



RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

FACULTY OF SCIENCE

DIRECTION NO. 6 OF 2013

DIRECTION GOVERNING THE EXAMINATION LEADING TO

ONE YEAR POST GRADUATE DIPLOMA IN

FORENSIC SCIENCE AND RELATED LAW

(Issued under Section 14(8) of the Maharashtra Universities Act, 1994)

Whereas, the Maharashtra Universities Act No. XXXV has come into force with effect from 22nd July, 1994, and further amended by Maharashtra Universities (Amendment and Continuance) Act, 2003, hereinafter referred as 'Act' has come into force from 8th August 2003.

AND

Whereas, the Higher & Technical Education Department, Government Resolution No. NGC-2011/ (20/11) M. Shi-4 dated 22nd July 2011, issued the orders to start the course of **One Year Post Graduate Diploma in Forensic Science and Related Law** from the academic session 2011-12.

AND

Whereas, the respective Ad-hoc Board of Studies in the Faculty of Science in its meeting held on 21-07-2011 vide item No. 1 have approved the syllabi and scheme of examination for the **One Year Post Graduate Diploma in Forensic Science and**

Related Law, One year diploma course in the university from the academic session 2011-2012 in the Faculty of Science, in terms of the norms as prescribed by U. G. C.

AND

Whereas, the Vice Chancellor has accepted the recommendations of Ad-hoc Board of Studies in Forensic Science in the Faculty of Science and on behalf of the Academic Council and Management Council under section 14(7) of the M.U. Act 1994.

AND

Whereas, the same course should be implemented by way of issuing appropriate direction under section 14(8) of Maharashtra University Act 1994, by the Hon'ble Vice Chancellor.

AND

Whereas, the university under its power and duties is expedient to make provision for research and for the advancement and dissemination of knowledge in various branches of studies. The proposal in this regard being recommended by the respective Board of Studies, Faculties and Academic Council are to be approved by the Management Council for the institution of such Degrees, Diplomas Certificates and other academic distinctions by giving effect to it by virtue of promulgating suitable Ordinances and syllabus for the respective courses to be started from the academic session 2011-12 and onwards.

AND

Whereas, it is expedient to provide an Ordinance for the purposes of prescribing Examination leading to the **One Year Post Graduate Diploma in Forensic**

Science And Related Law in the Faculty of Science, indicating therein the Syllabus and the Scheme of Examination.

AND

Whereas, the Hon'ble Vice Chancellor has already issued the Direction No. 12/2011 in this regard and notified on 2nd of August and was put to execution from the academic session 2011-12 itself.

AND

Whereas, during execution, certain ambiguity was identified in the clauses with respect to the standard of passing and eligibility criteria for admission to the said course, and needs immediate intervention to rectify it for proper execution of the course herein after 2012-13.

Whereas, the framing of an ordinance as required under provision of the Act is a time consuming process.

Now, therefore, I, V. S. Sapkal, the Vice Chancellor of Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur in exercise of the powers conferred upon me in under section 14(8) of the Maharashtra University Act of 1994 do hereby issue the following direction:

1. Title of the Direction:

This direction may be called "**Direction Governing the Examination leading to One Year Post Graduate Diploma in Forensic Science And Related Law in the Faculty of Science**". This direction shall come into force with effect from the date of its issuance.

2. Nature of the Course:

This **One Year Post Graduate Diploma In Forensic Science And Related Law** course shall be a full time regular course.

3. Eligibility Criteria:

- a. The student seeking admission to this course should have the eligibility: Bachelor Degree in Science, Law, Medical Sciences and Pharmacy with passing percentage 45 for open and 40% for reserved category candidates.
- b. Candidates from other than Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur will have to obtain eligibility certificate from this University.
- c. Intake Capacity: 40 (Reservation as per State Government Norms)

4. Teachers Qualifications:

As per the U.G.C./State Government norms and experts from Forensic Science and related/relevant field and related industry with minimum 3 years of experience

5. Application of Other Ordinances and Directions of University:

The students admitted to this Diploma course shall be governed by the general Ordinances of the University which are applicable to all the regular or ex-students. These Ordinances includes complete as well as relevant provision of Ordinance No. 1, 2, 6, 7-A, 9, 10, 19, Ordinance No. 30 of 2006, (amended Ordinance No. 4 of 1996), Ordinance No. 6 of 2010, Direction 5 of 2004 wherever applicable accordingly.

6. Fee Structure:

- I. Tuition Fee: The tuition fee for the said course will be decided by the State Government for the Government Institutions whereas the fees will be decided by the University for the affiliated colleges.
- II. Examination Fee: The examination fee for the said course will be decided by the University.

7. Syllabus:

The syllabus for this course as prescribed by the Board of Studies in terms of Annual pattern

8. Medium of Instruction / Examination:

The medium of instructions and writing of examination shall be in English only.

9. Conduct of Examination:

The examination leading to the course of One Year Post Graduate Diploma in **Forensic Science and Related Law** shall be held once in a year only (i.e. summer) at such places and on such dates as may be decided by the University.

10. Standard of Passing:

- i. Candidate who secures minimum 35% in each subject/paper will be declared to have passed the examination.
- ii. A candidate who fails to secure 35% in subject/paper will be allowed to reappear in that subject/paper.
- iii. Successful examinee obtaining 60% or more marks in the aggregate at the examination shall be placed in the First division and those obtaining

less than 60% but not less than 45% of aggregate marks shall be placed in the Second division and those obtaining less than 45% marks of aggregate but not less than 35% aggregate of marks shall be placed in Third division.

- iv. The candidate, who is successful at an examination and achieves not less than 75% of the total marks prescribed in a subject, shall be declared to pass the examination with Distinction in that subject.
- v. An examinee, who is unsuccessful at the examination, will be eligible for admission to the next written examination on payment of fresh fees prescribed for the examination together with an ex-student fee as applicable and on compliance of the conditions of the ordinance enforced from time to time.
- vi. For being eligible for exemption in a paper, dissertation work, the candidate must have obtained not less than 35% of marks.
- vii. Provision of Ordinance No. 7-A relating to the condonation of deficiency of marks for passing the examination and of Ordinance No. 10 relating to the exemptions and compartments shall apply to the examination under this ordinance.

11. Scheme of Examination:

- i. The Scheme of Examination shall be as per **Appendix-A** (Annual pattern). However, the Scheme of Examination reflects the basic structure of Theory, Practical Training and Project Work. The details/title of the theory papers can be suitably modified in future considering the need of the subject without disturbing the main structure.

ii. **Practical Training and Project Work:**

- The Practical Training shall be assessed by the external examiner and the internal examiner. The project work shall be assessed by the project guide as an internal examiner. However, final marks shall be awarded by external examiner. The examiners will evaluate the Experimental Project Work taking into account the 1) Coverage of subject matter, 2) Arrangement and presentation 3) Reference and 4) Critical application and original experimental contribution of the candidate.

Every student is required to carry out Experimental/Field Based Project Work on related topic of the subject/course. On the basis of this work, student must submit the Project Report (Typed and properly bound) in two copies at least one month prior to commencement of the final Practical/Lab Examination of Semester VI. The project report shall comprise of Introduction, Material and Method, Result and Discussion, Summary and Conclusions, Future Prospects and References along with the declaration by the candidate that the work is original and not submitted to any University or Organization for award of the degree and certificate by the supervisor and forwarded through Head/Course- Coordinator/Director/Principal of College. The examinations of practical training and project work shall be held separately.

12. Other Rules:

- i. As soon as possible after the examination, but not later than 30th June, next following in case of examination held in April, the Management Council shall publish the list of successful examinees. The names of First Three examinees passing the examination in first attempt with more than 60%

marks in the minimum prescribed being arranged in order of merit.

- ii. Notwithstanding anything contrary to the contents of this ordinance, no person shall be admitted to this examination, if he/she has already passed this examination or an equivalent examination of any other statutory University.

13. Award of Diploma:

A successful examinee shall be awarded Post Graduate Diploma in prescribed form signed by the Vice-Chancellor of the University.

14. With the issuance of this Direction, the Direction No. 12 of 2011 shall stand repealed.

Nagpur

Date : 28.3.2013

Sd/-

(Dr. V.S. Sapkal)

Vice-Chancellor

ANNEXURE IV

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR



P.G. DIPLOMA IN FORENSIC SCIENCE AND RELATED LAW

SCHEME OF EXAMINATION AND SYLLABUS

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
Syllabus for P.G. Diploma in Forensic Science and Related law

O -----:- Title of the Course: - P.G. Diploma in Forensic Science and related law

O -----:- Eligibility: Bachelor Degree in Science, Psychology, Law, Medical Sciences, pharmacy

Candidates from other than Rashttra Sant Tukadoji Maharaj Nagpur University, Nagpur will have to obtain eligibility certificate from this University.

R -----:- Duration of the Course: - One Year (Full Time.)

R -----:- Fee Structure: - As Per the State Government Rules

R -----:- Intake Capacity - 40

R -----:- Teacher Qualifications: - As per the U.G.C. / State Government Norms and Experts from Forensic Science Field and Related Industry with minimum 3 years of experience.

R -----:- Standard of Passing: -

- a. Candidate who secures minimum 35% in each subject/ paper be declared to have passed the examination.
- b. A candidate who fails to secure 35% in a subject/Paper will be allowed to reappear in that subject/paper.
- c. Candidate can carry forward at his/her option the marks in the subject/paper in which he/she has passed, in such a case student is entitled for award of class.
- d. Candidate who secures a minimum of 35% marks in each paper and an aggregate of 60% and above marks on the whole shall be declared to have passed the examinations in the First Class.
- e. Candidate who secures a minimum of 35% marks in each paper and an aggregate of 70% and above marks on the whole shall be declared to have passed the examinations with Distinction.

Medium of Instruction: English

Field Visits at Forensic Science Laboratory

Syllabus for P.G. Diploma in Forensic Science and Related law

Course Structure

PAPER	TITLE OF PAPER	MARKS	LECTURES (1 hr. duration)
I	Basics of Forensic Science & Crime Scene Management	100	90
II	Forensic Science and its Application in Crime Investigation	100	90
III	Forensic Medicine and the Laws	100	90
IV	Recent Advances in Forensic Science and the Laws	100	90
V	Practical Training	100	90
VI	Project Work	100	90

Syllabus for P.G. Diploma in Forensic Science and related law

Paper I: Basics of Forensic Science & Crime Scene Management

Paper II: Forensic Science and its Application in Crime Investigation

Paper III: Forensic Medicine and the Laws

Paper IV: Recent Advances in Forensic Science and the Laws

Paper V: Practical Training

Paper VI: Project Work

Paper I: BASICS OF FORENSIC SCIENCE & CRIME SCENE MANAGEMENT

(Total Marks 100)

Unit I

Crime & Criminal behavior

15 lectures

- Definition of Crime
- Various types of crime
- Criminal behavior-cause and theories
- Modus Operandi
- Criminal profiling
- Corpus Delicti.

Unit II

Criminal Justice System

15 lectures

- Important wings of criminal justice system
- Its structure & functioning,
- Role of Police officers, prosecution & judicial officers.
- Role of Forensic scientists, medico-legal doctors.
- Expert Testimony

Unit III

Forensic Science

15 lectures

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

Unit IV

Crime Scene Management

15 lectures

- Defining the Scene of crime
- Managing a crime scene & its hierarchy
- Role of First Responding Officers
- Search Patterns of a crime scene
- Crime scene Documentation
- Collection, Packaging, Labelling & Forwarding of exhibits to forensic laboratories.
- Preservation of evidence

- Health & Safety Protocols

Paper II: FORENSIC SCIENCE AND ITS APPLICATION IN CRIME INVESTIGATION

(Total Marks 100)

Unit 1: Definition, Nature, Need & Scope of Forensic Science. 15 lectures

- Crime Scene Evidences
 - Blood, Semen & other Biological fluids
 - Viscera
 - Shoe impressions, Tool marks, Tyre marks
 - Bite Marks
 - Hair – Animal & Human, Fibres & Fabrics
 - Glass, Soil, pollen Paint
- Establishment of identity of Individuals
 - DNA
 - Fingerprints/Foot prints
 - Anthropology – Skeletal Remains
 - Odontology

Unit 2: Questioned Document and Their Identification 15 lectures

- Identification of objects by shape and size
- Handwriting and signature-analysis, identification and examination
- Procedure for examination
- Types of forgery
- Anonymous letter
- Charred document
- Indented writing
- Counterfeit coins and notes
- Small coins (offence) Act 1971
- Standards of Weight and Measures Act 1976

Unit 3: Forensic Ballistics and vehicular accident reconstruction 15 lectures

- Firearms & Their Classification
- Ammunition, Projectiles, Mechanism of Firing
- Bullet, Weapon & Cartridge case Identification

- GSR-Detection and analysis
- Nature of Injuries – Entry & Exit wounds
- Range of Fire and factors affecting it
- Primary causes of vehicular accidents
- analytical tools to evaluate accidents

Unit 4: Chemical & Toxicological Analysis

15 lectures

- Drugs of Abuse & Narcotic drugs
- Toxicological examination of poisons & alcohol
- Toxicological examination of Viscera
- Petroleum Products
- Food Adulteration
- **Explosives**
 - Definition of Explosion & Detonation
 - Chemistry of explosives
 - Home-made bombs & Improvised Explosive Devices (IEDs)
 - Disposal & Handling
- **Fire Scene Investigation**
 - Analysis & Interpretation of fire scenes
 - Fire Dynamics
 - Detection of Ignitable liquid residues in fire scenes
 - Fire Debris Analysis & Analytical Methods for detection & characterisation

Paper – III: FORENSIC MEDICINE AND THE LAWS

(Total Marks 100)

Unit 1: Medical Jurisprudence

15 lectures

- Brief History & current scenario at National & International level
- Forwarding of Biological samples to Forensic Laboratories

Unit 2: Medico legal aspect of Death

15 lectures

- Concept of Human Anatomy & Physiology
- Time of Death
- Causes of Death
- Injuries: classification, forms and medico legal aspects

- Medico Legal Aspects – PM report, Dying Declaration & Expert Testimony (Evidence Act)

Unit 3: Sexual offences

15 lectures

- Sexual Offences - Rape, DFSA (Drug Facilitated Sexual Assault)
 - Examination of the victim & the accused
 - Collection of evidence
- Infanticide, Abortion, Artificial Insemination
- Medical Termination of Pregnancy Act 1971
- Prenatal Diagnostic Technique Act 1984

Unit 4: Legal Aspects

15 lectures

- Mental Health Act 1987
- Prevention of Food Adulteration Act 1954
- NDPS Act 1985
- Petroleum Act 1934
- Prevention of Damage to Public Property Act 1984
- Prevention of Illicit Trafficking in NDPS Act 1985
- Arms Act 1950
- Explosives Act 1984
- Explosive Substance Act 1908
- The Drugs Act 1940
- The Drugs and Cosmetics Act 1945

Paper –IV: RECENT ADVANCES IN FORENSIC SCIENCE AND THE LAWS

(Total Marks 100)

Unit I

15 lectures

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.

- **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.

Unit II

15 lectures

- **Narco analysis:** theory, forensic significance of narco-analysis, admissibility in court, future prospect, case study.
- **Brain mapping-** introduction, EEG, P-3000 wave, brain mapping in forensic Science, Limitation of technique, admissibility in court, case study.
- **Polygraph:** Principle and technique polygraph as forensic investigative tool, NHRC guidelines for polygraph test, case study.

Unit III

15 lectures

- **Facial reconstruction:** Method and technique, facial reconstruction in forensic identification.
- **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.
- **Analytical methods:** Gas chromatography, UV-Visible spectroscopy, IR spectroscopy, FTIR, HPLC.

Unit IV

15 lectures

- ***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, case study.

Paper V: Practical Training

(Total Marks 100)

(90 lectures)

- TLC method for differentiation of ink, drugs
- Examination of foot/footwear/tyre impressions
- Fingerprint development from various surfaces
- Handwriting identification based on class characteristic and individual characteristics
- Microscopic examination of
 - Hair
 - Fibre
 - Pollen
 - diatom

- Examination of various biological samples
 - Blood
 - Urine
 - vomit
- Demonstration and quantitative use of analytical instruments in crime investigation.
 - HPLC,
 - GC-MS
 - UV-visible Spectrophotometer
 - VSC
 - TLC
 - Electrophoresis,

Paper VI: Project Work

(Total Marks 100)

The project report submitted by the student will be evaluated jointly by internal and the external examiner during the practical examination. The distribution of marks will be as follows:

- | | |
|-----------------|----------|
| 1) Dissertation | 60 marks |
| 2) Presentation | 20 marks |
| 3) Viva Voice | 20 marks |

Recommended List of Books:

1. Henry Lee's Crime Scene Handbook by Henry C Lee

2. Forensic Biology by Shrikant H. Lade
3. Crime Scene Processing and Laboratory Work Book by Patric Jones
4. Forensic Science: An Introduction to Scientific and Investigative Techniques 3rd ed. by Stuart H. James
5. Criminalistics: An Introduction to Forensic Science, 9th ed. By Richard Saferstein
6. Compute Crime and Computer Forensic by Dr. R.K. Tiwari
7. Criminal Profiling: An Introduction to a Behavioral Evidence Analysis, 3rd ed. By Brent E. Turvey
8. Forensic Science in Criminal Investigation and Trial, 4th ed. By B.R. Sharma
9. Handbook of Forensic Psychology Dr. Veerraghavan
10. Crime Scene Management with Special Emphasis on National level Crime Cases by Dr. Rukmani Krishnamurthy under publishing
11. Text Book of Medical Jurisprudence, Forensic Medicine and Toxicology by Parikh C.K.