Postgraduate Diploma in Forensic Anthropology & Odontology (PGDFAO)

Year of Introduction – 2015

Program code: FAO 03

VISION

To integrate Applications of Forensic Anthropology, Forensic Odontology, and Disaster Victim Identification in Medico-Legal settings, and to be a national leader in training Forensics and Odontologists

Course Description

Forensic experts are often called upon to establish identity when the body is mutilated or decomposed beyond recognition, or when only fragmentary remains are available. Forensic anthropology is the application of anthropology in the medico-legal setting. Likewise, Forensic Odontology is the application of dental science in the medico-legal setting to identify unidentified bodies. Alongside advances in forensic pathology, forensic anthropology, and odontology, there has been a sea change; therefore, forensic experts, educators, and researchers in India need to refresh their knowledge and training. The Department of Forensic Medicine & Toxicology, Yenepoya Medical College, Yenepoya University, Mangalore, now offers a unique, innovative Postgraduate Diploma in Forensic Anthropology & Odontology, ensuring participants gain up-to-date knowledge and hands-on experience in disaster victim identification, odontology, anthropology, and crime scene investigation. This one-year blended-learning course – designed specifically for forensic experts, students, researchers, and keenly interested practitioners – aims to fill gaps in the forensic specialist's armamentarium, with nationally and internationally renowned forensic anthropologists as resource persons. The course provides foundational knowledge in humanitarian ethics, particularly regarding death and research on the dead, body parts, and remains, as well as forensic anthropology and odontology. It places special emphasis on Disaster Victim Identification (DVI), conducted by international experts with years of

experience, covering topics such as handling mass fatalities, recovering and documenting human remains, biological profiling, dental identification, and the steps required to identify victims after disasters.

Course Objectives

The program aims to:

- Describe the roles and responsibilities of a forensic anthropologist within the medico-legal system.
- Enhance expertise in forensic anthropology and forensic odontology for human identification
- Provide practical training in Disaster Victim Identification (DVI) and mass fatality management
- Develop competence in forensic taphonomy for the interpretation of postmortem changes
- Strengthen skills in skeletal analysis, dental profiling, and crime scene investigation
- Promote ethical and humanitarian approaches in handling human remains
- Bridge existing knowledge gaps in medico-legal forensic practice
- Develop the skill set needed in a crime scene investigation

Learning Outcomes	**Competencies**
CO1- Forensic Anthropology	• To gain competencies in the basics of anthropology and anthropometry • Applying anthropological methods (Anthropometry, Craniometry and Osteometry) for establishing biological profile from skeletal remains (estimation of Sex, Age, Ancestry and Stature) and human remains • Apply forensic taphonomy to assess postmortem interval and environmental effects • Learn about complex cases (fragmented, commingled, burnt, and dismembered)
CO1- Forensic Odontology	• To become familiar with the concepts and processes of Forensic Odontology

	• Applying odontology and Odontometry methods for the identification of unknown human remains • Perform biological profiling using dental evidence
CO3- Disaster Victim Identification	• To become familiar with key aspects of the identification process in mass disasters (Globally accepted standard) • Participate effectively in Disaster Victim Identification (DVI) operations • Learn to handle mass fatalities, • Recovery process and documentation of human remains following the internationally acceptable protocols • Establishing biological profiling, dental identification, and the steps required to identify victims after disasters.
CO4- Humanitarian Forensics	• Demonstrate ethical decision-making in handling the dead and conducting forensic research • Learn ethical and humanitarian approaches in handling dead/human remains • To develop the skill set needed in a crime scene investigation

Teaching learning method	**Academic Activities**
Blended Learning	Online + face-to-face Full-scale simulations and at advanced labs
Case-Based Learning	Real-life forensic cases, Case discussions, and reflective learning
Simulation-Based Learning	Controlled realistic environments
Inter-professional Education	Multi-disciplinary teamwork

Eligibility Criteria

- MBBS or BDS graduates;
- Postgraduate students of MD or MDS;
- BSc or MSc Criminology; MSc Forensic Sciences; BSc/MSc Nursing; MSc Anatomy; LLB or LLM

Intake of Students: 15 per Year

Course Duration: One year

Attendance:

- The course emphasizes practical learning methods. Participants must attend all three modules in person. A minimum attendance of 80% is required to sit for the examination. Contact classes will be held daily from 9:00 AM to 5 PM during the modules.
- Each module shall be taken as a unit for the purpose of calculating attendance.
- Every candidate is required to attend a minimum of 80% of the training each academic year of the Diploma course. In case of absence during the any one of the module the candidates will have to attend the same with the next batch.
- Student will not be awarded completion and Diploma Certificate if they
    a. Fail to attend any one of the module,
    b. Unable to complete any assignment
    c. Unable to complete project

Fee Details:

Application form: Rs. 1,000/-

Course fee: Rs. 35,000/-

Convocation fees (to be paid separately at a later date): Rs. 4250/-

Syllabus

Module I: Forensic Anthropology, Odontology and Anthropometry

Forensic Anthropology (Online Sessions)

- Scope and history of forensic anthropology and forensic odontology (Online)
- Role in medico-legal investigations (Online)
- Brief Human Anatomy: axial and appendicular skeleton (online)

Forensic Odontology (Online Sessions)

- Dental anatomy and tooth morphology
- Dental development and age estimation
- Dental charting and notation systems
- Bite mark analysis: principles and limitations
- Dental comparison for identification

Hands-on Sessions(Contact Class Module 1):

- Familiarization with skeletal and dental materials
- Human vs. non-human bone differentiation
- Introduction to Forensic Anthropometry,
- Bone identification and siding
- Skeletal inventory and reconstruction
- laboratory protocols and documentation
- Metric and non-metric methods of Sexual Dimorphisim
- Craniometry and Osteometry
- Forensic Odontology- Age and Sex determination
- Comparison of ante-mortem and post-mortem dental records

Exhumation Process National Level Workshop

Module II: Application ofForensic Anthropology & Odontology, CSI,and Field Techniques

Forensic Anthropology (Online Sessions)

- Sex determination using skeletal indicators
- Age estimation in sub-adults and adults
- Stature estimation methods
- Ancestry and population affinity assessment
- Individualization and limitations

Hands-on Sessions(Contact Class Module II):

- Practical- Anthropometry and Cephalometry.
- Forensic Odontometry- Age and Sex determination
- Skeletal and decomposed remains
- Search, recovery, and excavation techniques
- Documentation, chain of custody, and evidence handling
- Scene reconstruction

Module III: Disaster Victim Identification (DVI) and Humanitarian Forensics

Disaster Victim Identification (DVI) (online)

- Principles and phases of DVI
- Mass fatality management
- Recovery, documentation, and preservation of remains
- Ante-mortem and post-mortem data collection
- Reconciliation and identification reporting
- Age estimation in sub-adults and adults

Humanitarian Forensics (Online)

- Ethical principles in forensic practice
- Handling of the dead in medico-legal and humanitarian contexts
- Cultural sensitivity and dignity of the dead
- Research ethics involving human remains
- Courtroom ethics and expert testimony

Hands-on Sessions (Contact Class Module III):

- Mock DVI exercises
- Interdisciplinary teamwork simulations

Assessment Pattern

- Continuous internal assessment
- Each Module theory and practical examination
- Practical/skill-based evaluation
- Case presentations and viva voce

Suggested Books & Journals

1. Byers SN. Introduction to forensic anthropology. 5th ed. London: Routledge; 2016.

2. Christensen AM, Passalacqua NV, Bartelink EJ. Forensic anthropology: current methods and practice. London: Academic Press (Elsevier); 2013.

3. Blau S, Ubelaker DH, editors. Handbook of forensic anthropology and archaeology. 2nd ed. London: Routledge; 2016.

4. Dirkmaat DC, editor. A companion to forensic anthropology. Chichester: Wiley-Blackwell; 2012.

5. White TD, Black MT, Folkens PA. Human osteology. 3rd ed. San Diego (CA): Academic Press; 2011.

6. Schmitt A, Cunha E, Pinheiro J, editors. Forensic anthropology and medicine: complementary sciences from recovery to cause of death. Totowa (NJ): Humana Press; 2006.

7. Ubelaker DH. Human skeletal remains: excavation, analysis, interpretation. 3rd ed. Washington (DC): Taraxacum; 1999.

8. Haglund WD, Sorg MH, editors. Forensic taphonomy: the postmortem fate of human remains. Boca Raton (FL): CRC Press; 2002.

9. Klales et al. 2012. A Revised Method of Sexing the Human Innominate Using Phenice's Nonmetric Traits and Statistical Methods. Am J PhysAnthropol 149: 104-114
10. Senn DR, Weems RA, editors. Manual of forensic odontology. 5th ed. Boca Raton (FL): CRC Press; 2013.

11. Senn DR, Stimson PG, editors. Forensic dentistry. 2nd ed. Boca Raton (FL): CRC Press; 2010.

12. Taylor J, Kieser J, editors. Forensic odontology: principles and practice. Chichester: Wiley-Blackwell; 2016.

13. Dorion RBJ, editor. Bitemark evidence: a color atlas and text. 2nd ed. Boca Raton (FL): CRC Press; 2011.

14. Bowers CM. Forensic dental evidence: an investigator's handbook. Boston (MA): Elsevier Academic Press; 2004.

15. Nanda A, Singh J. Forensic odontology: a handbook for human identification. Sharjah: Bentham Science Publishers; 2023.

16. International Criminal Police Organization (INTERPOL). Disaster victim identification (DVI) guide. Lyon: INTERPOL; 2023.

17. Black S, Sunderland G, Hackman L, Mallett X, editors. Disaster victim identification: experience and practice. Boca Raton (FL): CRC Press; 2011.

18. Levinson J, Domb A. Disaster victim identification: a manager's guide to policy and procedure. Boca Raton (FL): CRC Press; 2023.

19. Williams JA, Weedn VW, editors. Disaster victim identification in the 21st century: a US perspective. Hoboken (NJ): Wiley; 2022.

20. Gursky EA, Fierro MF, editors. Death in large numbers: the science, policy, and management of mass fatality events. Chicago (IL): American Medical Association; 2012.

21. Technical Working Group for Mass Fatality Forensic Identification. Mass fatality incidents: a guide for human forensic identification. Washington (DC): National Institute of Justice; 2005.

22. Y It Happened, Learning from Typhoon Yolanda . National Disaster Risk Reduction and Management Council (NDRRMC)

23. Tim D. White, Pieter A. Folkens -The Human Bone Manual-Elsevier Academic (2005)

24. Management of Fragmentary Human Remains. (APMLA)
25. Interpol DVI Guidelines
26. Fundamentals of Forensic Anthropology. Linda L. Klepinger, John Wiley & sons, inc., publication 2006
27. Y It Happened, Learning from Typhoon Yolanda. National Disaster Risk Reduction and Management Council (NDRRMC)
28. Developmental Juvenile Osteology. Louise Scheuer, Sue Black and Angela Christie. Elsevier Academic Press
29. Tim D. White, Pieter A. Folkens -The Human Bone Manual-Elsevier Academic (2005)
30. Journal of Forensic and Legal Medicine (Elsevier),
31. American Journal of Physical Anthropology

32. Forensic Science International (Elsevier)
33. International Journal of Legal Medicine
34. Journal of Dental Research
35. Italian Journal of Anatomy & Embryology
36. Journal of Forensic Sciences.