

POST DOCTORAL FELLOWSHIP PROGRAMME **IN FORENSIC DENTISTRY**

Introduction:

Forensic Odontology may be defined as the branch of dentistry which deals with the correct handling, examination, interpretation and presentation of dental and oro-facial evidence in the administration of the law and justice.

The objective of this course is to promote and develop the competence of dental surgeons involved in this specialized field of dentistry.

Duration:

One academic years as a full-time student.

Eligibility:

Any candidate with a MDS degree from any University recognised by the Dental Council of India.

Aim of the course:

To provide a programme which will introduce the candidate to the knowledge {now that the current BDS curriculum has FO I thought enhancing their knowledge would be more apt} and skills in forensic odontology and designed for sduerngteaol n s who wish to handle forensic cases.

OBJECTIVES:

1. Identify current developments in basic medical sciences, which are applicable to forensic odontology.
2. Acquire experience in forensic odontological case work.
3. Understand the legal systems relevant to the preparation and presentation of dental evidence.
4. Understand the disciplines of forensic medicine and pathology in a broad sense.

COURSE STRUCTURE:

The course structure consists of three

- a) Basic theoretical component
- b) A complementary applied practical course.

c) A supervised research project and a portfolio of forensic odontological case work.

A. Theoretical component:

Consists of

- I) Basic dental sciences
- II) Applied dental sciences
- III) Forensic medicine and pathology
- IV) Law and Law
 - i. The Police Force
 - ii. The Judiciary
- V) Forensic Odontology

The theoretical component is conducted in the form of lectures, seminars and prescribed assignments in the form of reports, etc.

I) Basic Dental Sciences:

- 1. Human cranio-facial embryology
- 2. Human cranio-facial anatomy
- 3. Dental embryology
- 4. Human tooth morphology
- 5. Comparative dental anatomy
- 6. Dental histology
- 7. Fundamentals of optics and use of electro magnetic spectrum.
- 8. Instruments and Instrumentations in odontological analysis
- 9. Fundamentals in Statistics and the importance of various statistical methods to forensic odontological investigation and evidence presentation
 - i. Descriptive statistics
 - ii. Error rates, confidence intervals, etc.
 - iii. Regression analysis
 - iv. Multivariate statistics (Discriminant function analysis, logistic regression analysis, etc)
 - v. Bayesian statistics
- 10. Basic computer applications.

II) Applied Dental Sciences, including Criminalistics:

- 1 Dental materials
- 2 Impression materials and techniques
- 3 Model preparation and duplication
- 4 Anatomical reconstruction of facial features

5 Cranio-facial Radiography & Radiology

- i Physical and mechanical features of bones and teeth
- ii. Fractures of bones and teeth
- iii. Refractive index of teeth
- iv Basic Microscopy and examination of innate and normal human hard and soft tissues such as tooth fragment, dental restorative material etc.
- v The scene of crime.
- vi X-ray diffraction/Microradiography
- vii. Video and digital photo-superimposition techniques.
- viii. Digital image processing of radiographs, etc.
- ix Basic Knowledge of DNA including sources and techniques
- x Dental Anthropology

III) Forensic Odontology (Medicine and Pathology)

1. History of Forensic Odontology
2. Hazards of the mortuary and scene of crime
3. Causes of sudden death
4. The medico-legal autopsy and post-mortem changes
5. Bite marks on the living and deceased
6. Saliva, cytology and blood groups; DNA "Fingerprinting"
7. Non-biological methods of identification
8. Recording methods and preparation of reports
9. Soft tissue injuries (the differential diagnosis of the causative agent)
10. The bio-dynamics of cranio-facial injuries.
11. Field-kit
12. Disaster victim identification (DVI)
13. Exhumation
14. Craniofacial and dental anthropology and its application in sex and population characterisation
15. Age changes in teeth & jaws
16. Forensic photography
17. Application of DNA in forensic investigations
18. Molecular biology methods - in Forensic Odontology.
19. Child Abuse and Neglect

IV) The Law and Law Enforcement:

- 1 The law. Home and abroad.
- 2 Dental Jurisprudence
- 3 The organisation of police forces
- 4 Protocols with police and legal profession

- 5 An outline of methods of investigation
- 6 Case preparation and presentation
7. Embalming
- 8 Mock court presentation of evidence.
- 9 The judiciary hierarchyThe functions of the Expert Witness
10. Legal implications of mass disasters and repatriation
11. Laws related to Child Abuse and Neglect
12. Consent to obtain evidence from the Victim and the Accused
13. Confidentiality of records

B. PRACTICALS:

- 1 Field-kit
- 2 Oral autopsies and dental identification procedures
- 3 Postmortem radiography
- 4 Impression taking from persons both living, dead, and objects and foodstuffs.
- 5 Model making
- 6 Marking of dentures
7. Recovery of material (e.g. saliva) from wounds and its analysis
- 8 Photography
- 9 Charting methods
10. Bite marks recording, analysis and interpretation
11. Age estimation from dental radiographs
12. Cheiloscopy and its application to forensic dentistry
13. Preparation of histological material - hard and soft tissues
14. Histological methods of dental age estimation
15. Sex assessment from dental and craniofacial structures
16. Preservation of medico-legal evidence
17. Criminal Court procedures/visitations
18. Class presentations of the student's own research or course work
19. Placement at a Forensic Science Institute/ Laboratory

C) A PROJECT WORK EVALUATION

Evaluation is based on the

a. Four written examinations of three hours each devoted to two principal subject courses.

Paper I Basic dental sciences

Paper II Applied Dental Sciences, including criminalistics, Forensic, Medicine and Pathology and Law and Law Enforcement.

Paper III Forensic Odontology
Paper IV Long Essay

b Practical Examination

Age Estimation, Bite Mark Identification, Body fluid collection, Saliva Grouping, Rugae pattern Identification, Lip Print Identification, etc.
Report writing and presentation for the court of law
Objective Structured Practical Examinations

c. A viva voce examination.

Fifty percent will be the pass in this examination.

d. Submission of a project/research work one month before the final examination.

e. Submission of log book at the time of viva.

Examiners:

There shall be minimum two examiners. One Internal and External, qualified and/or experienced in forensic sciences/odontology teaching and practice.

Award of certificate:

The Diploma/Degree in Forensic odontology will be awarded to candidates successful in each aspect of the examination.

FACULTY

Department of Anatomy

Department of Oral Pathology

Department of Conservative Dentistry

Department of Prosthodontics

Department of Oral Medicine and Dental Radiology

Department of Biotechnology

Department of Forensic Medicine [till a Dept. of Forensic Odontology is established]

Department of Police

Department of Criminology

Department of Law

FORENSIC DENTISTRY – GUIDLINES

INFRASTRUCTURE

All infrastructure given is for three students. This must be increased proportionate to increase in seats.

A. BUILT-UP AREA

Infrastructure	Requirement (sq ft)
Administrative Area (Reception, office, Medical Record)	
Dental Operatory(150x3)	
Radiology	
Sterilization Area	
Waste Disposal Area	
Amenities (Pantry, Lounge & rest rooms for doctors)	
Dental Material Lab	
Conservative Lab	
Seminar Hall and Library	
Total	

B. EQUIPMENTS

- i.. Dental Chair and Unit -3 Nos.
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Electrically operated, spittoon attachment, Halogen Light with 2 intensity, Air ventury suction, micromotor & airrotor control with straight & contra angle handpiece, light cure unit, 3 way syringe, X-ray viewer, instrument tray, Dental Operators stool with height adjustment , scaler with three tips

- ii. Radiology Equipments(Paralleling Technique Equipments)
 - a. Intra Oral X Ray Unit - 1
 - b. RVG Unit - 1
 - c. Panoramic X Ray Unit - 1
 - d. Lead aprons - 2
 - e. Dosimeter Badge - 1
- iii. Camera/SLR - 1 Unit

iv. Computer with accessories

- 2

v. Sterilization Equipments

a. Autoclave -1

b. Vapoclave-1

c. Ultra Sonic Cleaner-1

d. Packing and Sealing Unit-1

vi. Hospital waste Disposal

a. Colour Coded Bins

b. Needle Destroyer

c. Mercury Disposal System

d. Radiology Waste Disposal System.

vii. Specialty Specific Equipments

a. Bleaching Light Unit

b. Laser Unit(Diode)

viii. Seminar Hall and Library

a. LCD Projector,

b. Computer with necessary accessories and internet facilities

c. Photo Copier

d. Scanner

e. Seating furniture

f. Cupboard

ix. Laboratory Equipments

a. Casting Machine - 1

b. Burn out Furnace - 1

c. Porcelain furnace with vacuum pump - Metal Ceramic -1

d. All Ceramic Furnace - 1

e. Ceramic Kit -1

f. Heavy Duty Lathe - 1

g. Model Trimmer - 1

h. Die Cutting Machine & Die Systems - 1

i. Sand Blaster - 1

k. Spot Welder - 1

l. Steam Cleaner - 1

m. Face Bow and Semi Adjustable Articulator - 1

n. Ceramic Trimming & Finishing Machine - 1

o. Vacuum Mixing Machine - 1

p. Vibrator - 1

q. Milling Machine - 1

r. Magnifying Work Loupes	- 1
s. Micromotor	- 1
t. Electropolishing Unit	-1
u. Duplicating Unit/ Flasks	-1
v. Composite Finishing Kit	-1
w. Microblaster	
x. Shade Guide	

FORENSIC DENTISTRY

SPECIFICATIO NS	REQUIREMENTS	For 3 Seats	For 6 Seats
Name Of The Course Director	MDS Oral Pathology 9 years speciality teaching/clinical	1	1
Teaching Faculty	MDS Oral Pathology Reader MDS Oral Pathology Lecturer M.Sc Life Science (Bio chemistry, Bio technology, Molecular biology)	1 1 1 1	2 2 1
Lab Technicians	DMLT	1	1
Administrative Staff	Data Entries Technicians	1	1
Out Patient	50-----per month	50 (3 seats)	75 patients(6 seats)
Equipments	Oral Pathology Lab	same	same
<u>Built-up Area</u> Seminar room Pantry area Rest room (toilet)	Common	common	Common
Multimedia	Common	1	Common
Library	Common	1 sets of books as prescribed	2 sets of books
Laboratory/ Skills Lab	-	Molecular lab	Molecular lab

Maximum intake of students	-	3	6
Registration Details	-		

INFRASTRUCTURE

1. BUILT-UP AREA

INFRASTRUCTURE	REQUIREMENTS(sq ft)
Administrative Area (reception, office, medical record)	300
Dental operatory (150x3)	900
radiology	300
Sterilization area	250
Waste disposal area	200
Amenities (pantry, lounge & rest rooms for doctors)	Common within the premises
Dental material lab	300
Conservative lab	300
Seminar hall and library	900

2. Equipments

- I. Dental chair and unit- 6 nos
- II. radiology equipments (paralleling technique equipments)
 - intra oral X ray unit – 1
 - RVG unit-1
 - Panoramic X ray unit-1
 - Lead aprons-2
 - Dosimeter badge-1
- III. Camera/SLR- 2 unit
- IV. Computer with printer and scanner- 3 set
- V. Sterilization equipments
 - Autoclave -1
 - Vapoclave-1
 - Ultrasonic cleaner-1
 - Packing and sealing unit -1
- VI. hospital waste disposal – 2 sets
 - colour coded bins

- needle destroyer
- mercury disposal system
- radiology waste disposal system
- VII. seminar hall and library – 1 set
 - LCD projector
 - Computer with necessary accessories and internet facilities
 - Photo copier
 - Scanner
 - Seating furniture
 - Cupboard
- VIII. Laboratory equipments - 1
 - Heavy duty lathe
 - Model trimmer
 - PCR
 - ELISA
 - Micromotor

2. Stryker saw

INSTRUMENTS

Forensic kit- 5 sets

One Set

1. Dental explorers
2. Dental mirrors
3. Bite blocks
4. Tissue scissors
5. Osteotome
6. Rubber air / water syringe
7. Cotton swabs
8. ABFO No.2 ruler
9. Photographic mirrors
10. Periodontal probes
11. Bone mallet
12. Camera
13. Head lamp
14. Masks
15. Films