M.Sc. Lasers in Dentistry
Specialist in dental laser therapies
Prof. Dr. Norbert Gutknecht

Scientific Director M.Sc. "Lasers in Dentistry"
Clinic for Conservative Dentistry, Periodontology and Preventative Dentistry
University Hospital Aachen, RWTH Aachen University

Patients are increasingly seeking alternative therapies, expecting their dentist to be well informed and to provide information regarding more gentle treatments.

Laser technology is an essential tool for innovative dental practitioners wishing to treat their patients in a modern and effective manner. Lasers enable new treatments and operating methods to be employed.

Through science based educational training, innovative laser treatments can be correctly and successfully applied. The scientific theory, as well as extensive theoretical and practical principles of laser dentistry, are not taught during initial dental degree programmes.

The master programme, M.Sc. in “Lasers in Dentistry”, has been developed in order to enable dentists to specialize in the full range of dental laser therapies by providing both theoretical and practical training.

We have been providing the M.Sc. in “Lasers in Dentistry” since 2004 and are proud that it is recognized and accredited in Germany and the European Union, as well as all countries that are signatories to the Washington Accord. Furthermore, the programme was awarded the bronze award for lifelong learning by the European Commission.

Approximately 300 dentists, from all over the world, have successfully graduated from our M.Sc. programme and we are pleased to have a globally active alumni network. We look forward to welcoming highly motivated dentists wishing to benefit from this innovative technology.

Yours sincerely,

Prof. Dr. Norbert Gutknecht

Prof. Dr. Gutknecht studied medicine and dentistry at the Universities of Bochum, Florence and Aachen. In 1995, following several research stays in the USA, focusing on dental laser therapy, he was awarded the Master in Application of Nd:YAG Lasers in Dentistry in Phoenix, AZ. In 1998 he was appointed Professor at the Department of Conservative Dentistry, Periodontology and Preventative Dentistry at RWTH Aachen University.

Prof. Dr. Gutknecht is Director of the Aachen Dental Laser Center (AALZ) and Scientific Director of the M. Sc. in Lasers in Dentistry programme. Furthermore, he is the President of the German Society of Laser Dentistry (DGL) and an Executive Director of the World Federation for Laser Dentistry (WFLD).
INTRODUCTION
Lasers have been used in dentistry for diagnostic and therapeutic purposes for more than 30 years and are an indispensable instrument in modern dental surgery. The use of lasers enables new treatment methods to be employed and lasers can meaningfully supplement more traditional therapies. Further, modern facilities and increased customer satisfaction help ensure the long-term financial success of dental practices. For these reasons, the opportunity to expand and improve the range of treatments by completing the M.Sc. in “Lasers in Dentistry” should not be missed.

COURSE OBJECTIVES
The objective of this two year, part-time master program is to enable dentists to treat patients with laser adjuvants and laser based therapeutic methods in a responsible manner as highly qualified specialists. The M.Sc. in “Lasers in Dentistry” balances the teaching of medical aspects with extensive practical skill training on the dental application of laser systems. The close interdisciplinary cooperation of dentistry and physics is of significant importance in this field. Treatment methods, the planning and preparation of treatments, the systematic organization of scientific and clinical findings, as well as an independent, responsible handling are the priorities of this extra-occupational program.

YOUR BENEFITS
- An understanding of the dental principles associated with the application of laser systems of various wavelengths
- Use of different laser systems from leading manufacturers, covering all available wavelengths, during skill training sessions and practical exercises
- Knowledge of the physical principles and the technical implementation of a laser system
- Live operations on patients or via direct monitor broadcasting
- Provision of additional specialist literature which serve as a future work of reference
- Competent patient consultancy in all areas of laser and laser supported therapy
- Encouragement to participate actively in international scientific congresses and to publish in scientific journals
- Independent access to a modern e-learning environment, supported by scientific staff
- Skill to employ dental laser systems in a clinically correct manner

“I strongly recommend the education provided by AALZ and RWTH Aachen International Academy for some clear reasons. AALZ has more than 20 years of experience in Evidence Based Laser Supported Dentistry which is combined with the latest up-to-date knowledge. You can always expect the best and most efficient education, giving you all the tools positioned at the front line of laser dentistry. By joining the courses, you are connected to an international network your professional career cannot be without.”

Dr. Ute Gleiss, M.Sc.
(Germany)

“The master course not only met but greatly exceeded my expectations. Previously I could not have imagined that physics could be so exciting... We were supplied with any literature requested and care was taken during the practical training that no question was left unanswered. Although I now know how much work and dedication is required from the students during the course, I would readily tackle the challenge again!”

Peter Fahlstedt, M.Sc.
(Sweden)
This master program is aimed at dental practitioners who want to train as specialists in laser dentistry and who wish to qualify with a highly recognized degree, while continuing with their career.

- A first university degree in dentistry from a recognized institution
- A minimum of two years of working experience in a dental clinic or practice
- Proof of English language skills

The M.Sc. in “Lasers in Dentistry” is a worldwide accredited master program in the field of laser dentistry. Successful participants receive a total of 60 credit points in accordance with the European Credit Transfer and Accumulation System (ECTS). Graduates are awarded the academic title “Master of Science” of RWTH Aachen University and, as such, are recognized as specialists in the field of laser therapy in dentistry. On completion of the appropriate training module, participants receive a “Laser Safety Officer” (LSO) certification.

Course participants have access to scientific staff who are leading experts in their specialized fields. Furthermore, the course attracts dentists from all over the world and participants are encouraged to network with their fellow students. Additional networking opportunities are provided at international scientific conferences and through the alumni network WALED.

**ONE YEAR MASTERSHIP/FELLOWSHIP COURSE**

The Mastership/Fellowship course is aimed at dentists who would like to specialize in selected wavelengths. Over the course of one year, fundamental physical and technical knowledge is taught. Participants acquire extensive practical skills in hands-on sessions and live demonstrations. After successful completion of an examination at RWTH Aachen University, this program concludes with the official certificate “Laser Therapy in Dentistry”.

The completion of this Mastership/Fellowship course may be credited towards the corresponding modules of the M.Sc. “Lasers in Dentistry”.

"When we pursue Excellence, success comes as a by-product”. With this profound thought in mind, I enrolled at AALZ. During the whole tenure of M.Sc., the integrity, authenticity and effortful delivery of high end dentistry never failed to impress me. Physics was re-introduced in our lives not only as the science behind lasers, but as an omnipotent and simple phenomenon … The M.Sc. program has certainly added an exclusive edge to my Pediatric Dentistry practice in Dubai and introduced me to multiple new academic avenues."

Dr. Imneet Madan, M.Sc.
(United Arab Emirates)

"Prior to joining the master’s program (Lasers in Dentistry), I had a general idea that a laser is only a cosmetic device in the dental practice … After the first lectures I began to discover the scientific basis of this tool and how it is mainly utilised to serve the patient during the treatment, minimize his pain and achieve superior results. I really can say now that my presence in this program, surrounded by the talented group of lecturers and the easy way in which the scientific materials were presented, was of great benefit to me."

Dr. Faisal Tameem Aljadir, M.Sc.
(Iraq)
**COURSE STRUCTURE** The M.Sc. “Lasers in Dentistry” requires dentists to attend ten modules (approx. 38 days) over two years. The attendance modules are supplemented by e-learning, enabling contact with lecturers throughout the duration of the course. This mix of learning methods allows dental practitioners to balance their studies with their professional commitments.

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<th>First Academic Year</th>
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<tr>
<td><strong>Lectures &amp; Skill Training</strong></td>
<td>(attendance required)</td>
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<td><strong>Module 1</strong></td>
<td>4 CP</td>
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<tr>
<td>Laser Safety and Optics</td>
<td>Dosimetry, Caries Fluorescence Diagnostics, Laser Physics &amp; Literature Research</td>
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<td>- Introduction of the E-Learning system ILIAS</td>
<td>- Principles of fluorescence based caries diagnostics and dosimetry calculation</td>
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<td>- Fundamentals of optics</td>
<td>- Key subjects of laser technology</td>
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<td>- Successful participants qualify as dental laser safety officers</td>
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<th>Home Study &amp; E-Learning</th>
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<th>Second Academic Year</th>
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<td><strong>Lectures &amp; Skill Training</strong></td>
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<td><strong>Module 5</strong></td>
<td>3 CP</td>
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<tr>
<td>Diode Lasers, Photodynamic Therapy</td>
<td>Nd:YAG Lasers</td>
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<td>- Technical-physical principles and application of diode lasers</td>
<td>- Familiarization with the principles of Nd:YAG lasers and their interaction with tissue</td>
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<th><strong>Final Examination</strong></th>
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| **Module 9** | 20 CP | **Module 10** | 10 CP |
| Master Thesis | Documentation of Clinical Case Studies |
| - Preparation and compilation of a master thesis on a laser dental topic | - Application of the principles learnt and the skills gained in modules three to eight |
| | - Treatment of patients and case documentation in the participant’s own practice |
Scientific Director

Prof. Dr. Norbert Gutknecht

Co-Lecturers

Assoc. Prof. Dr. René Franzen
Prof. Dr. Matthias Frentzen
Prof. Dr. Ralf-Dieter Hilgers
Dr. Ilay Maden, PhD, M.Sc.
Prof. Dr. Marcia Marques
Dr. Miguel Martins, PhD, M.Sc.
Prof. Dr. G. Lynn Powell
Dr. Youssef Sedky, PhD, M.Sc.
Dr. Gabriele Schindler-Hultsch, M.Sc.
Dr. Dimitris Strakas, PhD, M.Sc.
Dr. Anna-Maria Yiannikou, M.Sc.

For application and further details:

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