



Università degli  
Studi di Genova

# RAJAS DENTAL COLLEGE & HOSPITAL

( AFFILIATED TO THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY, ACCREDITED BY NAAC )

KAVALKINARU JN- 627105, TIRUNELVELI DISTRICT, TAMILNADU.

University of Genova, Italy **DI.SC**



## Department of Advanced Dental Sciences

**2 DAY CERTIFICATE PROGRAMME FOR ACCREDITATION IN  
LASER DENTISTRY**

Our Technical Partner



**DATE**

**VENUE**

**30<sup>th</sup> Aug 2024**

Department of

**31<sup>st</sup> Aug 2024**

Advanced Dental Sciences

Rajas Dental College & Hospital,

Kavalkinaru Jn, Tirunelveli Dt

**Dr. S. A. Raja**  
Founder Chairman



**Prof. Dr. Jacob Raja, MDS., F.I.D.A.,**  
Chairman,  
Rajas Medical Institution



# 2 DAY CERTIFICATE PROGRAMME FOR ACCREDITATION IN LASER DENTISTRY

**Day I (6 Hours)**

## **Unit 1- Fundamentals of Lasers in Medicine and Dentistry** **Duration - 2 hours**

Light propagation and interaction in nature. Particulate and Wave. Explanation of Electromagnetic spectrum.

Light physics. Consideration of the electromagnetic spectrum. Historical perspectives.

Physics foundations of Laser photonics. Explanation of Spontaneous Emission.  
Laser photonic energy propagation.

Basic principles of laser light production. Explanation of Stimulated Emission. Population inversion phenomena. Active Media

Basic principles of laser energy delivery. Modes of Delivery,

## **Unit 2 - Laser tissue interaction** **Duration - 1 hour**

Effects of Laser Energy on Biological Tissues. Photothermal, Photoacoustic and Photochemical.  
Photoablation phenomena photovaporolysis, photoplasmolysis

Emphasis on Photothermal effects in soft tissue - Warming, Coagulation, tissue shrinkage, hemostasis, Vaporization, Ablation, Carbonization, Photoacoustic effect, Disruption, Photochemical effects, Stimulation of chemical reactions, Breaking of molecular bonds, Fluorescence, Biostimulation

Factors affecting laser-tissue interaction. Power density phenomena. Contact/non-contact applications

Tissue thermal relaxation concepts and applications.

## **Unit 3 Classification of Lasers in Dentistry and Clinical Indications - Duration - 2 hours**

Classification of Lasers used in Dentistry

Device characteristics - Wavelength, Beam diameter (spot size), Power, Energy density, Repetition rate (if applicable), Exposure duration, Total energy delivered

Review of types of lasers, delivery systems, special device characteristics, and clinical applications in dentistry

Photographs and Videos of Various Case Scenarios

## **Unit 4 Laser safety** **Duration-1 hour**

Factors contributing to the need for laser safety.

Regulatory framework defining laser safety. OSHA, IEC, ANSI Regulations.

Factors that affect safety within the Nominal Hazard Zone.

Protective Gear and Restrictions

Environmental, Engineering and Electrical Controls



Laser Fumes and Inflammables

Defining a "best practice" approach to laser safety.

Infection control - i) Identification and disposal of biologic hazards  
ii) Plume hazards and precautions

Sterilization

## Day 2 - (4 hours)

### Unit 5 - Fundamentals and factors of Soft Tissue Ablation and Laser Interactions - Duration - 2 Hours

Laser Absorption vs. Laser Penetration

Ablation and Ablative Capacity, Absorption Coefficient

Chromophores and Heat build up in Photothermal Interactions

Tissue Content and Variables in Photothermal interactions

Clinical applications - Intraoral soft tissue surgery - eg:- Treatment of apththous ulcers, Sulcular debridement (soft tissue curettage) Lasers in Endodontics, Lasers in Periodontics and Soft Tissue Surgery

Treatment objectives and Indications and contraindications of laser use in dentistry.

Alternate methods of treatment with Discussion of treatment sequence, patient management, postoperative instructions

Management of complications

Surgical and healing assessment

### Conclusion

Hands on Training of Participants on Various Substrates such as pigmented vegetables, fibrous meat pieces, sheep jaw and extracted teeth

### Live Cases Demonstrations

Written test

Course evaluation

Certificate of attendance and accreditation

\* If arranged for

Tier	Privileges	Fee
Tier 1	Lecture Only	Rs.3000/-
Tier 2	Lecture + Hands on (artificial substrates)	Rs.5000/-
Tier 3	Lecture +Hands on + Demo on patient	Rs.7500/-
Tier 4	Lecture +Hands on + Demo + Surgical Training on patient	Rs.10000

# 2 Day Certificate Basic Accreditation Programme in Laser Dentistry

## Day 1

- 9.00am - 11.00 am : **Unit 1** - Fundamentals of Lasers in Medicine and Dentistry & Classification of Lasers in Dentistry - Duration - 2 hrs
- 11.00 - 11.30 am : Tea Break
- 11.30am - 12.30pm : **Unit 2** - Laser tissue interaction - Duration - 1 hour
- 12.30pm - 1.30pm : Lunch Break
- 1.30 am - 2.30pm : **Unit 3** - Laser safety - Duration - 1 hour
- 2.30pm - 3.00pm : Tea Break
- 3.00pm - 5.00pm : Hands on Training of Participants on Various Substrates such as pigmented vegetables, fibrous meat pieces, sheep jaw and extracted teeth - Duration - 2 hours

## Day 2

- 9.00am - 11.00am : **Unit 5** - Fundamentals and factors of Soft Tissue Ablation and Laser Interactions - Duration - 2 hours
- 11.00 - 11.30am : Tea Break
- 11.30am - 12.30pm : **Unit 6** - Clinical Indications and clinical applications in dentistry & Treatment objectives and Indications and contraindications of laser use in dentistry - Duration - 1 hour
- 12.30pm - 1.30pm : Lunch Break
- 1.30am - 3.30pm : Live Demonstration on patients and hands on training on patients for select participants
- 3.30pm - 5.00pm : Conclusion  
**A.** Written test  
**B.** Course evaluation  
**C.** Certificate of attendance and accreditation



Successful Completion of this accreditation will fulfill the requirement for admission into Fellowship (Dipl.) & Mastership (M.Sc) Programs in Laser Dentistry

**Dr. Alex Mathews Muruppel, MDS.,**  
Principal & HOD, Dept of Advanced Dental Sciences, RDCH





## About Rajas Dental College & Hospital

The Rajas Dental College and Hospital (RDCH) established in 1987, by the monumental efforts of our Founder Chairman Sardar Dr. S. A. Raja has been at the forefront of delivering quality education in India with an illustrious 34 long years of excellence in grooming young and brilliant minds in the field of dentistry and allied health sciences.

The college is affiliated to the prestigious Dr. MGR Medical University, Chennai and it effectively functions under the governing council of Selvam Educational Trust guided by the proficient leadership of our Chairman Prof. Dr. Jacob Raja – a man of clarity and innovation. The Trust also manages the Sardar Rajas College of Nursing (SRCN) and the S. A. Raja Pharmacy College, which apart from being the sister Institutions of Rajas Dental College and Hospital (RDCH) also lend research and academic interactive support through the use of common facilities like the Animal house and the Central Research Lab.

The awe inspiring campus, set in a sprawling 30 acres of sylvan settings, and nestled in the lap of the Western Ghats, is located in strategic access between two National Highways. Amidst the serene and tranquil atmosphere, the Institution provides a realm of peaceful learning, teaching and an aura of healing that relates medical science to nature. The Institution through her founding father has a noble vision to sculpt a society through education, enlightenment and health by offering exemplary, uncompromised, superlative yet affordable treatment to all. The Faculty endeavours to inspire every budding doctor in our tutelage to provide excellent and exceptional dental therapy with compassion, concern and care based on the fundamentals of ethics and values which are the bedrock of any successful profession.



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## About University of Genova, Italy

The University of Genova has a history going back to the 15th century, when it was known as Genuense Athenaeum, and is geographically set in the southern corner of the Milan - Turin - Genoa industrial triangle of Northwest Italy, on the Gulf of Genoa in the Ligurian Sea, and is one of the most important ports on the Mediterranean (the busiest in Italy).

It is the birthplace of Guglielmo Embriaco, Christopher Columbus, Andrea Doria, Niccolò Paganini, Giuseppe Mazzini, Renzo Piano and Grimaldo Canella, founder of the House of Grimaldi, among others.

The University of Genova is the home of learning to 41000 students, with 400.000 m<sup>2</sup> of buildings, delivering 40 master courses, with 12 Faculties contributed to by 2860 teachers and technicians.

University of Genova has the unique and proud distinction to have the European Master Course in Laser Dentistry with 49 teachers coming from all around the world. The University also delivers Fellowship courses and 32 introductory courses in partnering Institutions and Universities around the World.

## 2 DAY CERTIFICATE PROGRAMME FOR ACCREDITATION IN LASER DENTISTRY

### DATE

**30<sup>th</sup> Aug 2024 & 31<sup>th</sup> Aug 2024**

**( Cut off Date 24<sup>th</sup> August 2024 )**

**Scan the QR code for Payment**

### **BANK DETAILS**

**Rajas Dental college & Hospital**

**Indian Bank**

**Perungudi Branch**

**IFSC : IDIB000P250**

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**Dr. Alex Mathews Muruppel, MDS.,**

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