

Course Outcome BSc

Subject :**Forensic Physics**

Semester I

Student Learning Outcomes: - At the completion of this course the candidate can: **Know and understand**

- The basic fundamental physics viz Laws of motions, Properties of matter , Fluid dynamics properties of Sound and Light .
- The operation of various instruments used in the study
- Importance of the fundamental studies and interpretation of various parameters in the various equations in fundamental physics.
- Analysis of the various equations for the possible applications in day to day life.

Semester II

Student Learning Outcomes: - At the completion of this course the candidate can: **Know and understand**

- The basics of LASER working , Solar cells, Radioactivity, and basic fundamental electrical and electronic circuits
- The operation of various instruments used in the study
- Importance of the fundamental studies and interpretation of various parameters in the various equations in fundamental physics.
- Analysis of the various equations for the possible applications in day to day life.

Semester III

Student Learning Outcomes: - At the completion of this course the candidate can: **Know and understand**

- The fundamental electromagnetic spectrum, Sources of various radiations , Interaction of radiation with matter, Basics of digital and analog circuits, physical properties of vibrating systems
- Importance of these fundamental studies and interpretation of various parameters in the study
- Applications of these studies in day to day life

Semester IV

Student Learning Outcomes: - At the completion of this course the candidate can: **Know and understand**

- The history and basics of firearms ammunition and its ballistics
- The working of firearms and ammunitions
- the Internal and external ballistic studies and its importance in forensic science

Semester V

Student Learning Outcomes: - At the completion of this course the candidate can: **Know and understand**

- **Various aspects of road as well as rail accidents**
- **Various marks that are left behind on site which are helpful as evidence as well as helpful in creating the picture of accident**
- **Relevant Provisions of Railway Act, 1989 and Relevant Provisions of Motor Vehicle Act, 1939 (Offenses and Penalties).**
- **Experimental Techniques such as** □Forensic Photography, Magnetic Measurement, Radiation Detection etc
- **Exterior ballistics which deals with the various aspects of trajectory of bullet in ambient conditions, Maximum horizontal and vertical range of shot pellets. Ricochet etc**

Semester VI

Student Learning Outcomes: - At the completion of this course the candidate can: **Know and understand**

- **Various aspects of wounds caused by bullets and also ;Legal Aspect: Arms Act, 1950, (Licensing, Offenses and Penalties**
- **Various microscopy techniques used in forensic science**
- **Various Forensic Applications in Trace Analysis which includes analysis of glass soil and fiber samples**

Government Institute of Forensic Science, Nagpur
Department of Forensic Physics

Course Outcome MSc I Year

Subject :Forensic Physics

After completion of Forensic physics course in Sem I and II the student can know and understand

- Trace Evidence: Collection, preservation and transportation of physical evidences viz. glass, soil and fibres. Principles and methods to find refractive index and density of the samples. Study of advanced methods viz. IR Spectroscopy, X-ray diffraction, Becke Line Method, Colorimetry for study of these samples.
- Principles and methods to analyse other physical evidences viz. locks, jewellery, ropes, wires, debris, cloth. Methods to resuscitate obliterated marks. Techniques to analyse evidences viz. physical matching, mechanical fit, comparison microscopy.
- Internal Ballistics: To study principles of construction and working of the different types of guns and ammunition.
- Principles and practice of identification of firearms and ammunition using different characteristic marks viz. chamber, ejector, striation marks and GSR.
- Wound Ballistics: Study of wound mechanism of different types of projectiles depending upon their type, range of the target (contact, powder and distant) and body parts.

Practicals:

- To study microscopy of fibres, glass and soil.
- To study instrumentation methods viz. IR, TLC, Particle size measurement.
- To study methods to collect evidences viz. Casting, Sketching, Tracing and Photography.
- To study to methods to resuscitate obliterated marks.
- To study methods to find density and refractive indices of fibres, glass and soil.