



Grade-B (2.88)
(NAAC Re-Accredited) □□

॥ अंतरी पेटवू ज्ञानज्योत ॥

उत्तर महाराष्ट्र विद्यापीठ, जळगांव- ४२५००१
NORTH MAHARASHTRA UNIVERSITY, JALGAON- 425001

P.B.NO. 80, UMAVI NAGAR, JALGAON – 425 001 (M.S.)

Post Graduate Diploma in Bio- forensic Law and Bio – terrorism Law

1. Pattern

Annual pattern will be followed for the diploma course.

2. Workload

Each subject will have 4 lectures (of 50 minutes **each**) in every week and has to be completed within 80 lectures (**Units**). The teacher in particular subject will be approved on C.H.B. for teaching up to 7 lectures weekly; and for the 12 lectures weekly workload he will be approved on full time basis.

3. Teachers Eligibility

The candidate who holds Master's Degree in related subjects will be eligible to teach the concern subject as well as the practical experience shall be considered while appointing the teacher.

4. Student eligibility

Any graduate **from** statutory university is eligible to take admission in any diploma course.

5. Units and credits

The whole syllabus of the subject has to be completed within **80 units** lectures in the academic year.

6. Medium of language

As these diplomas are partially depend on practical, the English and **Marathi both** languages will be used for the teaching instructions as well as for examination.

7. Credit and grading points

The normal marking system and rules of passing which are applicable for LL.B. courses will be applicable to these diploma courses.

8. Student intake

Student intake capacity will be 60 in for each diploma course.

9. Fee Structure

The diploma courses will have total fees of Rs.7000/-.

Duration of Course: One Year

Examination- The Diploma examination will be held at the end of every academic year on the dates to be announced by the University.

Bio- forensic law and Bio – terrorism law deals with the legal rights, privileges, duties and obligations of forensic experts as well as victims of injuries caused due to the use of weapons, chemicals etc during the hostilities, warfare, terrorism or any violent activities.

Learning Objectives: At the end of the course, the learner shall be able to: -

1. Identify, examine and prepare report forensic expert or certificate in cases/situations in accordance with the law of land.
2. examination and interpret medico-legal post-mortem autopsy findings and results of other relevant investigations to logically conclude the cause, manner and time since death, nature of injury sustained, and cause of injury.
3. Be conversant with ethics, etiquette, duties, rights, medical negligence and legal responsibilities of the forensic expert towards patients, profession, society, state and humanity at large.
4. Be aware of relevant legal / court procedures and practice.
5. Be aware of laws in relation to medico-legal work, and practice of forensic expert be acquainted with related relevant amendments and also related judgments passed by constitutional courts.

Paper –I Basics of Law, Forensic Science & Crime

Paper- II Recent Advances in Forensic Science and the Laws

Paper-III Forensic Science and its Application in Crime Investigation

Paper-IV Bio-terrorism: National and International scenario

Paper-V Practical

Paper –I Basics of Law, Forensic Science & Crime

A. Basics of Law

- a) Important wings of criminal justice system
- b) Its structure & functioning,
- c) Role of Police officers, prosecution & judicial officers.
- d) Role of Forensic scientists,
- e) Expert Testimony

B. Forensic Science

- a) Basic Principles & Significance
- b) History & Development of Forensic Science
- c) Organizational structure of Forensic Science labs in Central & State.

C. Basics of Crime

- a) Definition of Crime
- b) Various types of crime
- c) Criminal behaviour-cause and theories
- d) Modus Operandi
- e) Criminal profiling
- f) Corpus Delicti.

Paper- II Recent Developments Forensic Science and the Laws

A. Recent Developments in Forensic Science

- a) **Cyber crime:** definition, hacking, virus, obscenity, pornography, software piracy. It Act, 2000 .Intellectual property right-domain name, Trademark. Computer security encryption, decryption and digital signature.
- b) **Forensic Speaker identification**-Introduction inter speaker and intra-speaker variation, forensic Phonetics-acoustic and auditory parameter, vocal tract, speaker recognition identification and verification, spectrograph. Study of extortion threatening calls, hoax calls, drugs transactions and the recorded voice.
- c) **Narco analysis:** theory, forensic significance of narco-analysis, admissibility in court, future prospect, case study.
- d) **Brain mapping**- introduction, EEG, P-3000 wave, brain mapping in forensic Science, Limitation of technique, admissibility in court, case study.
- e) **Polygraph:** Principle and technique polygraph as forensic investigative tool, NHRC guidelines for polygraph test, case study.
- f) **Facial reconstruction:** Method and technique, facial reconstruction in forensic identification.
- g) **Preventive Forensic:** To urge Government to impose rules or ban certain activities in the interest of Public Safety and avert many of natural and man made disasters.
- h) **Analytical methods:** Gas chromatography, UV-Visible spectroscopy, IR spectroscopy, FTIR, HPLC.
- i) **Forensic DNA Finger Printing:** DNA-Introduction, source of DNA in Forensic case work, Extraction of DNA, Techniques of DNA fingerprinting-RFLP, STR, PCR. DNA fingerprinting in paternity disputes, mass disaster and other forensic case work, legal issues in DNA fingerprinting.

B. Some Important Laws (relevant sections only)

- a) Arms Act 1950
- b) Explosive Substance Act 1908
- c) Explosives Act 1984
- d) Indian Penal Code, 1860
- e) NDPS Act 1985
- f) Petroleum Act 1934
- g) Prevention of Damage to Public Property Act 1984
- h) Prevention of Food Adulteration Act 1954
- i) Prevention of Illicit Trafficking in NDPS Act 1985
- j) The Criminal Procedure Code, 1973
- k) The Drugs Act 1940
- l) The Drugs and Cosmetics Act 1945
- m) The Indian Evidence Act, 1872
- n) Small coins (offence) Act 1971
- o) Standards of Weight and Measures Act 1976

C. Recent Supreme Court Decisions

Paper-III Forensic Science and its Application in Crime Investigation

A. Crime Scene Evidences

- a) Blood, Semen & other Biological fluids

- b) Viscera
- c) Shoe impressions, Tool marks, Tyre marks
- d) Bite Marks
- e) Hair – Animal & Human, Fibres & Fabrics
- f) Glass, Soil, pollen Paint
- g) Establishment of identity of Individuals

B. DNA

- a) Fingerprints/Foot prints
- b) Anthropology – Skeletal Remains

C. Questioned Document and Their Identification

- a) Identification of objects by shape and size
- b) Handwriting and signature-analysis, identification and examination
- c) Procedure for examination
- d) Types of forgery
- e) Anonymous letter
- f) Charred document
- g) Indented writing
- h) Counterfeit coins and notes

D. Forensic Ballistics and vehicular accident reconstruction

- a) Firearms & Their Classification
- b) Ammunition, Projectiles, Mechanism of Firing
- c) Bullet, Weapon & Cartridge case Identification
- d) GSR-Detection and analysis
- e) Nature of Injuries – Entry & Exit wounds
- f) Range of Fire and factors affecting it
- g) Primary causes of vehicular accidents
- h) analytical tools to evaluate accidents

E. Explosives

- a) Definition of Explosion & Detonation
- b) Chemistry of explosives
- c) Home-made bombs & Improvised Explosive Devices (IEDs)
- d) Disposal & Handling

F. Fire Scene Investigation

- a) Analysis & Interpretation of fire scenes
- b) Fire Dynamics
- c) Detection of Ignitable liquid residues in fire scenes
- d) Fire Debris Analysis & Analytical Methods for detection & characterisation

Paper-IV Bio-terrorism: National and International scenario

Important terminology and definitions:

Anthrax - An acute infectious disease caused by *Bacillus anthracis*, spore forming, gram-positive bacillus.

Biological warfare - The employment of biological agents to produce casualties in man or animals and damage to plants or material.

Biological weapon - An item of material which projects, disperses, or disseminates a biological agent, including anthropod vectors.

Bioterrorism - The use of biological agents by terrorist acts to bring fear and bedlam to human beings.

Plague - An acute bacterial disease by the gram-negative bacillus *Yersinia pestis*.

Smallpox - An acute viral illness caused by the variola virus.

Toxin - A poisonous substance produced or derived from living plants, animals, or microorganism.

Terrorist(s) - Person or group which use unlawful force or violence against persons or property to intimidate or coerce a government or civilian population in the furtherance of political or social objectives.

Virus - Organisms which require living cells in which to replicate. They are dependent upon the cells of a host which they infect and produce diseases.

Bio-terrorism National and International scenario

1. History of Bioterrorism: National and International scenario
2. Geneva Convention, 1925. The Geneva Convention sets forth rules of warfare under the *Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare* ('Geneva Convention').
3. The United Nations international Biological and Toxin Weapons Convention, 1972.
4. The International Convention for the Suppression of Acts of Nuclear Terrorism, 2005.
5. The Convention on Offences and Certain Other Acts Committed On Board Aircraft (1963);
6. The Convention for the Suppression of the Unlawful Seizure of Aircraft (1970);
7. The Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation (1971);
8. The Convention on the Prevention and Punishment of Crimes against Internationally Protected Persons (1973);
9. The Convention against the Taking of Hostages (1979);
10. The Convention on the Physical Protection of Nuclear Material (1980);
11. The Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation (1988);
12. The Protocol for the Suppression of Unlawful acts against the Safety of Fixed Platforms Located on the Continental Shelf (1988);
13. The Convention on the Suppression of Unlawful Acts against the Safety of Maritime Navigation (1988);
14. The Convention on the Marking of Plastic Explosives for the Purpose of Detection (1991);
15. The International Convention for the Suppression of Terrorist Bombings (1997);
16. The Convention for the Suppression of Terrorist Financing (1999); and

Paper-V Practical

Group Discussion, Report on field visits & Project Work

- a) TLC method for differentiation of ink, drugs
- b) Examination of foot/footwear/tyre impressions
- c) Fingerprint development from various surfaces
- d) Handwriting identification based on class characteristic and individual characteristics
- e) Microscopic examination of: Hair, Fibre, Pollen, diatom
- f) Examination of various biological samples: Blood, Urine, vomit

g) Demonstration and quantitative use of analytical instruments in crime investigation.

References for further reading

1. History of Bioterrorism. Available at www.bt.cdc.gov
2. Biological agents. In: Robinson JPP, Public health response to biological and chemical weapons: WHO guidance, 2nd ed. World Health Organization, 2004; 229-76. Available at <http://www.who.int/csr/deliberations/annex3.pdf>.
3. Sixth Review Conference of the Biological and Toxin Weapons Convention (BTWC) held in 2006
4. Fidler, David P., "Bioterrorism, Public Health, and International Law" (2002). *Faculty Publications*. Paper 427. <http://www.repository.law.indiana.edu/facpub/427>
5. **Terrorism Research Center, Inc.** www.terrorism.com
6. **National Institute of Allergy and Infectious Diseases** website: www.niaid.nih.gov/biodefense
7. **Center for the Study of Bioterrorism** website: www.bioterrorism.slu.edu
8. www.unodc.org/unodc/en/terrorism/
9. http://www.unafei.or.jp/english/pdf/RS_No71/No71_07VE_Ruperez.pdf
10. www.un.org
11. <http://www.un.org/en/sc/ctc/> UN counter terrorism committee
12. http://www.un.org/en/sc/ctc/docs/2014/REV_chair%20statement-LE.pdf