**Dental Technician**

**Course Syllabi**

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| **Course** | **Fixed prosthodontics 1** |
| **Type** | **Semester** | **ECTS** | **Code** |
| **OBLIGATORY (O)** | **5** | **7** |  |
| **Course Lecturer** | **Lec. Saranda Dermaku, PhD Can** |
| **Course Assistant** |  |
| **Aims and Objectives** | This course is essential for preparing students to meet the demands of the profession, emphasizing both the theoretical understanding and practical application of concepts in fixed prosthodontic treatments.**Aims of the course are:**1. **To Provide a Solid Foundation in Fixed Prosthodontics**: The course aims to offer comprehensive knowledge of the principles, materials, and techniques used in fixed prosthodontics, including crowns, bridges, inlays, onlays, and other fixed restorations.
2. **To Develop Practical Skills**: Equip students with hands-on experience in the design, fabrication, and evaluation of fixed dental prostheses, preparing them for real-world dental laboratory work.
3. **To Encourage Research and Critical Thinking**: Foster an environment where students are encouraged to explore current research, innovative materials, and emerging technologies in fixed prosthodontics, promoting continuous learning and adaptation to advancements in the field.
4. **To Promote Ethical Professional Practice**: Instill a deep understanding of ethical considerations, patient privacy, and the importance of quality craftsmanship in dental technology, ensuring students commit to the highest standards of professional conduct.
5. **To Enhance Collaboration and Communication Skills**: Prepare students to effectively communicate and collaborate with dentists, other dental technicians, and healthcare professionals, emphasizing the importance of teamwork in dental treatment planning and execution.

**Upon completing this course, students will be able to:**1. **Understand the Fundamentals**: Demonstrate a thorough understanding of the basic concepts, materials science, and biomechanical principles underlying fixed prosthodontics.
2. **Apply Theoretical Knowledge Practically**: Show proficiency in applying theoretical knowledge to the practical tasks of designing, fabricating, and assessing fixed prosthetic devices, using both traditional techniques and modern digital workflows.
3. **Engage in Research**: Identify and engage with current research and technological advances in fixed prosthodontics, critically evaluating their application in dental technology.
4. **Adhere to Ethical Standards**: Recognize and apply ethical standards in all aspects of fixed prosthodontic work, including patient interactions, fabrication processes, and professional collaboration.
5. **Collaborate Effectively**: Demonstrate effective communication and collaboration skills with a multidisciplinary dental team, ensuring the accurate transfer of treatment plans into prosthetic solutions.
6. **Critically Assess Prostheses**: Acquire the ability to critically assess the aesthetics, function, and fit of fixed prostheses, applying quality control measures to ensure the highest level of patient care.
7. **Manage Laboratory Workflows**: Organize and manage dental laboratory workflows efficiently, prioritizing tasks and utilizing resources effectively to meet deadlines and quality standards.

By achieving these aims and objectives, the "Fixed Prosthodontics 1" course will ensure students are well-prepared to enter the professional world of dental technology, with a strong foundation in fixed prosthodontics that supports further learning and specialization in the field. |
| **Learning outcomes** | These learning outcomes encapsulate the integration of theoretical knowledge with practical skills, research engagement, ethical professional practice, and effective collaboration and communication within the dental care team.**Learning Outcomes for this course are:**1. **Comprehensive Understanding of Fixed Prosthodontics**: Students will demonstrate a comprehensive understanding of the principles, materials, techniques, and biomechanical considerations essential to fixed prosthodontics, including the design and application of crowns, bridges, inlays, onlays, and other fixed restorations.
2. **Practical Proficiency in Prosthodontic Techniques**: Students will exhibit proficiency in the hands-on design, fabrication, and evaluation of fixed dental prostheses, applying both traditional and digital workflows in the creation of durable and aesthetically pleasing dental restorations.
3. **Research and Critical Thinking Skills**: Students will show the ability to engage with current research, assess innovative materials, and explore emerging technologies in fixed prosthodontics. They will critically evaluate the implications of new discoveries for dental technology practice and contribute to the advancement of the field.
4. **Ethical Professional Practice**: Students will understand and apply ethical standards in all aspects of their work in fixed prosthodontics, demonstrating commitment to patient privacy, informed consent, and the delivery of high-quality dental restorations.
5. **Collaboration and Communication**: Students will effectively communicate and collaborate with dentists, dental technicians, and other healthcare professionals. They will demonstrate the ability to translate treatment plans into precise prosthetic solutions through teamwork and clear communication.
6. **Critical Assessment of Dental Prostheses**: Students will be able to critically assess the aesthetics, function, and fit of fixed dental prostheses, employing quality control measures to ensure restorations meet clinical requirements and patient expectations.
7. **Efficient Laboratory Management**: Students will organize and manage dental laboratory workflows efficiently, demonstrating the ability to prioritize tasks, manage resources, and adhere to deadlines, ensuring the timely delivery of high-quality dental prosthetics.

These learning outcomes ensure that students completing the "Fixed Prosthodontics 1" course are well-prepared to meet the demands of the dental technology profession. They will have a strong foundation in both the theoretical aspects and practical applications of fixed prosthodontics, ready to contribute effectively to dental healthcare teams and pursue further specialization in the field. |
| **Alignment of Course”s Learning Outcomes to Programs” Learning Outcomes** | Aligning the course's learning outcomes for "Fixed Prosthodontics 1" with the program's learning outcomes for the Dental Technician, Bachelor level, ensures that the course contributes effectively to the overarching educational objectives of the program. Here's how the specific learning outcomes of "Fixed Prosthodontics 1" map onto and support the achievement of the program's broader learning outcomes:1. **Comprehensive Understanding of Fixed Prosthodontics:**

Aligns with Program Outcome on Knowledge and Understanding: This outcome supports the program’s aim to equip students with a solid foundation in dental technology, including understanding key principles and techniques.1. **Practical Proficiency in Prosthodontic Techniques:**

Aligns with Program Outcome on Practical Skills: Directly contributes to the program’s objective of developing hands-on skills in dental laboratory procedures, ensuring students are prepared for real-world dental technology tasks.1. **Research and Critical Thinking Skills:**

Aligns with Program Outcome on Research and Innovation: Enhances the program’s goal of fostering an environment that encourages engagement with research, critical analysis, and innovation within dental technology.1. **Ethical Professional Practice:**

Aligns with Program Outcome on Ethical Practice: Reinforces the program’s emphasis on ethical considerations and professional conduct, aligning with the goal of instilling high ethical standards in future dental technicians.1. **Collaboration and Communication:**

Aligns with Program Outcome on Teamwork and Communication: Supports the program’s aim of preparing students to work effectively within interdisciplinary dental care teams, emphasizing the importance of communication skills in professional settings.1. **Critical Assessment of Dental Prostheses:**

Aligns with Program Outcome on Quality Control: Contributes to the program’s objective of ensuring students can critically evaluate the quality of dental restorations, applying quality control measures in line with industry standards.1. **Efficient Laboratory Management:**

Aligns with Program Outcome on Management and Organization: Enhances the program’s goal of equipping students with the skills needed to efficiently manage dental laboratory operations, including resource management and workflow organization.By achieving the learning outcomes in the "Fixed Prosthodontics 1" course, students make significant progress toward meeting the broader learning outcomes of the Dental Technician program. This course plays a crucial role in preparing students for the demands of the profession, ensuring they possess the knowledge, skills, and professional attributes necessary for success in the field of dental technology. The alignment of course learning outcomes with program learning outcomes ensures a cohesive and comprehensive educational experience that supports students' academic and professional development. |
| **Course Content** | The course is structured to progressively build students' knowledge and skills, culminating in the ability to design, fabricate, and evaluate fixed dental restorations.**Week 1: Introduction to Fixed Prosthodontics*** Overview of fixed prosthesis and its role in dental health
* Differention to the types of fixed and removable prosthetics
* Introduction to the types of fixed dental prostheses: crowns ,bridges,inlays and onlays.

**Week 2: Dental Anatomy and Occlusion*** Review of dental anatomy relevant to fixed prosthodontics
* Fundamentals of occlusion and its dental importance in prosthesis design

**Week 3: Articulators** * Separation of Articulators
* Parts of the Articulator
* Placing models on the articulator

**Week 4: Application of the parallelometer in fixed prosthetics*** Presentation of the parallelometer
* Parallelometer application

**Week 5: Modeling the wax bridge model preparation*** Preparation of the work model
* Principles of the bridge design
* Modeling of the bridge body

**Week 6: Placing the model in the cylinder and casting*** Dental alloys for casting
* Coating materials
* Shrinkage compensation

**Week 7: Seminar Presentations*** Collection of seminars
* Seminar analysis
* Evaluation of the seminar presentation

**Week 8:Deposits of the object from wax, casting and processing*** Storage
* Placement of casting pins
* Metal casting
* Processing and polishing

**Week 9: Dental Ceramics*** History
* Composition
* Classification

**Week 10: Heat treatment of the muffle, metal melting and casting*** Muffling
* Metal melting and casting

**Week 11: Tooth preparation*** Preparation of the tooth for a metal crown
* Preparation for the porcelain jacket crown
* Tooth preparation for metal-porcelain fixed works

**Week 12: Bridges and measurement*** Pouring the mass into plaster
* Mass processing
* Processing of the bridge

**Week 13: Bridges with suspended elements – appendix*** Bridge and appendix design
* Dependent member statics

**Week 14: Digital workflow presentation*** Projects

**Week 15: Final test**The course content is designed for a comprehensive foundation in special care, relying on the professional team of special students to improve dental technology and contribute effectively to professional dental care.**Exercises: Fixed prosthesis I****Week 1: Introduction to fixed prosthetics*** Discussion
* Development and progress of fixed prosthetics technique in the field of dentistry
* Current technologies and methods used in fixed prosthetics.
* Description of different methods and materials used.
* Development of advanced technologies in fixed prosthetics: Use of new technologies such as CAD/CAM
* Video

**Week 2: Dental Anatomy and Occlusion*** Visit to the dental clinic
* This exercise must be done in the presence of a licensed dentist
* Demonstration of intermaxillary relationships

**Week 3:Articulators*** Presentation of Articulators
* Demonstration of articulator parts

**Week 4: Application of the parallelometer in fixed prosthetics*** Presentation of the Parallelometer
* Demonstration of the parts of the parallelometer

**Week 5: Modeling the bridge with wax model preparation*** Practical work: casting of mass with alginate
* Preparation of the bridge model
* Modeling the bridge with modeling wax

**Week 6: Placing the model in the cylinder and casting*** Muffling the model
* Spillage
* Processing

**Week 7: Seminar Presentations*** Collection of seminars
* Seminar analysis
* Evaluation of the seminar presentation

**Week 8: Deposits of the object from wax, casting and processing*** Muffling the model
* Spillage
* Processing

**Week 9: Dental Ceramics*** Presentation of ceramic materials
* Demonstration of ceramic cases

**Week 10: Thermal heating of the muffle, metal melting and its casting*** Muffling preparation
* Metal melting
* Metal casting

**Week 11: Tooth preparation*** Discussion about tooth preparation
* Types of material for measuring

**Week 12: Bridges and measurement*** Pouring the mass into plaster
* Mass processing
* Processing of the bridge

**Week 13: Bridges with suspended elements - appendix*** Pouring the mass into plaster
* Mass processing
* Processing of the bridge

**Week 14: Digital workflow presentation*** Projects
* Practical work

**Week 15:Assessments and consultations**This course content is designed to provide a comprehensive foundation in fixed prosthodontics, ensuring students are well-prepared for further specialization in dental technology and capable of contributing effectively to dental healthcare teams. |
| **Teaching/****Learning****Methods** | These methods are designed to foster a deep understanding of fixed prosthodontics principles, develop practical skills, encourage critical thinking, and uphold professional and ethical standards.1. **Lectures: 15%**

Purpose: To deliver foundational knowledge and theoretical concepts.Implementation: Regular weekly lectures covering the comprehensive course content.1. **Hands-on Laboratory Sessions: 30%**

Purpose: To develop practical skills in prosthesis fabrication and evaluation.Implementation: Laboratory work following lectures to apply theoretical knowledge practically.1. **Seminars and Group Discussions: 10%**

Purpose: To enhance understanding through discussion and collaborative learning.Implementation: Scheduled sessions for discussing case studies, research findings, and current trends.1. **Digital Workflows Training: 10%**

Purpose: To acquaint students with digital dentistry technologies.Implementation: Specific sessions dedicated to CAD/CAM software and digital fabrication methods.1. **Guest Lectures and Workshops: 10%**

Purpose: To provide exposure to external expertise and new advancements.Implementation: Occasional guest lectures and workshops throughout the course.1. **E-Learning Resources: 25%**

Purpose: To supplement and reinforce learning outside the classroom.Implementation: Access to online materials and forums for further study and discussion.These percentages are indicative and can be adjusted based on specific course requirements, institutional guidelines, or the needs of the student cohort. The allocation ensures a strong emphasis on hands-on practice and laboratory work (30%), reflecting the practical nature of the dental technology field, while also maintaining a solid theoretical foundation through lectures (25%). Interactive and student-centered learning methods, such as seminars, case studies, and digital workflow training, are integrated to enhance critical thinking, collaboration, and technological skills. Ethical considerations and professional development are also included to round out the educational experience, ensuring graduates are well-prepared for their future careers. |
| **Assessment****Methods** | The following assessment methods correspond to the learning methods outlined previously, ensuring a comprehensive evaluation of student performance throughout the course.**Assessment Methods Aligned with Learning Methods**1. **Lectures (30%)**

**Assessment Method**: Written Examinations* + - Students will be assessed through midterm and final written exams covering theoretical knowledge presented during lectures. These exams may include multiple-choice questions, short answer questions, and essay questions to evaluate comprehension of foundational concepts in fixed prosthodontics.
1. **Hands-on Laboratory Sessions (40%)**

**Assessment Method**: Practical Skills Assessments* + - Practical examinations and continuous assessment of laboratory work will be used to evaluate students' proficiency in prosthesis design, fabrication, and evaluation. This includes direct observation of techniques, submission of completed prosthetic works, and practical tests on specific skills.
1. **Seminars and Group Discussions (10%)**

**Assessment Method**: Participation and Presentation* + - Students will be assessed based on their active participation in discussions and their ability to present case studies, research findings, or topics of current interest in fixed prosthodontics. Group presentations will also be evaluated for teamwork and collaborative learning outcomes.
1. **Digital Workflows Training (5%)**

**Assessment Method**: Digital Project Submission* + - Students will complete a project using CAD/CAM technology to design and fabricate a fixed dental prosthesis. Projects will be assessed for accuracy, design rationale, and adherence to functional and aesthetic criteria.
1. **Guest Lectures and Workshops (5%)**

**Assessment Method**: Reflective Journals* + - Following guest lectures and workshops, students may be required to submit reflective journals summarizing what they learned, its relevance to their studies, and how it might be applied in their future professional practice.
1. **E-Learning Resources (10%)**

**Assessment Method**: Online Quizzes and Assignments* + - Online quizzes and assignments related to e-learning resources will be used to reinforce learning and assess understanding of course materials. These may include quizzes on reading assignments or short essays on video lecture topics.

These assessment methods are designed to comprehensively evaluate students' theoretical knowledge, practical skills, professional behavior, and ethical understanding in the context of fixed prosthodontics. By aligning assessments with learning methods, the course ensures that students are evaluated in a manner that reflects their learning experiences and prepares them for professional practice. |
| **Course Resources** | These resources are chosen to provide comprehensive coverage of the theoretical knowledge, practical skills, and current trends in fixed prosthodontics. Here's a detailed list of course resources:**Textbooks and Reference Books**1. **"Fundamentals of Fixed Prosthodontics" by Herbert T. Shillingburg et al.**

A foundational text that covers the principles of tooth preparation, material selection, and prosthesis design.1. **"Contemporary Fixed Prosthodontics" by Stephen F. Rosenstiel, Martin F. Land, and Junhei Fujimoto**

Offers in-depth discussions on the latest techniques, materials, and technologies in fixed prosthodontics.**Journals and Online Databases**1. **Journal of Prosthetic Dentistry**

Provides access to the latest research findings, case studies, and review articles in prosthodontics.1. **Dental Materials**

Focuses on the properties and applications of dental materials used in fixed prosthodontics.**Digital Learning Platforms and Software**1. **CAD/CAM Software Tutorials**

Access to online tutorials for popular CAD/CAM software used in dental technology, such as 3Shape, Dental Wings, or CEREC.**Laboratory Equipment and Materials**1. **Dental Laboratory Workstations**

Equipped with all necessary tools and materials for hands-on practice, including dental lathes, waxing instruments, and casting machines.1. **CAD/CAM Systems**

Access to in-house or partnered dental laboratories with CAD/CAM systems for digital design and milling of fixed prostheses.**Online Videos and Multimedia**1. **Instructional Videos**

Curated list of high-quality instructional videos on tooth preparation techniques, impression making, and the use of dental materials.1. **Webinars and Online Workshops**

Access to recorded or live webinars hosted by experts in the field of fixed prosthodontics and dental technology.**Guest Lectures and Industry Partnerships**1. **Visiting Experts**

Sessions with experienced dental technicians, prosthodontists, and material scientists to share insights and real-world experiences.1. **Industry Tours and Demonstrations**

Organized visits to dental laboratories and manufacturing facilities for firsthand observation of professional practices and technologies.These resources are selected to ensure that students have access to a broad range of materials that support both the theoretical and practical aspects of fixed prosthodontics. Incorporating a variety of learning mediums, such as textbooks, digital tools, and hands-on experiences, enriches the learning environment and prepares students for professional practice in dental technology. |
| **ECTS Workload** | **1. Lectures** | **30 h** | **15.0 %** |
| **2. Hands-on Laboratory Sessions** | **60 h** | **30.0 %** |
| **3. Seminars and Group Discussions** | **23 h** | **10.0 %** |
| **4. Digital Workflows Training** | **23 h** | **10.0 %** |
| **5. Guest Lectures and Workshops** | **23 h** | **10.0 %** |
| **6. E-Learning Resources** | **51 h** | **25.0 %** |
| **Total** | **210 h** | **100.0 %** |
| **Literature** | 1. **"Fundamentals of Fixed Prosthodontics" by Herbert T. Shillingburg et al.**
2. **"Contemporary Fixed Prosthodontics" by Stephen F. Rosenstiel, Martin F. Land, and Junhei Fujimoto**
 |
| **Contact** | **Lec. Saranda Dermaku, PhD Can; saranda.dermaku@ubt-uni.net** |

Pre-requirements for the course

This course does not have any pre-requirements.

Assessment of Competence

For the class to reach a master’s level of learning, students must prepare by reading the given material, complete all assignments for each class. Students will be evaluated for participation as:

• Full participation in class activities and group work.

• Participation in class discussions (without dominating the conversation).

• Demonstrating understanding of the content of the material read.

• Providing critical thinking about the subject matter.

• Adding ideas to class discussion.

• Helping others clarify an idea.

• Supporting others as they share their ideas and speak in class.

• Raising new ideas and questions.

• Arriving on time and staying throughout the lesson.

Participation policy

Students are expected to attend all lectures and exercises. The importance of class attendance is reflected in the percentage of the grade associated with attendance. You cannot receive attendance grades if you are not in class. If you have an emergency and cannot attend class, please email me in advance to let me know. Class will start on time to honor everyone's commitment. If you are late, please enter the classroom quietly. Participation marks will be deducted for lateness.

Students must be present at least 80% of the activities.

Rules and Regulations

Attendance

UBT College undertakes the responsibility of training future professionals to the highest standards. One of these standards is taking responsibility for personal actions. If a student misses a particular session, the student has lost that instruction forever. They can never be repeated. When a student is late to class, the entire class is interrupted. Such interruptions will not be tolerated. Students have a responsibility and a contract to stay in class for the duration of the sessions, for each day. Students who leave sessions early, even if they leave with permission, cause disciplinary problems that will not be tolerated.

You made a contract with the UBTs to be in class and attentive throughout the learning process. Every student must be in every session, every day that is scheduled, throughout the semester.

All teaching sessions begin at their designated times in the lesson timetable. All sessions start and end at designated times in the class schedule. Any student who leaves the class session early will be considered absent.

Electronic Devices

It is distracting to everyone in the classroom when cell phones ring during class. This is even worse if it happens during a test or quiz. Since this is a classroom and not a room for listening and/or viewing electronic devices such as smart phones, personal laptops and/or other electronic devices will not be allowed.

The classroom will be a cell phone free zone. If you must bring a cell phone to class, it must be turned off or set to vibrate. It is distracting for a classroom to have students constantly answering cell phones during class. If you absolutely must answer the call, leave the classroom. A student who accepts calls during class will be asked to leave class. Hearing devices will not be allowed in the classroom for any reason.

Tests And Quizzes

Tests and quizzes are usually scheduled at the beginning of the lesson. Tests and quizzes are one-way teachers measure a student's knowledge. Failure to participate in tests or quizzes interferes with this process. UBT College does not reward students who do not take their tests or quizzes on time; therefore, the teacher cannot allow students to take tests or quizzes after the deadline.

Tests and quizzes must be taken by each student, any student who asks for help or helps other students during a test or quiz will be removed from the test and will be graded zero for that test or quiz. It is the student's responsibility to prepare for tests and quizzes at all times. It is the student's responsibility to know when there are tests or quizzes to take.

Seminars and Projects

Seminars and projects must be done on the student's own time, not during class.

Never allow another student to copy your seminars and projects.

Never copy another student's seminars and projects.

Due Dates

One thing all professionals must learn is to be on time. Excuses do not make the student and teacher feel better about their wasted time. For all assigned tasks, sufficient time is given to complete, and all work must be completed in the time set by the teacher. No delay in the completion of the works will be accepted.

Proper Attire

Professionals must dress appropriately. Any student who does not dress appropriately during class time will not be allowed to participate in class activities.

Conduct

Students at UBT College must learn to work in groups, regardless of group composition. Tolerance, courtesy, respect, and a peaceful environment are required in the classroom.

All students are expected to be respectful to other students and to the teacher during class and in dealing with class matters. Disrespectful behavior will affect your participation grade. Examples of respectful behavior in the classroom include, but are not limited to:

• Listening to each other and exchanging ideas.

• Arrival and departure according to the class schedule, except in cases of emergency.

• Turn off the cell phone ringer and do not receive calls in class.

• Speak so that others can hear and understand what you are saying.

• Engaging in class discussion (avoiding side conversations during class and dominating class discussion).

• Listening (not speaking) when the teacher or other students are addressing the class.

• Working collaboratively with a specific or selected group.

• Completion of class work on time.

• Focusing on class topics and not on personal matters or work unrelated to the class.

• Viewing your computer and/or cell phone only when related to class work.

• Raising questions when there is no clarification about the work in class.

Academic Dishonesty

Violations of Academic Integrity include, but are not limited to, the following actions:

• Cheating on an exam.

• Plagiarism.

• Working together on an individual assignment, paper, or project when the instructor has specifically stated students should not do so.

• Submitting the same term paper to more than one instructor or allowing another individual to assume one’s identity for the purpose of enhancing one’s grade.