

Ist Phase, J.P. Nagar, Bangalore-560 078. Ph: 080-26659532, 61754501/02 Fax: 080 -26548658

#### THE OXFORD DENTAL COLLEGE

#### Accredited with 'A' grade by NAAC

(Recognised by the Govt. of Karnataka, Affiliated to Rajiv Gandhi University of Health Sciences,
Karnataka & Recognised by Dental Council of India, New Delhi)
Bommanahalli, Hosur Road, Bangalore - 560 068.
Ph: 080-61754680 Fax: 080 - 61754693
E-mail: deandirectortodc@gmail.com Website: www.theoxford.edu

#### 3.2 Innovation Ecosystem

# 3.2.1 Institution has created an ecosystem for innovations including incubation centre and other initiatives for creation and transfer of knowledge

SL. No.	DEPARTMENT	No.
1	Department of conservative dentistry and endodontics	1
2	Department of Prosthodontics	2
3	Department of Periodontology	1
4	Department of Pedodontics	1
5	Department of Orthodontics	1

#### **INCUBATION CENTRE**

TODC provides quality to students to establish themselves as successful providers of quality health care to society by providing a favourable ecosystem for research and technology-driven innovation to materialize their ideas. Our college established an incubation centre in 2010 with the tagline "Dream. Create. Inspire."

#### Department on the campus

The roles of the incubation centre are categorized into academic and research-related issues. The incubator centre has organized programmes such as "Introduction to Clinics," "Intellectual Property Rights," and "Research and Publication: The Importance of Academics." We are encouraging our very own students and alumni to take up research projects and make use of our incubation centre. Our incubation centre is regularly updated with the latest research equipment. Regular discussions are held with the concerned members to motivate various students and faculties from our sister concern to make use of the facilities provided at our incubation centre. Both our UG and PG students are encouraged to carry out various short studies under the able guidance of our staff members.

We are also looking forward to collaborating with other universities to gain more exposure.



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# DEPARTMENT OF CONSERVATIVE DENTISTRY AND ENDODONTICS 2023- 2024

#### **PRICI GUIDE**

**PriciGuide**<sup>TM</sup> and **PriciPost**<sup>TM</sup> are new techniques in guided endodontics developed by **Roots to Cusps Private Limited**<sup>TM</sup> that uses two guide rails to direct the drill into the root canal.

**PriciGuide**<sup>TM</sup> can be used in all cases, including teeth with calcified canals or crowns. **PriciPost**<sup>TM</sup> is a system that helps to create a post space in severely damaged teeth and remove broken posts.

Both **PriciGuide**<sup>TM</sup> and **PriciPost**<sup>TM</sup> can save time for dentists and improve treatment efficiency. They can also reduce treatment time for patients and improve the prognosis of treatment.

**PriciGuide**<sup>TM</sup>is different from the sleeve technique because it does not require a sleeve with an offset. This results in several advantages, including:

Reduced deviation: The two guide rails provide more precise guidance than a single sleeve.

Better visibility: The guide does not cover the tooth, so the dentist has a better view of the working area.

No overheating: The open architecture of the guide allows the coolant to reach the drill bit, preventing it from overheating.



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#### VARUN PRABHUJI



#### **List of Associated Companies**

Sr. No	CIN/FCRN	Company Name	Designation	Original Date of appointment	Date of Appointment at Current Designation	Date of cessation (if applicable)
1	U85300KA2022PTC156393	ROOTS TO CUSPS PRIVATE UMITED	Director	07/01/2022	07/01/2022	-

#### List of Associated LLPs

Sr. No	CIN/LLPIN	LLP Name	Designation	Original Date of appointment	Date of Appointment at Current Designation	Date of cessation (if applicable)
				No data available		













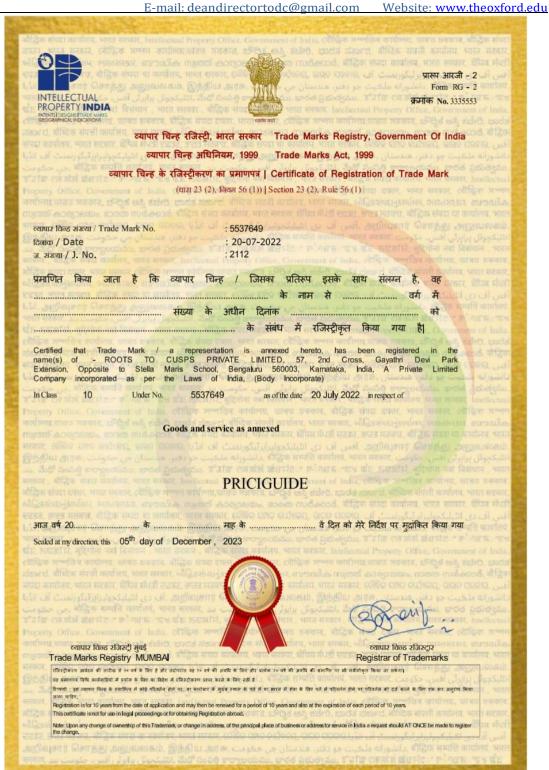
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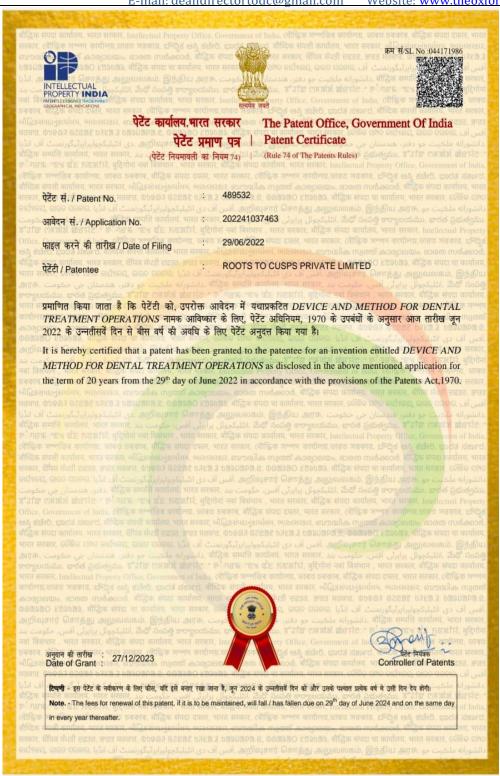
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# DEPARTMENT OF PROSTHODONTICS 2023- 2024

#### **REPORT 1:**

#### Sculpting Tomorrow: Symphony Of Patient-Specific Implants And Bionic Eye Prosthesis In The Era Of AI



The integration of artificial intelligence (AI) into bionic eye technology represents a significant advancement in visual prostheses, offering hope for individuals with vision loss due to conditions like retinitis pigmentosa and macular degeneration.

retinitis pigmentosa and macular degeneration.
This table clinic provides an overview of the functioning of bionic eye technology with the applications
of AI in its development.
These include improving image quality, developing wireless communication technologies, miniaturizing
implants, integrating AI, and developing multi-modal sensory prostheses.
A bionic eye, also known as a retinal prosthesis, is an electronic device that mimics the function of the
retina and provides vision to those with severe vision loss. In recent years, AI has played a significant
role in the development of bionic eyes.
PSI allows creations of customized implants that fit quickly with greater accuracy which leads to shorter
rehabilitation time and overall cost reduction.



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□ **Basic Principle**: They function by replacing damaged photoreceptor cells in the retina, which convert light into electrical signals for the brain.

☐ APPLICATIONS of AI in Bionic Eye Development: **AI-based image processing** 

#### Machine learning algorithms

#### **Neural network**

This table clinic emphasizes that prosthodontics is not solely limited to dental prostheses but encompasses the restoration and rehabilitation of the entire maxillofacial region. Bionic eye prostheses play a crucial role in restoring facial symmetry, aesthetics, and function, thereby complementing the comprehensive care provided by prosthodontists.



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#### POSTERITY IN PROSTHODONTICS

#### **REPORT 2:**

# A stepping stone towards noninvasive precise assessment of bone-implant osseointegration using acousto-ultrasonic waves.



ABSTRACT: Quantitative and reliable monitoring of osseointegration will help further evaluate the integrity of the dental implant to promote novel prosthesis design. The acousto-ultrasonic wave propagation has been used in structural health monitoring as well as human health monitoring but so far it has not extended to osseointegrated implants or prostheses. This table clinic explores the potential of integrating structural health monitoring concepts into a new osseointegrated implant and delve into innovative techniques utilizing guided waves for precise evaluation and to demonstrate the extension of acoustoultrasonic techniques to assess the state of osseointegration of a bone and implant. Osseointegration index can be formulated by using engineering and acousto-ultrasonic methods to measure the unification of a bone and implant. This highlights a potential quantitative evaluation technique regardless of bone-implant geometry, and soft tissue damping and also explores cutting-edge techniques employing acousto-ultrasonic waves for non-invasive, precise assessment, marking a significant advancement in the realm of prosthodontics.



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# DEPARTMENT OF PERIODONTOLOGY 2023- 2024

Evidence –Based practice and research by adopting non-invasive procedure for reducing the periodontal pocket depth for patients using Photodynamic therapy, which aims to provide painless and reduced drug intake treatment for patient.

The use of PDT for pocket reduction treatment has an effective bactericidal effect. We have done a total of 57 cases during the period of 1 year wherein we dealt in treating patients with mainly gingivitis and periodontitis and few patients with peri-implantitis. The success rate was about 90% in the treated cases. This therapy being painless and non-invasive has been accepted by patients with tangible results. Patients are being followed up regularly every 3 months to check the prognosis of the treatment.

#### CASE 1





Armamentarium for diode laser

Commercially available indocyanine green



Preparation of indocyanine green dye solution



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Preoperative



Application of indocyanine green dye solution 810 nm diode laser used to activate the dye (photosensitizer)



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Postoperative after 3months





Preoperative



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## DEPARTMENT OF PEDODONTICS 2023- 2024

#### INFANT ORAL HEALTH CARE COUNSELLING

Evidence based practice delivered through the application of AI (Artificial intelligence assisted learning) by application of virtual reality (VR) device, which aims the delivery of education, service and research involving stakeholders in the core.

The utilization of newer preventive strategies has resulted in good treatment outcomes. Improvement in oral health of the child gives students confidence, and increases the interest and trust of parents, and improvement in quality of life of children.

Infant oral health care counselling to young mother aims at:

- Early detection of oral health issues.
- Alleviate discomfort and pain
- Establish good oral health practices
- Prevents long term oral health issues by incorporating brushing & flossing regularly, proper breast-feeding practices, limiting sugary food & drinks and encouraging a healthy diet.















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#### DEPARTMENT OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

2023-2024

#### **Finite Element Method (FEM)**

The Finite Element Method (FEM) is designed to offer precise solutions for systems with complex geometries, boundary conditions, and material properties that cannot be effectively analysed using simplified methods or analytical equations. It is primarily used to solve intricate engineering and physical problems that are challenging or impossible to address analytically.

FEM provides valuable insights into how a system will respond to specific loads, forces, or environmental conditions before physical prototypes are created. A training program focused on applying FEM to real-world problems is particularly beneficial in fields where computational simulations are essential, such as biomechanics, biomedical engineering, and medical device design.

This training aims to equip participants with the necessary skills to analyse and optimize healthcarerelated systems using FEM tools and techniques, enabling them to enhance the design, performance, and safety of medical devices and other healthcare solutions.







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