



YENEPOYA UNIVERSITY

Deralakatte, Mangaluru -575018

**REGULATIONS AND CURRICULUM GOVERNING
POSTGRADUATE DIPLOMA IN
FORENSIC ANTHROPOLOGY AND ODONTOLOGY**

(CURRICULUM - EFFECTIVE FROM 2013-14)

ATTESTED

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21.01.2013

NOTIFICATION

Sub: Proposals Board of Studies, Department of Forensic Medicine
Ref: Agenda 7 (6) of the 11th meeting of the Academic Council held on
15.01.2013

The Academic Council and subsequently the Board of Management at their meetings held on 15.01.2013 approved, in principle, the following proposals of the Board of Studies, Department of Forensic Medicine recommended by the Faculty of Medicine and is hereby notified for implementation.

- (1) Change in Academic structure of Certificate Course in Clinical Ethics Consultation (CCCEC) to Postgraduate Diploma in Clinical Ethics (PGDCE).
- (2) Proposal to start Postgraduate Diploma in Forensic Anthropology (PGDFA)
- (3) Proposal for starting of choice based credit modules on Basic Course in Environmental Ethics and Basic Course in Biomedical Ethics.
- (4) Collaborating with Department of Criminology, Roshni Nilaya for establishing linkages and enriching research in Criminology related areas.
- (5) Starting of Ph.D in Bioethics.

The Academic Council further resolved that Yenepeya University should write to the M.C.I. apprising the details of the courses.

S. Anandam
REGISTRAR

To: The Principal -- YMC

Copy to: 1. HOD, Forensic Medicine
2. Controller of Examinations
3. Academic Section ✓

POSTGRADUATE DIPLOMA IN FORENSIC ANTHROPOLOGY AND ODONTOLOGY

VISION

To integrate Applications of Forensic Anthropology, Forensic Odontology, Disaster Victim Identification in Medico- Legal settings and to be a leader at National level to train the Forensics and Odontologists

Objectives:

Successful participants will be able to

- Describe the roles and responsibilities of a forensic anthropologist within the medico-legal system
- Become familiar with key aspects of the identification process in mass disasters (globally accepted standard)
- Gain competencies in the basics of anthropology and anthropometry
- Become familiar with the concepts and processes of forensic odontology
- Develop the skill set needed in a crime scene investigation

Subject Content:

The topics covered will be relevant, the teaching will be interactive and assignments will be given on regular basis. The following topics will be covered in the three modules:

- Investigating Mass Disaster
- Introduction to taphonomy and post mortem interval
- Biological profile in Skeletal remains (estimation of Sex, Age, Ancestry and Stature)
- The Identification process
- Complex cases (fragmented, commingled, burnt and dismembered)
- Sex determination from bones and skeletal remains
- Age estimation from long bones
- Stature
- Forensic odontology
- Crime scene mapping and investigation
- Disasters, Types, Challenges
- Managing dead bodies in Disaster in a humanitarian way

PGDFAO Rules

1. Eligibility:

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

2. Intake of Students

The intake of students for PGDFAO is 15 per year.

3. Duration of Study

One year (three contact programs); blended learning

Module I, Module II, Module III

4. Method of training

Training of PGDFAO Candidates for diploma includes compulsory attendance for three modules namely Disaster Victim Identification (DVI), Forensic Anthropometry and Forensic Odontology. If a candidate is absent for one of the module he/she shall attend the same with the PGDFAO batch next year.

The participation of the student in all facets of educational process is essential. Every candidate should take part in group discussions, case presentation related to the module. Every candidate should actively participate in the hands on activities conducted during the modules. Training also involves field activities. The candidates have to submit research project related to Forensic Anthropology and Odontology along with online assignment in YENGAGE, Every module the candidate have to write an exam related to the activities learnt during the module.

5. Attendance, Progress and Conduct

1. Each module shall be taken as a unit for the purpose of calculating attendance.
2. 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.
3. 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

6. Monitoring progress of studies

1. Periodic assignment are given on Yengage, the online portal of Yenepoya University
2. Projects: The candidates have to submit Research Project towards the end of the diploma course
 - a. Research question and objective
 - b. Title of the study with objective and five review of literature
 - c. Synopsis of the Research Project as per the template provided
 - d. Submission of the ethical clearance certificate
 - e. Discussion with guide about the progress of the research project
 - f. Submission of research project with plagiarism check for final approval to the guide

7. Research Project

- a. Every candidate pursuing PGDFAO Diploma course is required to carry out work on a selected research project in the field of Forensic Anthropology and Odontology under the guidance of a recognized post graduate teacher. The result of such work shall be submitted in the form of dissertation.
- b. The Project is aimed to train a PGDFAO student in research methods and techniques. It includes identification of problem, formulation of hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.
- c. Every candidate shall submit to the guide in the prescribed Performa, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the University the synopsis shall be send through the proper channel
- d. Such synopsis will be reviewed and the dissertation topic will be registered by the Department of Forensic Medicine and Toxicology. No change in the research project topic or guide shall be made without prior approval.
- e. The Project should be written under the following headings:

- i. Introduction
 - ii. Aims or Objectives of study
 - iii. Review of literature
 - iv. Materials and methods
 - v. Results
 - vi. Discussion
 - vii. Conclusion
 - viii. Summery
 - ix. References
 - x. Tables
 - xi. Annexure
- f. The written text of project shall be approximate 25 pages including references, tables, questionnaires and other annexure. The final copy should be checked for plagiarism. It should be neatly typed in double line spacing on one side of the paper (A4 size, 8.27"x 11.69") and bound properly. Spiral binding can be done. A declaration by the candidates that the work was done by him/her shall be included. The guide and Head of the Department shall certify the research project.
- g. **Three Hard copies of projects along with a soft copy via Email shall be submitted** to the Head of the Department of Forensic Medicine and Toxicology. The research project shall be valued by internal evaluator and given to controller of examiner, Yenepoya University for sending it to the external evaluators approved by the University. Completion of research project is an essential preconditioned for a candidate to get the Diploma certificate.
- h. **Guide:** The academic qualification and teaching experience required for recognition by this University as a guide for research project is as per UGC.
- i. A **co-guide** may be included provided the work requires substantial contribution from a sister department or from another medical institution recognized or teaching /training by Yenepoya University. The co guide shall be recognized teacher of any University.

- j. **Change of guide:** In the event of a registered guide leaving the college for any reason or the event of death of guide, guide may be changed with prior permission from the Head of the Department Forensic Medicine and Toxicology.

8. Evaluation: Five Questions of 10marks each. 5×10=50 Marks

PGDFAO Syllabus

THEORY

1. Disaster Victim Identification (DVI)

1.1 Preliminary investigations

- 1.1.1 Disaster types
- 1.1.2 Investigation stages
- 1.1.3 Purpose / Hypotheses
- 1.1.4 Sources and topics /
- 1.1.5 Ante-Mortem(AM) data
- 1.1.6 The concept of health

1.2 Scene processing

- 1.2.1 Process of DVI operation on site and in mortuary
- 1.2.2 Scene processing
- 1.2.3 Management and Roles
- 1.2.4 Required documentation

1.3 Identification

- 1.3.1 Different identification techniques
- 1.3.2 Possibilities and limitations
- 1.3.3 Lines of evidence
- 1.3.4 Complex cases
- 1.3.5 DNA / Identification committee
- 1.3.6 Report / DB

1.4 Forensic anthropology overview

- 1.4.1 Setting up an anthropological laboratory
- 1.4.2 The basics / Introduction to Osteology
 - 1.4.2.1 Structure of the bone
 - 1.4.2.2 human bones vs non-human
 - 1.4.2.3 types of bones and their features

- 1.4.2.4 bone siding
- 1.5 PM Analysis of human skeletal remains**
 - 1.5.1 Biological profile (sex, age, stature)
- 1.6 PM Analysis of human skeletal remains II:**
 - 1.6.1 Temporality and classification: antemortem, perimortem and postmortem findings
 - 1.6.2 Population variations: epigenetic, discrete or non-metric traits
 - 1.6.3 Markers of physical activity
 - 1.6.4 Introduction to bone pathology
- 1.7 Perimortem trauma**
 - 1.7.1 Classification and biomechanics
 - 1.7.2 Types of trauma: blunt force, sharp and gunshot
 - 1.7.3 Interpretation and cause of death
- 1.8 Describe and discuss examination of mutilated bodies** or fragments, charred bones and bundle of bones
- 1.9 Describe and discuss exhumation**
- 1.10 Crime Scene Investigation**
 - 1.10.1 Describe and discuss the objectives of crime scene visit
 - 1.10.2 The duties & responsibilities of doctors on crime scene
 - 1.10.3 The reconstruction of sequence of events after crime scene investigation
- 1.11 Demonstrate ability to use local resources whenever required like in mass disaster situations**
- 1.12 Identification**
 - 1.12.1 Describe and discuss identification of criminals,
 - 1.12.2 Unknown persons, dead bodies from the remains-hairs, fibers, teeth, anthropometry, dactylography, foot prints, scars, tattoos, poroscopy and superimposition
- 1.13 Identification-** Establishment of identity of living persons including race, sex, religion, complexion, stature,
 - 1.13.1 Age determination using morphology, teeth-eruption, decay, bite marks, bones-ossification centres, medico-legal aspects of age
- 1.14 Recent Advances- Chemical, Biological Radiation & Nuclear (CBRN) Disaster**

PRACTICAL

- 1.15 Practical exercise on basic osteology
- 1.16 Disaster Victim Identification Hands on workshop, Field activity
 - 1.16.1 Presentation of field activity by each of the team leader
 - 1.16.2 Discussion related to field activity (DVI)

Suggested Books & Journals

1. Forensic Anthropology By Bradley J Adams, Chelsea House Publishers.
2. Interpol Guidelines
3. Klales et al. 2012. A Revised Method of Sexing the Human Innominate Using Phenice's Nonmetric Traits and Statistical Methods. Am J Phys Anthropol 149: 104-114
4. Current Articles related to the module in Regional, National & International Journals.
5. Y It Happened, Learning from Typhoon Yolanda . National Disaster Risk Reduction and Management Council (NDRRMC)
6. Developmental Juvenile Osteology. Louise Scheuer, Sue Black and Angela Christie. Elsevier Academic press
7. Tim D. White, Pieter A. Folkens -The Human Bone Manual-Elsevier Academic (2005)
8. AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY
9. JOURNAL OF FORENSIC SCIENCE.
10. FORENSIC SCIENCE INTERNATIONAL(Elsevier)

2. FORENSIC ANTHROPOMETRY

- 2.1** History and evolution of Forensic Anthropometry in Identification.
- 2.2** Human identification and Anthropometry
- 2.3** Overview of Forensic Anthropology, Anthropometry its application
 - 2.3.1 Forensic Anthropology
 - 2.3.2 Ten Key questions
 - 2.3.3 Anthropometry and its importance.
- 2.4** Brief description about human bone Identification
 - 2.4.1 Differentiation between bones with other similar artifacts
 - 2.4.2 Differentiation between Human and non-human bones
- 2.5** Brief description about the Instruments used in Anthropometry and their uses.
- 2.6** Role of Forensic Anthropology, Odontology and its scope in positive Identification
- 2.7** Ethical practices in Forensic anthropological research and in Investigation
- 2.8** Role of Inquest and expert opinion in Forensic Identification
- 2.9** Role of Expert opinion in Identification in Forensic Medicine
- 2.10** Brief overview about Craniometry
 - 2.10.1 Anatomy
 - 2.10.2 Landmarks
 - 2.10.3 Parameters
- 2.11** Hands on practical Anthropometric Measurement techniques on Human Skeleton (Cranionetrics)
- 2.12** Brief overview about Osteometry
 - 2.12.1 Anatomy
 - 2.12.2 Landmarks
 - 2.12.3 Parameters
- 2.13** Precision in Techniques and in analysis
 - 2.13.1 Different Forensic Anthropometric measurements
 - 2.13.2 Standardization of measurements
- 2.14** Brief about the Somatometry and its landmarks
- 2.15** Tools and techniques for Somatometry
- 2.16** Disaster and its type and Impact
- 2.17** Discussion about Research and publication based on Anthropometry
- 2.18** Brief about the Field exhumation – tools techniques and approaches in burial excavations, Handling and storing bones

PRACTICALS

- 2.19 Hands on practical Anthropometric Measurement techniques (Osteometry) on.
 - 2.19.1 Mandible,
 - 2.19.2 Scapula,
 - 2.19.2 Clavicle
 - 2.19.3 Humerus
 - 2.19.4 Radius
 - 2.19.5 Ulna bone

- 2.19.6 Femur
- 2.19.7 Tibia
- 2.19.8 Fibula
- 2.19.9 Pelvis
- 2.20 Hands on practical_on Human Body (Somatometry)
 - 2.20.1 Tools and techniques for Somatometry on cephalo-facial measurements
 - 2.20.2 Tools and techniques for Somatometry on Upper limb, trunk lower limb, hand and foot measurements
- 2.21 Hands on Practical on –
 - 2.21.1 Differentiation between Human and non-human bones
- 2.22 Field exhumation – tools techniques and approaches in burial excavations, Handling and storing bones (Optional)

3 Forensic Odontology & Criminology

- 3.1 Morphology of Tooth & Histology of Tooth
- 3.2 Introduction to Forensic Odontology and Forensic Dental Anthropology
- 3.3 Recovery of remains
- 3.4 Odontology Protocol- Part I ---- Sex Determination
- 3.5 Odontology Protocol- Part IIAge Estimation
- 3.6 Anthropology Report writing
- 3.7 Population identification from the teeth, morphologic age estimation from teeth, stature estimation from teeth, and sex assessment from the teeth and skull bones
- 3.8 Crime Scene Investigation
 - 3.8.1 Describe and discuss the objectives of crime scene visit
 - 3.8.2 The duties & responsibilities of doctors on crime scene
 - 3.8.3 The reconstruction of sequence of events after crime scene investigation

PRACTICALS

- 3.9 Hands-on/practical training on Sex determination
- 3.10 Hands on practical training on – Age Estimation on radiographs and extracted teeth
- 3.11 Practical exposure to Criminology
- 3.12 Simulated Crime scene

4. Research Methodology

4.1 Introduction to Research

4.1.1 Research Question (PICOT, FINER),

4.1.2 Objective (SMART)

4.2 Research Methodology

4.3 Research title /Project related to Forensic Anthropology & Odontology

4.4 Presentation of research topic with Research question, Objectives, Review of literature & methodology by the candidates

4.5 Discussion with allotted Guides regarding Research Project progress

4.6 Online submission on Yengage the progress report of project.

4.7 **Statistical Analysis:** Data entry, Analysis and Interpretation (Correlation and Discriminant function analysis)

Suggested Books & Journals

1. Management of Fragmentary Human remains. (APMLA)
2. Forensic Anthropology By Bradley J Adams, Chelsea House Publishers.
3. Interpol Guidelines
4. Fundamentals of Forensic Anthropology. Linda L. Klepinger John Wiley & sons, inc., publication 2006
5. Klaes et al. 2012. A Revised Method of Sexing the Human Innominate Using Phenice's Nonmetric Traits and Statistical Methods. Am J Phys Anthropol 149: 104-114
6. Y It Happened, Learning from Typhoon Yolanda. National Disaster Risk Reduction and Management Council (NDRRMC)
7. Developmental Juvenile Osteology. Louise Scheuer, Sue Black and Angela Christie. Elsevier Academic press
8. Tim D. White, Pieter A. Folkens -The Human Bone Manual-Elsevier Academic (2005)
9. Journal of Forensic and Legal Medicine (Elsevier),
10. American Journal OF Physical Anthropology
11. Forensic Science International (Elsevier)
12. International Journal of Legal Medicine
13. Journal of Dental Research
14. Italian Journal of Anatomy & Embryology