

**B.Sc. Forensic Science: Semester-VI  
FST 601: Forensic Medicine & Toxicology**

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment – 6 Marks
Credits: 4	Attendance – 12 Marks
	End Semester Exam – 70 marks

Course Objectives: After studying this paper the students will know –

- What is death called in context of Medicine.
- The Signs of death
- The importance of ascertaining whether the crime was staged to appear as suicide or accident.
- Types of injuries
- The importance of forensic odontology
- The significance of toxicological studies in forensic science.
- The classification of poisons and their modes of actions.
- The absorption of poisons in body fluids.
- The forensic identification of illicit liquors.
- The classification and characteristics of the narcotics, drugs and psychotropic substances.
- The menace of designer drugs.
- The methods of identifying narcotic, drugs and psychotropic substances.

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**Unit 1: Thanatology**

Definition. Brain/Brainstem Death, Cause, Mechanism and Manner of Death, Modes of Death, Anoxia, Sudden Death  
**Signs of Death**  
 Definition. Immediate Changes, Early Changes, Cooling of the Dead Body, Postmortem Staining, Rigor Mortis, Cadaveric Spasm, Decomposition/Putrefaction, Estimation of Time Since Death  
**Asphyxia**  
 Introduction. Hanging, Strangulation, Throttling, Drowning, Sexual Asphyxia, Drowning

**Unit 2: Injuries**

Definition, Classification of Wounds/Injuries, Firearm injury, Regional injury, Thermal injury, Transportation injury  
**Forensic Anthropology and Odontology**  
 Study of human bones and estimation of age and sex. Development, scope and role of forensic odontology in mass disaster and anthropology. Types of teeth and their comparative anatomy.  
 Bite marks. Forensic significance of bite marks. Collection, preservation and photography of bite marks evidence. Legal aspects of bite marks. Estimation of age from teeth.

**Unit 3: Basics of Toxicology**

Introduction and Brief History. Significance of toxicological findings. Techniques used in toxicology. Dose-response relationship. Lethal dose 50 and effective dose 50.  
**Poison**  
 Definition. Classification of poisons. Physico-chemical characteristics and mode of action of poisons. Accidental, suicidal and homicidal poisoning in India. Signs and symptoms of common poisoning.

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**Unit 4: Collection, Preservation and Examination of Evidence**

Collection and Preservation of viscera, blood and urine in various cases of poisoning.  
Identification of poisons and illegal salts in body fluids. Metabolism and excretion of poisons. Analysis and identification of  
and/or alcohol. Estimation of ethyl alcohol in blood and urine.

**Unit 5: Narcotic Drugs and Psychotropic Substances**

Definition as per NDPS Act. Broad classification - Narcotics, stimulants, depressants and hallucinogens. General  
characteristics and common example of each class. Natural, synthetic and semi-synthetic narcotic drugs and psychotropic  
substances. Designer drugs.

Isolation and Detection - Presumptive and screening tests for narcotic drugs and psychotropic substances. Microcrystalline  
testing of drugs of abuse. Dope tests.

Preservation changes affecting the analysis of narcotic drugs and psychotropic substances.

**Assigned Readings**

1. *Sanjam Biswas, Review of Forensic Medicine and Toxicology*, 4<sup>th</sup> Edition, Jaypee Brothers Medical Publishers
2. *S. S. Narayana Reddy, The Essentials of Forensic Medicine and Toxicology*, 3<sup>rd</sup> Edition, Jaypee Brothers Medical Publishers
3. *J P Mohl, A Textbook of Medical Jurisprudence and Toxicology*, Lexis Nexis
4. *K. Smyth, The Cause of Death*, Van Nostrand and Company, New York (1982).
5. *M. Sarin, Forensic odontology* in: *Introduction to Forensic Sciences*, 2<sup>nd</sup> Ed., W.G. Eckert (Ed.), CRC Press, Boca Raton (1997).

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