, videos). **Attendance:** Attendance at the course is necessary for an in-depth understanding of the subject and the clinical context presented by the teacher. **Materials:** Presentation of the course in printed and electronic format. **Interactivity:** Students are encouraged to actively participate in the course by asking questions and engaging in clinical case-based discussions, in order to turn the lecture into an active learning experience.
5.2. for practical class/ seminar activity	**Location and organization** The activities take place in Laboratories with specific equipment for practical activities , a room with modular furniture, which allows students to be organized into teams/groups. This structure is essential to facilitate collaboration, case debates and mutual learning. **Specific equipment** The teaching base is designed to support learning and the development of practical skills. - multimedia system (high-resolution screen) for viewing 3D animations, videos and CBCT scans

	- basic instruments (probes, tweezers) used exclusively for teaching purposes (e.g. for dimensional analysis and model manipulation). - dental materials and specific laboratory equipment. **Presence** Attendance at all practical work is mandatory. The motivation of absences is made according to the university regulations, and their recovery is necessary in order to participate in the final exam. **Mandatory individual equipment** Each student must wear a clean white coat and have a practical workbook and writing instruments with him. **Safety and conduct rules** - Punctuality is mandatory. Access to the seminar room after the start of the work may be restricted - Telephone conversations are not tolerated during the course -The delay of students in the course will not be tolerated, as it proves to be disruptive to the educational process -Strict compliance with labor protection norms and specific hygiene rules. -Careful use of teaching equipment (especially 3D models). Any malfunction must be reported immediately to the teacher. -It is forbidden to consume food and beverages in the laboratory. -A respectful working environment will be maintained, conducive to academic debates. **Training and participation** **-** Students have the obligation to study the protocol of the practical work before coming to the laboratory. - Active participation, carrying out practical tasks and engaging in discussions are essential to promote laboratory activity. - Compulsory involved participation is required in laboratories, with a maximum of 10% of absences not made up (maximum 1 absence per semester) being accepted according to the Regulation on the professional activity of students enrolled at U.M.F. "Carol Davila", Chapter VI, Art. 53 - Recovery is allowed according to the Regulation on the professional activity of students enrolled at U.M.F. "Carol Davila", Chapter VI, Art. 53

6. Learning outcomes

Knowledge
K1: Diagnosing dental lesions and types of edentation
K2: Theoretical bases regarding the phenomena of the processes in the clinical-technical stages in obtaining single-tooth and multiple teeth fixed prostheses.
K3: Obtaining prostheses through advanced methods based on optimizing the overall flow through digitization
K4: Knowledge of digital dentistry. Advantages and limits
K5: Knowledge of the current state of research and future directions in the field of technologies in dental practice.
Skills
S1: Analysis and evaluation of the structures of the masticatory system.
S2: Diagnosis of pathological changes and their treatment, in order to restore the anatomical and physiological functions of the masticatory system.

S3. Elaboration of a conceptual plan for a clinical case, justified choice of materials and workmanship by describing the therapeutic purpose.
S4: Structuring and synthesizing information in a scientific presentation format (e.g. outline of a poster or a short or PechaKucha presentation)
S5: The student demonstrates a good understanding of the use of digital technology and artificial intelligence in dentistry.
Responsibility and autonomy
RA1: The student identifies, locates, differentiates, describes pathological changes in the structures of the masticatory system and establishes the appropriate therapeutic attitude and treatment stages.
RA2: Developing ethical and responsible behavior, understanding the patient's needs and the effectiveness of advanced oral rehabilitation technologies
RA3: Manifest a critical spirit and scientific curiosity, by formulating pertinent questions and by critically analyzing the information presented in case studies and in the literature.
RA4: The ability to work effectively in a team (within practical work) and the development of the ability to integrate and collaborate, in order to analyze cases, debate solutions and achieve common learning objectives.
RA5: The student/graduate applies digital technology and artificial intelligence in dental practice, safely.

7. Discipline objectives (correlated with learning outcomes)

7.1. General objective	**TPD-GO:** The discipline aims to provide second-year dental students with fundamental conceptual knowledge and skills, in the practice of restoring the morphology and functions of the dentomaxillary apparatus, through classic and modern prosthetic technologies. The aim is to develop a reasoning based on biological principles and scientific evidence, essential for understanding and integrating oral rehabilitation technologies into modern dental practice, but also to develop professional communication skills for effective collaboration within the dental technician team.
7.2. Specific objectives	**TPD-SO1:** recognition of the types of removable dentures used in dental practice; **TPD-SO2:** the students' acquisition of the theoretical and practical notions of restoring the morphology and functions of the masticatory system through removable and mobile dental prostheses; **TPD-SO3:** knowledge of the ways to make a removable or mobile dental prosthesis and the necessary clinical-technical steps; **TPD-SO4:** acquisition of knowledge of casting a working master model; **TPD-SO5:** acquisition of knowledge of wax patterning of removable dentures; **TPD-SO6:** acquiring knowledge about the laboratory steps necessary to make a partial and complete dentures, how to perform them, as well as the errors that may occur at each stage and the way to intervene to correct them **TPD-SO7:** knowledge of digital flows in the design of technological steps and increasing precision in the execution of the denture

8. Contents

8.1. Lecture	**Teaching methods**	**Observations**
DPT-L1. Acrylic partial denture: Generalities, features, advantages / disadvantages. Classification of	Lecture, interactive	Oral presentation, Power-Point presentations, didactic videos

partial edentation, prosthetic field in extended partial edentation.	systematic presentation	
DPT-L2. Acrylic partial denture - component parts: artificial dental arches, saddles, prosthetic plate, and stabilization-holding elements, clasps: classification, indications, action, advantages of use.		Oral presentation, Power-Point presentations, didactic videos
DPT-L3. Acrylic partial denture – clinical and technical: first and final impression, materials, characteristics, preliminary cast, master model, materials-technological characteristics, custom impression trays, materials, manufacturing techniques, functional impression, occlusion rims, determination of the intermaxillary occlusal relationship of the partial edentulous.		Oral presentation, Power-Point presentations, didactic videos
DPT-L4. Acrylic partial denture - preliminary cast: artificial teeth, classification, methods of obtaining. General and individual rules for mounting teeth. Clinical examination - preliminary cast. Final cast - modelling rules.		Oral presentation, Power-Point presentations, didactic videos
DPT-L5. Acrylic partial denture Investing, methods, advantages, disadvantages. Preparation and introduction of the resin in the mold, polymerization of acrylate. Devasting, processing, and polishing the prosthesis. Application on the prosthetic field. Alternative technologies - Partial polyamide prosthesis		Oral presentation, Power-Point presentations, didactic videos
DPT-L6. Skeletal partial denture: methods of manufacture, characteristics, advantages / disadvantages. Component parts: artificial dental arches, prosthetic saddles, main connectors.		Oral presentation, Power-Point presentations, didactic videos
DPT-L7. Skeletal partial denture: retaining elements, support and stabilization: classification, advantages / disadvantages. Type of clasps, mixed clasps, special retainers and stabilization systems.		Oral presentation, Power-Point presentations, didactic videos
DPT-L8. Skeletal partial denture: special retainer and stabilization systems.		Oral presentation, Power-Point presentations, didactic videos
DPT-L9. Skeletal partial denture: technological stages (melting-casting method): study model, master model, surveyor (parallelometer) analysis, duplicate model, metal skeleton pattern, preparation for investing, investing, melting - casting of the alloy, examination of the skeleton on the model.		Oral presentation, Power-Point presentations, didactic videos
DPT-L10. Skeletal partial denture: determination of the intermaxillary relationship. Teeth set-up. Making the acrylic component. Alternative CAD-CAM technologies for obtaining the skeleton.		Oral presentation, Power-Point presentations, didactic videos
DPT-L11. Complete denture - component parts, prosthetic field in total edentation. Clinical aspects and prosthetic principles in total edentation. Stabilization factors for total prostheses (summary)		Oral presentation, Power-Point presentations, didactic videos

DPT-L12. Complete denture - clinical-technical stages: preliminary impression, impression methods, characteristics of the preliminary model, individual impression holder, materials, manufacturing techniques, final-functional impression.		Oral presentation, Power-Point presentations, didactic videos
DPT-L13. Complete denture - master model (final). Occlusal rims, determination of the intermaxillary relationship, criteria in choosing artificial teeth, mechanical simulators - summary presentation, mounting of models in articulator. Preliminary model of the complete denture. General and individual rules for mounting teeth (Gysi, Pedro Saizar).		Oral presentation, Power-Point presentations, didactic videos
DPT-L14. Complete denture - Examination of the first model, objectives, final impression, final model. Transforming the model into a prosthesis: indirect and direct investing. Preparation, introduction and polymerization of acrylate, thermobaropolymerization of the denture base, devesting, processing and polishing of the prosthesis. Application in the oral cavity. Alternative technologies for obtaining the base of complete dentures by printing and milling.		Oral presentation, Power-Point presentations, didactic videos
8.2. Practical classes/ seminar	**Teaching methods**	**Observations**
DPT-PC1. Acrylic partial denture: exposure of the clinical-technical stages, necessary instruments. Presentation of mobile prosthetic restorations, acrylic partial denture components. Wire hooks.	Presentation, practical demonstrations, interactive exercises	Handicraft exercises
DPT-PC2. Modelling the preliminary set-up pattern of the acrylic partial denture in mixed edentation on the master model		Handicraft exercises
DPT-PC3. Modelling of the preliminary pattern of acrylic partial denture in mixed edentation, general and individual rules for mounting teeth, mounting uuper jaw teeth		Handicraft exercises
DPT-PC4. Definitive modelling of the pattern of the acrylic partial denture. Indirect investing of the pattern, preparation - introduction in mold, polymerization of the acrylate, devesting, processing, polishing of the prosthesis		Handicraft exercises
DPT-PC5. Skeletal partial denture - component parts, main jaw connectors, presentation of crochet types, functions of crochet hooks, clinical and technical stages		Handicraft exercises
DPT-PC6. Skeletal partial denture, special maintenance systems, support and stabilization, parallelometer presentation, parallelometer model analysis		Handicraft exercises
DPT-PC7. Presentation of maxillary skeletal partial denture, modelling of the model of the metal component of the maxillary skeletal prosthesis		Handicraft exercises
DPT-PC8. Presentation of mandibular skeletal partial denture, mandibular connectors, modelling of the model		Handicraft exercises

of the metal skeleton of a mandibular skeletal prosthesis.		
DPT-PC9. Preparation of the master model for duplication, duplication, investing for obtaining the skeleton - demonstration. Direct modelling of the model on the master model - demonstration.		Handicraft exercises
DPT-PC10. Clinical-technical steps in obtaining the complete denture. Preliminary impression with alginates and silicones.		Handicraft exercises
DPT-PC11. Complete denture - clinical-technical stages. Preliminary impression. Casting the preliminary model. Manufacture of the custom tray from the base plate, self-curing acrylate and photo plate. Functional final impression. Preparation of the final impression for casting the functional model.		Handicraft exercises
DPT-PC12. Making occlusion rims. Determination of the intermaxillary-demonstration relationship. Mounting the models in the articulator. Mounting the plate of Pedro Saizar. Set-up of anterior and posterior artificial teeth.		Handicraft exercises
DPT-PC13. First set-up of the complete maxillary denture. Set-up of anterior and posterior artificial teeth.		Handicraft exercises
DPT-PC14. Practical exam	Practical test	Craft test

Recent bibliography:

Bibliografie minimală (recomandată):

1. L. T. Ciocan, I. I. Donciu, C. Ionescu, Vlad Gabriel Vasilescu, ș.a, *„Dental Prostheses Technology: Removable Dental Prostheses Technology – Handbook for students and residents”*, Editura Universitară “Carol Davila”, București, 2025. ISBN: 978-606-011-293-8; 978-606-011-294-5; 978-606-011-295-2
2. Dental Prosthesis Technology I - Course Handouts, PPT format, current year of study
3. Dental Prosthesis Technology I - Course and Practical Works Notes, PDF format, current year of study
4. Att W - Digital Workflow in Reconstructive Dentistry, Quintessence 2019
5. Johnson T, Patrick DG, Stokes CW, Wildgoose DG, Wood DJ - Basics of Dental Technology: A Step by Step Approach, 2nd Edition, Wiley-Blackwell, 2015
6. Shen C, Rawls HR, Esquivel-Upshaw JF - Phillips' Science of Dental Materials, 13th Edition, Elsevier, 2021

Bibliografie suplimentară și resurse educaționale (facultativ):

7. Carr AB, Brown DT - McCracken's Removable Partial Prosthodontics, 13th Edition, Elsevier, 2016
8. Nelson SJ - Wheeler’s Dental Anatomy, Physiology and Occlusion, 11th edition, Elsevier, 2020
9. Randall MG - Sintering: From Empirical Observations to Scientific Principles, Elsevier, 2014
10. Rosenstiel SF, Land MF - Contemporary Fixed Prosthodontics, 5th Edition, Elsevier, 2015
11. Sailer I, Fehmer V, Pjetursson BE - Fixed restorations, A clinical guide to the selection of materials and fabrication technology, Quintessence 2021
12. Sakaguchi RL, Ferracane J, Powers J, Powers J. - Craig's restorative dental materials, 14th ed., 2019
13. Shillingburg HT et al - Fundamentals of fixed prosthodontics, 4th Edition, Chicago, Quintessence Publishing, 2012

14. Wismeijer D, Barter S, Donos N - ITI Treatment Guide, Vol 11: Digital Workflows in Implant Dentistry, Quintessence
15. Johnson T, Wood DJ - Techniques in Complete Denture Technology, Wiley, 2021
16. Nallaswamy D.- Textbook of Prosthodontics, 2nd edition, Jaypee Brothers Medical Publishers, 2017
17. Özkan YK - Complete Denture Prosthodontics: Planning and Decision-Making, Springer 2018
18. Sakaguchi RL, Ferracane J, Powers J, Powers J. - Craig's restorative dental materials, 14th ed., 2019
19. Sakar O - Removable Partial Dentures, Springer, 2015
20. Verhaeghe TV, Tan HK - Complete denture prosthodontics, A clinical and laboratory guide, E-book, 2018
21. Zarb GA - Prosthodontic Treatment for Edentulous Patients, Elsevier, 2012

Specialized publications:

- International Journal of Oral Science (ISSN: 2049-3169)
- Journal of Dental Research (ISSN: 0022-0345)
- Dentistry Journal (ISSN: 2304-6767)
- Frontiers in Dental Medicine (ISSN: 2673-4915)

Online resources for research and in-depth:

- PubMed: baza de date fundamentală pentru căutarea literaturii științifice medicale
- Educational platforms (pentru recapitularea și aprofundarea conceptelor fundamentale): Khan Academy, Osmosis, Ninja Nerd

9. Assessment

Activity type	**9.1. Evaluation criteria**	**9.2. Evaluation methods**	**9.3. Percentage of final grade**
9.4. Lecture	-correctness of knowledge, - the ability to correlate and synthesize, - the coherence of the argumentation, - the correct use of specialized terminology.	Final written examination (grid test). Control papers – grid tests and/or editorial questions with topics from the subject covered	**55%** **15%**
9.5. Practical classes/ seminar	- accuracy and precision in the execution of techniques, - compliance with work protocols, - manual dexterity, - correct interpretation of the results, - the ability to apply theory in practice	Periodic check-up Seminar/Interview Attitude in internship – internship grade Practical test (Assessment of the acquisition of practical notions regarding the technologies for obtaining dental prostheses)	**15%** **15%**
Minimum performance standard			
In accordance with the university regulations in force, the promotion of the discipline is conditional on the **cumulative** and **mandatory fulfillment** of the following requirements:			

- **promotion of the seminar/laboratory activity**, a mandatory condition to be able to participate in the final colloquium. Promotion implies **full attendance** at practical work and obtaining an **average of at least** 5 in the evaluations along the way.
- **obtaining the minimum grade of 5 in the practical test.**
- **obtaining a minimum grade of 5 in the written exam.**
- **obtaining a minimum average grade of 5.**

Failure to comply with **any** of these conditions automatically leads to non-promotion of the discipline.

The student demonstrates a basic familiarity with the fundamentals of the discipline. It can reproduce information, recognize key terms, and perform simple analysis tasks on a clinical case, although it shows difficulties in arguing therapeutic choices in depth.

Knowledges (reflected in the final colloquium):

- **Reproduction of information:** the student correctly defines and knows the central notions of technology of mobile and removable dentures:

- the technological steps for the realization of partial removable and total dentures
- total and partial edentulous prosthetic field
- classification of partial edentation
- components of partial and total dentures
- the clinical-technical steps in obtaining the acrylic and skeleton partial prosthesis
- the clinical-technical stages in obtaining the total prosthesis

- **Factual answers:** the student correctly answers factual questions, such as "what is it?", "where does it apply?" and "what are the steps?".

Skills (reflected in the final colloquium):

Application of a standard protocol: the student contributes to a simple case analysis, which correctly follows a given scheme, but without exploring multiple perspectives.

It meets the minimum requirements, being coherent, but without elements of originality. The presentation is schematic and strictly follows the imposed structure.

The student answers factual, direct questions, but has significant difficulty explaining reasoning ("why?") or the implications of decisions.