

Master of Science in Dental Technology

Module Descriptions

Dental Technology – Manufacturing, Digital Applications, Materials, Science

This module teaches the current state of knowledge in the field of dental technology and its latest development within the healthcare system. Furthermore, the first module focuses on the role of the dental technician in a therapeutic team and the interaction of therapeutic approaches and materials.

Material Science

The module focuses on the scientific description and examination of the materials used in dentistry. Special attention will be paid to the area of an objective evaluation of clinical reaction, potentials and limitations of examinations of new materials.

Digital Design and Planning

In this module software products are critically discussed regarding their quality and their efficiency for doing a complete/ correct transfer of a digitally planned treatment.

Application of these software products is trained in workshops, including creating a virtual patient from varying data sets (e.g. CT, DVT, MRI, optical 3D surface scan). Further potentials as well as a risk-benefit analysis for digital planning on virtual patients will be taught.

Case Documentation

This module focuses on how to document clinical cases and will provide students with information on the significance of documentation, especially before and after fitting medical restorations. Case documentation will be trained on an application basis for various documentation methods (protocol, dental photography and video recording in 2D and 3D). The objective is the documentation and evaluation of patient cases with integrated dentally produced restorations in line with current scientific standards.

Dental Technology – Patient Treatment Procedures for Dental Technicians

You will learn how to perform non-invasive treatment steps on patients, such as functional and esthetic trying for dental restorations, adjusting the occlusion, determining the vertical and horizontal jaw relationship, implant abutment assembly and disassembly, determining the color and soft tissue, the fitting of a face bow, conventional as well as digital tooth/ jaw impression. Training will be performed on phantom heads.

To perform non-invasive treatment steps on patients upon completion of the master's program, you must obtain legal clarification and approval on a country-by-country basis in your home country.

Hygiene and Regulations

In this module all hygienic standards for the implementation of dental therapy steps on the patients will be taught. You will develop the competence to independently identify and implement country-specific norms and laws for required hygienic standards and measures in your working environment.

Patient Handling

This module addresses the relationship between the dental technician and the patient, as this relationship is characterized by information asymmetries. You will get to know communication tools and will reflect on the significance of patient communication for the sustainable success of dental treatment.

Scientific Methods I

This module allows you to become familiar with the philosophy of science and the rules of good scientific conduct. You will also learn about scientific writing, basic statistics as well as literature research, critical reflection of existing literature and its objective evaluation.

Process Management within a Therapeutic Team

This module focuses on a structured and efficient communication set for the therapeutic team which is highly relevant for the implementation of a complex multidisciplinary therapy. You will identify your own responsibilities and those of other therapists in the therapeutic team. Competencies in the field of professional project and personnel management will be acquired especially in the set-up and controlling of responsibility and communication structures, in the risk-benefit analysis and conflict management.

Anatomy, Physiology and Oral Diseases

For applying non-invasive therapeutic steps you need to know details about the masticatory organs, facial structure and orally manifested diseases. This is taught in theory and practice (human specimen).

Dental Technology – CAD/CAM Procedures

This module focuses on a completely digital workflow up to the chairside production of dental restorations. You will learn about the possibilities and limitations of CAD/ CAM systems, being particularly concerned with the limitations in choosing dental materials. For efficiency increase, you will learn to apply a structured risk-benefit analysis from case to case, allowing you to compare and evaluate digital and conventional options.

Scientific Methods II

Scientific Methods II is based on the contents taught in Scientific Methods I. You will be introduced to advanced statistics and clinical study design. Furthermore, you learn how to identify and deal with errors in scientific publications.

Complex Workflows for Immediate Restorations on Implants

In this module you will learn more about the advantages and disadvantages of immediate restorations on implants and its indication scope. Furthermore, you learn to produce the abutments and restorations already before the implant insertion based on the virtual patient

Quality Management

To work economically, attention needs to be paid to the requirements of a good and efficiently functioning dental business. This includes the identification of core processes, methods of quality management, definition of quality parameters of externally purchased goods/ services as well as the final quality assurance of the patient-specific dental restoration. You will therefore learn how to successfully implement efficient administrative and personnel structures and how to actively prevent risks for your business.

Offering Consulting Services for Clinicians

This module focuses on identifying and assessing potential further business opportunities in the consulting field. You will be taught how to consult and by that how to present and communicate customized content to your new future clients.

Economic Lab Management

This module deals with improving the profitability of your dental business and how to include newly developed business models. For this reason, content from the areas of marketing and sales, process management and leadership will be taught.

Manufacturing of Dental Restorations

Within this module you have to independently construct a total of 10 dental restorations in your home country, having your tutor on your side who is supporting you every step of the way through our eLearning platform. The production of your restoration has to be documented according to the standards taught in the module Case Documentation. The module has to be completed by the end of your third academic year.

Master Thesis

Using the research skills gained in the Scientific Writing Modules, each student is required to conduct independent scientific research and submit a master thesis by the end of the second academic year. You are free to choose your own research objective within the field of dental technology, e.g. a literature review or a clinical trial. Students with exceptional master theses will be encouraged and supported to publish their work in international journals.